COMMUNICATION FOR A NEW WORLD

BRAZILIAN PERSPECTIVES

Edited by

JOSÉ MARQUES DE MELO

ECA
USP
1993

XVIII SCIENTIFIC CONFERENCE OF THE INTERNATIONAL ASSOCIATION FOR MASS COMMUNICATION RESEARCH — GUARUJÁ, BRAZIL, 1992

International Committee:

C.J. Hamelink - The Netherlands
J.D. Halloran - England
T. Szecskó - Hungary
P. Gray - England
S. Splichal - Slovenia
F. Perrone - Brazil
J. Marques de Melo - Brazil

National Committee:

Fernando Perrone - President
Nelly de Camargo - Vice-President
Margarida M. Krohling Kunsch (ALAIC)
Manuel C. C. Chaparro (INTERCOM)
Marina Claudia Rector (ECA-USP)

Organization:

IAMCR / AIERI
International Association for Mass Communication Research
ALAIC
Latin American Assocation of Communication Researchers
INTERCOM
Brazilian Society for Communication Interdisciplinay Studies
ECA-USP
School of Communication and Arts of the University of São Paulo

Sponsors:

CNPq
Brazilian Council for Science and Technology Advancement
FAPESP
State of São Paulo Research Support Foundation
BANESPA
State Bank of São Paulo

NATIONAL CONFERENCE COMMITTEE

Fernando Leite Perrone - *President*
Nelly de Camargo - *Vice President*
Margarida Maria Krohling Kunsch
Marina Claudia Rector
Manuel C.C. Chaparro

EXECUTIVE COMMITTEE

Executive co-ordinator
Marina Claudia Rector

Technical and financial co-ordinators
Simone Denise Gardinali Navacinsk
Graziela Maria Maklouf dos Santos Peclat

Press
Maria Eugênia B. Gouveia

Publisher
Roberto M. Videira

Technical Assistant
Maria da Glória Jelin

Secretaries
Andréia Kalvon
Fabiana Rodrigues Barbosa
Cinthia Rosenberg
André Malta Campos
Paula Oliveira Cipriano Portella
Fabiana Casolari
Ana Carolina de Moura Friedmann

Conference Secretariat:
Escola de Comunicações e Artes - USP
Av. Prof. Lúcio Martins Rodrigues, 443
05508-900 - São Paulo - SP - BRAZIL
Fax/Phone 55-11-813.0596

COMMUNI
FOR A NEW

BRAZILIAN PE

Papers presented by ECA-USP a
to the XVIII IAMCR S
Guarujá, São

Edited
JOSÉ MARQUE

SCHOOL OF COMMUN
UNIVERSITY OF
São Paulo
1993

COMMUNICATION
FOR A NEW WORLD

BRAZILIAN PERSPECTIVES

Papers presented by ECA-USP and other Brazilian institutions
to the XVIII IAMCR Scientific Conference
Guarujá, São Paulo, 1992

Edited by
JOSÉ MARQUES DE MELO

SCHOOL OF COMMUNICATION AND ARTS
UNIVERSITY OF SÃO PAULO
São Paulo - Brasil
1993

SUMMAI

3

GLOBAL (ELETRONIC) UNIVERSITY
FOR GLOBAL COOPERATION(*)

Maria Rosa Abreu Magalhães (*)
Professor of Universidade de Brasília and Persident of
Brazilian University Network Distance Education
Takeshi Utsumi, Ph. D.(**)
President, Global University in the U.S.A. (GU/USA)

ABSTRACT:

This paper describes the construction of an infrastructure for global (electronic) education and peace gaming with particular emphasis on the environmental issues and sustainable development in Third World countries. The gaming is intended to train would-be decision-makers in policy analysis, crisis management, conflict resolution and negociation techniques for win-win cooperation towards an authentic sense of global citizenship. In the belief that global education is key to this end, a worldwide educational network was formed with the use of various telecommunications media.

RÉSUMÉ:

Cette communication décrit la construction d'une infra-structure pour une éducation globale (éléctronique) et pour des jeux pour la paix soulignant les questions de l'environement et du dévélopment soutenu dans le Tiers-Monde. Le jeu a pour but d'entraîner tous ceux qui puissent prendre des décisions au niveau de l'analyse des politiques, des solutions des conflicts et des techniques pour la coopération mutuellement avantageuse. Dans la conviction que l'éducation globale soit la cléf pour ce but, il a été formé un réseau mondial d'éducation en utilisant des différents media de télécommunications.

(*)SQN 205-L-606, 70843 Brasília, D.F., BRAZIL – Tel: +55-61-273-5334; FAX +55-61-272-1053 Telex: 61-2730 (UNBS BR); Bitnet: MROSA@BRUNB
(**)43-23 Colden Street, Flushing, NY 11355-3998, U.S.A. – Tel: +001-718-939-0928; EIES: 492 – WU Telex: 386131 (GIS USA), WU EASYLINK: 62756570 Sprint Mail: TUTSUMI/GU.USA.AS-SOCIATES.TNET Internet: utsumi@cunixf.cc.columbia.edu

RESUMÉN:
Esta comunicacion presenta la construcción de una infra-estructura para una educación global (electronica) para juegos para la paz con énfasis en las cuestiones del medio-ambiente y del desarrollo auto-mantenido en el Tercero-Mundo. El juego tiene por finalidad entrenar a los possibles decisores en el análisis de politicas, de las soluciones de los conflictos. Es imperativo que se desarrolle un sentido autentico de ciudadania global. En la convicción que la educación global es llave para este fin, se ha formado una red mundial para la educación utilizando los diferentes medios de las telecommunicaciones.

RESUMO: Esta comunicação descreve a construção de uma infra-estrutura para uma educação global (eletrônica) e para jogos para a paz com ênfase nas questões ambientais e no desenvolvimento sustentado no Terceiro Mundo. O jogo tem por finalidade treinar possíveis decisores na análise de políticas, gestão de crises, solução de conflitos e em técnicas para cooperação mutuamente vantajosa. É imperativo que se desenvolva um sentido autêntico de cidadania global. Na convicção de que a educação global é a chave para este fim, foi formada uma rede mundial de educação utilizando os diferentes meios de telecomunicação.

I. INTRODUCTION

The urgency to understand the economic, social and environmental issues that are being faced in different regions of the planet, and the need for the peoples of the world to learn to communicate and to cooperate, has never been more pressing. Economic, ecological and political issues today are global that must be faced in all of their complexity. It is therefore imperative to develop an authentic sense of planetary citizenship and harmonious cooperation to confront planetary issues that endanger the life of our species, and life with which our species is in symbiotic relationship, with wisdom, understanding the diversity of the world cultures on our finite, closed planet.

This task is too large for government regulation, aid agencies or development banks alone. Restoration of the environment must engage all citizens of the globe, yet sustainable development is ultimately a local activity. People, not governments, do development and preserve the environment or destroy it. A political system that secures effective citizen participation in decision is required. Global education and knowledge is a pre-requisite for human survival on Earth. Each country has its own role to play. Sound educational initiatives of global scope and cooperative in nature, are of the utmost importance for societies to properly confront the problems they face. It is a vital necessity to facilitate communication for the clarification of issues through global study.

To support the struggle for the preservation of our ecological heritage, a worldwide educational network, the **Global (electronic) University (GU) (TM)** consortium, was formed as a permanent organization of *international education exchange* via various telecommunication media. One initial step of which would be the establishment of a **Global/Latin American (electronic) University (GLAU)**, supported

GL

by the recently created Latin American Networ
Education (REDLAED) and by the Consortium
(CREAD).

II. GLOSAS PROJECT AND GLOBAL
GAMING

In 1972, Takeshi Utsumi, Chairman o
GLObal Systems Analysis and Simulation (
sources and environment (ERE) system for glo
coined by Utsumi in 1971 (Utsumi 1977; Uts
and Utsumi 1986; Utsumi et al. 1986). With
bination of advanced telecommunication channe
Pentagon's war game) will enable experts and l
laborate in discovering new solutions for wor
natives for a world-order capable of addressing
of an interdependent globe – with rational anal
on "facts and figures." The purpose is to train
most advanced means, on policy analysis and f
conflict resolution and negotiation techniques f
tive sum/win-win cooperation.

The global peace gaming is a computer g
globally-cooperative decision support system. T
cooperative computer conferencing, database and
numerous computers but also humans in various
ed via telecommunication media to form a *glo*
(TM), a term coined by Utsumi in 1981. The
were a single system with parallel processing
countries. Here, each game player with his subn
to a neuron and a packet-switching node to a sy
sense, this is to construct a large parallel proces
of individual processors scattered around the wo
to perform the gaming task.

Global modelling and simulation studies ha
groups and institutions to enhance the usefulness
policy-making since early 1970's. However, wi
added networks (VANs) and standard interface
various dispersed, dissimilar host computers, the
the coordination of international efforts by provid
cations and an environment for shared developm
simulation study than was previously possible.
autonomously maintained and updated databases a
only give integrity to the databases and models
people. The gaming simulation would be the best
ing the world's problems and the solutions we p

by the recently created Latin American Network for the Development of Distance Education (REDLAED) and by the Consortium- Network of Distance Education (CREAD).

II. GLOSAS PROJECT AND GLOBAL ENVIRONMENTAL PEACE GAMING

In 1972, Takeshi Utsumi, Chairman of GLOSAS/USA, initiated the **GLObal Systems Analysis and Simulation (GLOSAS)** Project on energy, resources and environment (ERE) system for **global peace gaming** (TM), a term coined by Utsumi in 1971 (Utsumi 1977; Utsumi and DeVita 1982; Rossman and Utsumi 1986; Utsumi et al. 1986). With computer simulations and a combination of advanced telecommunication channels, such gaming (on the scale of Pentagon's war game) will enable experts and laymen in many countries to collaborate in discovering new solutions for world crises to explore new alternatives for a world-order capable of addressing the problems and opportunities of an interdependent globe – with rational analysis and critical thinking basing on "facts and figures." The purpose is to train would-be decision-makers with most advanced means, on policy analysis and formulation, crisis management, conflict resolution and negotiation techniques for consensus building and positive sum/win-win cooperation.

The global peace gaming is a computer gaming simulation to construct a *globally-cooperative decision support system*. This is to be accomplished with cooperative computer conferencing, database and simulation systems. Not only numerous computers but also humans in various countries will be interconnected via telecommunication media to form a *global neural computer network* (TM), a term coined by Utsumi in 1981. The total system will act as if it were a single system with parallel processing of sub-systems in individual countries. Here, each game player with his submodel and database corresponds to a neuron and a packet-switching node to a synapse of a global brain. In a sense, this is to construct a large parallel processor. Almost unlimited number of individual processors scattered around the world can be connected together to perform the gaming task.

Global modelling and simulation studies have been conducted by various groups and institutions to enhance the usefulness of international modelling and policy-making since early 1970's. However, with the advent of global value added networks (VANs) and standard interface protocols for interconnecting various dispersed, dissimilar host computers, the potential exists for ensuring the coordination of international efforts by providing more frequent communications and an environment for shared development, enabling more credible simulation study than was previously possible. The cooperative mode with autonomously maintained and updated databases and simulation models will not only give integrity to the databases and models but also can motivate local people. The gaming simulation would be the best tool we have for understanding the world's problems and the solutions we propose for them.

III. ACCOMPLISHMENTS

A .Previous Effort for the Establishment of Infrastructure

As the first step of GLOSAS project, Utsumi played a major role over the past two decades with considerable time, efforts and a great deal of his own personal money, in helping the U.S. data communication networks extend to other countries, particularly to Japan. He helped deregulate Japanese telecommunication policies for the use of electronic-mail and computer conferencing in and from Japan. This initiative led to the demonopolization and liberalization of Japanese telecommunication industry. This enabled cost reduction of telecommunications. The European Economic Community (EEC) and Latin American countries have followed suit. Japanese initiatives were a model for the world. The way has thus been paved for the *global educational exchange with experiential learning* via various telecommunication media in the service of better understanding of global issues.

B. A Series of "Global Lecture Hall" Demonstrations

Our next effort has focused on the substance and content of global telecommunication networks, starting with the extension of American education to overseas countries with the use of advanced telecommunication media. However, lack of capability to transmit graphics and video via the data communication network prompted Utsumi to the development of *"Global Lecture Hall"* (GLH) (TM) videoconference technology (Utsumi and DeMaio 1991).

GLOSAS/USA then conducted many GLH teleconferences, during which a number of inexpensive media were deployed simultaneously to demonstrate the possibilities of interactions amongst participants at different universities, separated by global scale distances and time zones. Participants in several countries communicate and see each other while using methods affordable for Third World countries.

These demonstrations linked more than two dozen universities together, ranging from the East Coast of the North America to Japan, the Republic of Korea, Saipan and Guam, from Fairbanks, Alaska, to Caracas, Venezuela, and to Brisbane, Australia, spanning 14 time zones and two calendar dates! At the other event, it connected many universities in Izmir in Turkey, Zagreb in Croatia, Lecce, Rome, Venice and Bari in Italy, Paris in France, etc., in Eastern and Western Europe, Mediterranean countries and Ohio, New Jersey, Florida, etc., in the North America.Some of the GLH events were several demonstrations in different countries. The first took place in Japan in 1973 which led to deregulate Japanese telecommunication policies, as mentioned above. In 1986, GLOSAS organized one of the largest and perhaps most successful demonstrations, at the *"Crisis Management and Conflict Resolution"* Conference of the World Future Society in New York in July, 1986, with participation of about 1,500 persons: a global gaming simulation sessions with a multi-media teleconference on the U.S.-Japan trade and economy issues. In 1990 a very ambitious demonstration was organized to help Latin American distance educators, during the XVth World Conference of the International Council of Distance Education (ICDE) in November, 1990, in Caracas, Venezuela, with partici-

pation of 1,200 persons from more t Association of the Use of Satellite for E joint GLH demonstrations at the occasio held at the University of Lecce, in Lecce

GLOSAS/USA is now organizing Annual International Conference of In (ICEM) to be held at the University of October 12 and 13, 1992. The theme *Design and Delivery.*" The former on C Central and South America, Pacific Islan North Eastern Asia, and the latter on Oc South America, Africa and Middle Eas Europe including the Commonwealth of I Mediterranean. At one of the GLH ev demonstrate their newly developed "Virt city in the 21st century with children in v

ICEM was created in 1950 and is which has consultative Status A with UN Film and Television. There are presentl Each participating nation is represented i most instances, this individual is affiliate and is responsible for educational technol

The above GLH events will be hel on *"Design and Delivery of a 21st Centu International Implications."* The choice disparity between the advanced technologi very basic ones needed by the lesser deve

C. Summary

The GLH demonstrations by the fective illustration of the capabilities av vironment. Such GLOSAS projects ha be linked across political and geographi debate, research, planetary problem-sol they have also helped foster a participa identity amongst participants. Also thes discover technical, regulatory, economic ation of a global (electronic) university shown that global educational exchange a feasible endeavor. They also helped p

IV. GLOBAL (ELECTRONIC) UNIV

The above steps towards the estab munication networks and policies, the fi possible the next step: focusing attenti

f Infrastructure

ct, Utsumi played a major role over the
efforts and a great deal of his own per-
ommunication networks extend to other
ed deregulate Japanese telecommunica-
mail and computer conferencing in and
demonopolization and liberalization of
his enabled cost reduction of telecommu-
ommunity (EEC) and Latin American
initiatives were a model for the world.
bal educational exchange with experien-
ion media in the service of better under-

emonstrations

the substance and content of global
with the extension of American education
f advanced telecommunication media.
graphics and video via the data communi-
e development of "*Global Lecture Hall*"
y (Utsumi and DeMaio 1991).
any GLH teleconferences, during which a
ployed simultaneously to demonstrate the
ticipants at different universities, separated
es. Participants in several countries com-
ing methods affordable for Third World

ore than two dozen universities together,
North America to Japan, the Republic of
nks, Alaska, to Caracas, Venezuela, and to
zones and two calendar dates! At the oth-
es in Izmir in Turkey, Zagreb in Croatia,
aly, Paris in France, etc., in Eastern and
ies and Ohio, New Jersey, Florida, etc., in
vents were several demonstrations in differ-
pan in 1973 which led to deregulate Japanese
ed above. In 1986, GLOSAS organized one
ul demonstrations, at the "*Crisis Management*
f the World Future Society in New York in
500 persons: a global gaming simulation ses-
on the U.S.-Japan trade and economy issues.
n was organized to help Latin American dis-
d Conference of the International Council of
er, 1990, in Caracas, Venezuela, with partici-

pation of 1,200 persons from more than fifty countries. In 1991, the World Association of the Use of Satellite for Education (WAUSE) and GLOSAS conducted joint GLH demonstrations at the occasion of the "Computer Architecture Conference" held at the University of Lecce, in Lecce, Italy, in October, 1991.

GLOSAS/USA is now organizing two large scale GLHs at the occasion of the Annual International Conference of International Council for Educational Media (ICEM) to be held at the University of Central Florida in Orlando, Florida, on October 12 and 13, 1992. The theme is "*Global Education in the 21st Century: Design and Delivery*." The former on October 12th is to cover the range of North, Central and South America, Pacific Islands, Australia, New Zealand, Far Eastern and North Eastern Asia, and the latter on October 13th the range of North, Central and South America, Africa and Middle East, Western, Northern, Central and Eastern Europe including the Commonwealth of Independent States, the Baltics as well as the Mediterranean. At one of the GLH events, National Film Board of Canada will demonstrate their newly developed "Virtual Reality" for the joint design of a future city in the 21st century with children in various overseas countries.

ICEM was created in 1950 and is a non-profit, non-governmental organization which has consultative Status A with UNESCO through the International Council for Film and Television. There are presently over thirty nations who belong to ICEM. Each participating nation is represented in ICEM through a designated member. In most instances, this individual is affiliated with their nation's Ministry of Education and is responsible for educational technology programs within their country.

The above GLH events will be held at the occasion of the ICEM Symposium on "*Design and Delivery of a 21st Century Technology Base for Today's Learners: International Implications*." The choice of the theme reflects the concern with the disparity between the advanced technologies being used by developed nations and the very basic ones needed by the lesser developed.

C. Summary

The GLH demonstrations by the GLOSAS Project have been a most effective illustration of the capabilities available in the interactive multimedia environment. Such GLOSAS projects have clearly demonstrated how people can be linked across political and geographic boundaries for joint study, discussion, debate, research, planetary problem-solving, and political action. In so doing, they have also helped foster a participatory spirit and a sense of transnational identity amongst participants. Also these demonstrations have helped GLOSAS discover technical, regulatory, economic and marketing impediments to the creation of a global (electronic) university system. The GLOSAS projects have shown that global educational exchange via international telecommunications is a feasible endeavor. They also helped prepare the way for global peace gaming.

IV. GLOBAL (ELECTRONIC) UNIVERSITY (GU)

The above steps towards the establishment of infrastructures of telecommunication networks and policies, the first stage of the GLOSAS Project, made possible the next step: focusing attention on the "substance and content" of

global telecommunication and information technologies, i.e., construction of international educational and training course exchange system among countries.

A. Need for Distance Education

Improving and expanding education are essential ingredients of any national development policy. Countries look to the future's well educated generations as the best way to improve their overall social and economic standing. National educational programmes mainly rely on conventional or formal educational methods, the sort of methods based for the most part on the traditional classroom contact. However, conventional methods of education are expensive, and may not be suitable for segments of the population, particularly in the Third World countries that have no easy access to conventional schools or which must combine studies and work. For these reasons, distance education is a rapidly expanding field nowadays.

The development of distance education programmes requires a considerable investment on the part of institutions which decide to adopt these educational methods and techniques. In addition to technological and financial resources, institutions must have competent human resources in order to try out feasibility studies, design the pedagogical content of courses, produce printed materials, audiovisual or computer based programmes, establish appropriate tutoring systems, set up the technical and technological infrastructure, seek adequate funding, and so on.

Distance education has been perceived as a powerful means to utilize telecommunication technology for the dissemination of teaching experiences and ideas, information, production of two-way exchanges between the emitter and the receiver, bridging time and space limitations. Historical development stage of distance education may be categorized into the following:

FIRST generation:
— Correspondence education by postal service,

SECOND generation:
— Instructional TV (one-way broadcasting),

THIRD generation:
— Second combined with audio line for question-and-answer —initially between a student and an instructor, and later with audio teleconferencing among them,

FOURTH generation:
— Third combined with computer conferencing to enable asynchronous and synchronous interactions,

FIFTH generation:
— Global extension of the fourth as our GLH demonstrations,

SIXTH generation:
— Combination of the fifth with globally-cooperative database and simulation

models. Participants will be equipped with
of their country, locality or specialty which
as if a single global model. Visual results
ers for discussion. This is the ultimate goal

Education and socio-economic system
fabric of projects that GLOSAS/USA is we
sociates in several states and overseas cou
system simulation are two of the many ac
while pursuing industrial development.

B. Global (electronic) Education

Human society now faces urgent probl
of education at all levels to cope with the
have reached a global scale. Pressures to c
including several countries and regions, com
and social life itself today. Technologies ac
knowledge. Following the general trend of
ences, education has to see all the world as i
education requires cooperation. There no lo
manity. The use of technologies for educatic
into account in order to favor and promote gl

We all know that technological adva
tion an everyday fact of life: but the lives
ticularly in disadvantaged countries, are sti
possibilities that have already been open
1990a). We are at the threshold of a new
but the use of the new tools is so far rese
and is scarcely discussed as a matter of
provide cooperative, experiential learning
scale and for the purpose of fostering pe
(Ljutic and Utsumi 1991).

C. Emerging Global (electronic) University

GLOSAS/USA was established in 198
ed, non-profit, tax exempt, educational *servi*
sisting and enhancing the quality and availa
exchange through the use of computer, tel
technologies. Its membership is internationa
ate a **Global (electronic) University (GU)** C

GU is a worldwide educational networ
international education exchange via various
to be a broad collaborative partnership of u
ernmental, non-governmental, and community
ers, and individual citizens; working towar
telecommunications network which will span
a global scale all kinds of educational, cultu

n technologies, i.e., construction of in-
e exchange system among countries.

on are essential ingredients of any na-
ok to the future's well educated genera-
overall social and economic standing.
y rely on conventional or formal educa-
sed for the most part on the traditional
nal methods of education are expensive,
, of the population, particularly in the
asy access to conventional schools or
For these reasons, distance education is

ucation programmes requires a consider-
ions which decide to adopt these educa-
dition to technological and financial re-
tent human resources in order to try out
gical content of courses, produce printed
ed programmes, establish appropriate tu-
nd technological infrastructure, seek ade-

erceived as a powerful means to utilize
e dissemination of teaching experiences
two-way exchanges between the emitter
space limitations. Historical development
orized into the following:

postal service,

adcasting),

io line for question-and-answer —initially
instructor, and later with audio teleconfe-

puter conferencing to enable asynchronous

h as our GLH demonstrations,

th globally-cooperative database and simulation

models. Participants will be equipped with their own database and simulation model
of their country, locality or specialty which will be interconnected each other to act
as if a single global model. Visual results of each participant will be shown to oth-
ers for discussion. This is the ultimate goal of our GLOSAS project.

Education and socio-economic system simulation are the warp and woof in the
fabric of projects that GLOSAS/USA is weaving in collaboration with voluntary as-
sociates in several states and overseas countries. In Latin America, education and
system simulation are two of the many activities needed to save the environment
while pursuing industrial development.

B. Global (electronic) Education

Human society now faces urgent problems which require a global restructuring
of education at all levels to cope with the planetary issues. Problems of education
have reached a global scale. Pressures to consider education on a very large scale,
including several countries and regions, come indeed from the nature of economical
and social life itself today. Technologies accelerate the process of globalization of
knowledge. Following the general trend of globalization of problems and experi-
ences, education has to see all the world as its natural context. An enlarged view of
education requires cooperation. There no longer are boundaries in the culture of hu-
manity. The use of technologies for education has to take these new characteristics
into account in order to favor and promote global education (De Blasi 1990b).

We all know that technological advances have made global communica-
tion an everyday fact of life: but the lives of so many millions of people, par-
ticularly in disadvantaged countries, are still untouched by the great educational
possibilities that have already been opened up for relatively few (De Blasi
1990a). We are at the threshold of a new age in education and communication
but the use of the new tools is so far reserved mainly for the privileged few
and is scarcely discussed as a matter of public policy. GLOSAS attempts to
provide cooperative, experiential learning opportunities on the widest possible
scale and for the purpose of fostering peace and sustainable development
(Ljutic and Utsumi 1991).

C. Emerging Global (electronic) University

GLOSAS/USA was established in 1988 as a New York publicly support-
ed, non-profit, tax exempt, educational *service* organization with the goal of as-
sisting and enhancing the quality and availability of *international educational
exchange* through the use of computer, telecommunication and information
technologies. Its membership is international and open to all. It seeks to cre-
ate a **Global (electronic) University (GU)** Consortium.

GU is a worldwide educational network and a permanent organization of
international education exchange via various telecommunication media. GU is
to be a broad collaborative partnership of universities and businesses; of gov-
ernmental, non-governmental, and community organizations; of students, work-
ers, and individual citizens; working towards an educational and non-profit
telecommunications network which will span the globe. It seeks to provide on
a global scale all kinds of educational, cultural, information, knowledge, voca-

tional and community activities, rather than being confined only to traditional educational offerings. GU intends to promote innovation and economy in pedagogical and technological development by providing distance education models that are adequate to the needs and economic and technological capacities of participating institutions.

GU is a network that will eventually provide a technical and administrative infrastructure for exchange of education through telecommunication across national boundaries as easy as it now is within many developed countries. The GU's main activity is to achieve a global electronic education, serving and complementing existing distance education institutions with outlets and resources on a global scale, by developing a cooperative and worldwide infrastructure and by bringing the powers and resources of telecommunications to ordinary citizens around the world. This will eventually lead to an international educational and training course exchange system among the countries as well as with the United States.

In essence, GU will provide its participating institutions with technical cooperation and training assistance. The former may involve help in areas such as transfer of experiences or technologies, project or programme preparation, locating and approaching funding agencies. The latter involves assisting institutions in improving the specialist knowledge of those amongst their personnel who are responsible for the institution's distance education programme.

Each country's GU consortium will also facilitate and train its members for the teleconferencing event, and can coordinate, as a gateway, the selection/arrangement of importable/exportable educational telelearning courses internationally and domestically. Sharing for global scale educational excellence can also reduce the need for huge new investments in academic buildings.

The GU will come into existence in three ways: as the technological infrastructure for a delivery system (educational satellite and terrestrial networks); an educational infrastructure to identify educational needs and courses to be offered; and as a financial and promotional organization for giving and receiving funds to and from those who use courses and those who provide them.

D. Benefits

The emerging Global University will distribute education from all the world's best sources to all students who crave knowledge, wherever they are, so as to enlarge and expand the present exchange of courses — "distance education" which now exists on five continents — into a worldwide educational system that can provide a specially tailored educational program for each individual, bringing to his or her home an array of resources that can empower individuals and bring new wealth to the Third World also.

By participating in GU, institutions that currently are limited to one country will be able to extend their services to learning centers and learners around the world where there may be a shortage both of trained faculty and of resources in technical and other fields of study. Quality international education from universities can be provided to students in almost any location who, because of constraints on time, resources, or available options, are unable to go to other countries to study at regularly scheduled campus-based classes. Students could access some of the world's finest resources with a far greater variety of

educational philosophies, courses and inst
encounter on single campus, regardless of t
ing to leave homeland and workplace. Ye
levels of interaction and feedback (via elect
and instructors. The quality of education fo
universities in disadvantaged countries wi
so-called *"the 21st century version of Fulbr*

E. Coordination

Satellite technology is eminently a g
cover one third of the earth, and there are
Satellites have been successfully employed
lems of geographical enlargement of the
tempting to use satellites in regions which
number of problems arise such as: differer
and also contrasting economic interests an
social systems (De Blasi 1990b).

GU intends to enable smooth coordina
global scale. As one of first steps, GLOSA
manual for "Global Lecture Hall" demonst
regularly — in the near future for our pla
once it is established, and subsequently, w
gaming will be conducted (Utsumi and DeN

F. GLOSAS Electronic Discussion Conferen

GLOSAS/USA members now have a
available from a host computer at the Univ
accessed from Bitnet, SprintMail, or any ot
connected with Internet. Contents of discu
access to appropriate electronic-mail, albeit
recipients. This unique feature enables
world. We can offer this thanks to SprintM

The objective of the conference is to
operation on the development of various (
discuss any related subjects, whether it b
(technique), content or form and whether ha
cy implications, as well as instruction and s

An electronic newsletter, "GLOSAS
about our upcoming projects and developme
lar service from McGill University, Canada.

than being confined only to traditional
omote innovation and economy in peda-
by providing distance education models
omic and technological capacities of par-

ally provide a technical and administra-
cation through telecommunication across
within many developed countries. The
al electronic education, serving and com-
institutions with outlets and resources on
tive and worldwide infrastructure and by
telecommunications to ordinary citizens
lead to an international educational and
the countries as well as with the United

articipating institutions with technical co-
former may involve help in areas such as
project or programme preparation, locat-
The latter involves assisting institutions
of those amongst their personnel who are
education programme.
will also facilitate and train its members
d can coordinate, as a gateway, the
portable educational telelearning courses
ng for global scale educational excellence
investments in academic buildings.
e in three ways: as the technological in-
cational satellite and terrestrial networks);
educational needs and courses to be of-
nal organization for giving and receiving
es and those who provide them.

ty will distribute education from all the
o crave knowledge, wherever they are, so
exchange of courses — "distance educa-
ents — into a worldwide educational sys-
ed educational program for each individu-
y of resources that can empower individu-
World also.
ons that currently are limited to one coun-
es to learning centers and learners around
ortage both of trained faculty and of re-
of study. Quality international education
students in almost any location who, be-
s, or available options, are unable to go to
scheduled campus-based classes. Students
est resources with a far greater variety of

educational philosophies, courses and instructional styles than they could ever encounter on single campus, regardless of their circumstances, and without having to leave homeland and workplace. Yet these experiences can include high levels of interaction and feedback (via electronic conferencing) amongst students and instructors. The quality of education for those unable to attend conventional universities in disadvantaged countries will be greatly enhanced. This is the so-called "*the 21st century version of Fulbright exchange program.*"

E. Coordination

Satellite technology is eminently a global technology: each satellite can cover one third of the earth, and there are more and more satellites in the sky. Satellites have been successfully employed in several countries, which had problems of geographical enlargement of the "scope" of the education. When attempting to use satellites in regions which include several smaller countries, a number of problems arise such as: different languages, cultures and traditions; and also contrasting economic interests and different political, educational and social systems (De Blasi 1990b).

GU intends to enable smooth coordination among participating parties on a global scale. As one of first steps, GLOSAS/USA has recently published a user manual for "Global Lecture Hall" demonstrations which, we hope, will be used regularly — in the near future for our planned Global (electronic) University once it is established, and subsequently, when our global environmental peace gaming will be conducted (Utsumi and DeMaio 1991).

F. GLOSAS Electronic Discussion Conference and Newsletter

GLOSAS/USA members now have an electronic discussion conference, available from a host computer at the University of Ottawa, Canada. It can be accessed from Bitnet, SprintMail, or any other networks which have been interconnected with Internet. Contents of discussions can be faxed to those with no access to appropriate electronic-mail, albeit one-way from the host computer to recipients. This unique feature enables us to reach participants around the world. We can offer this thanks to SprintMail's generous provision of support.

The objective of the conference is to provide a discussion platform for cooperation on the development of various GLOSAS projects. Participants also discuss any related subjects, whether it be about the technology, procedure (technique), content or form and whether having inter-cultural, economic or policy implications, as well as instruction and sharing of information.

An electronic newsletter, "GLOSAS NEWS," has also been published about our upcoming projects and developments, thanks to a kind offer of a similar service from McGill University, Canada.

V. GOALS AND PRINCIPLES OF GLOBAL UNIVERSITY

A. Goals

Recognizing that humankind is faced with a wide range of critical problems (ICIS Forum 1988), the Global University is directing itself to four essential goals:

1. The globalization of educational opportunities to make possible thehighest quality of education for all the world's learners.
2. Support of research and development, including such projects as:
   a. globally networked "think tanks" for examining philosophical assumptions, creating new models of educational exchange, and collaborating on problems of global concern;
   b. research on new technologies that will improve the quality of educational endeavors; and
   c. global coordination of research results and the accomplishments of educators around the world.
3. Use of global scale tools such as peace gaming and global village meetings so as to explore new alternatives for a world-order capable of addressing the problems and opportunities of an interdependent globe.
4. Globalization of employment opportunities to enhance the job flexibility and lifestyles of all the world's workers.

The goal of GU is to empower under-served people of Third World countries by giving them access to the educational excellence of many countries via various telecommunication media.

B. Observations

Projects of Global University will be based on following general observations;

1. "*Collaborative Learning*": "Learnability" and "retainability" increases when students can collaborate easily with instructors and other students. As the globe shrinks with inexpensive transportation and with ever increasing multinational trade and commerce, we are required to find a way for young people throughout the world to learn together in order to know and understand each other's culture and values.

2. "*Experiential Learning*": Knowledge is gained with action to become wisdom. In addition to traditional face-to-face or one-way satellite video lectures or seminars, we emphasize practical, hands-on learning, together with instructors, colleagues and professionals. Students and trainees will converse daily via various telecommunication media while they engage in their work in their countries. This will foster comradeship amongst participants.

3. "*Objective Learning*": Our projects are to construct an ever-lasting infrastructure system jointly. Participants will then have a feeling of accomplishment for the betterment of humankind.

4. "*Autonomous Learning*": students/trainees can go abroad to stud time, say, a half year, one year or more their daily work place. There are also ple can have such a privilege. We the utilize advanced computer, information overcome remoteness and inevitable time enable students/trainees to promote thei location and time.

C. Principles

The emerging Global University academic freedom and cultural variety (I should also not be determined solely by cal efforts and concerns. Therefore co cussion of a global educational philoso freedom can be maintained in the balanc versity and voluntary agency structures,

The purposes, principles, values, an topic of a working group appointed by C education grows more common, its phil people and countries everywhere. To e philosophies of global education, GU "*Universal Charter of Global (electron* policy of GU. The charter will speak o cation can do to help the people of the and jointly. We hope that individuals, sc ticipate in the development and final edi volved in global distance education will own activities. GU/USA will submit th adoption when the working group comple comes correspondence with anyone in th United States and from cultures other than

VI. ELECTRONIC DELIVERY SYSTE

In order to create an environment co information exchange there is a need of effective participation in decisions affectin advocating policy changes resulting in less nications for the purpose of study and GLOSAS ultimately seeks to form cooper collective weight could be used to lower t as effect significant changes in policy. F various countries/regions to lease internatio satellite transponders will make it possible

LOBAL UNIVERSITY

ced with a wide range of critical prob-
University is directing itself to four es-

portunities to make possible thehighest
's learners.
, including such projects as:
" for examining philosophical assump
cational exchange, and collaborating on

t will improve the quality of educational

sults and the accomplishments of educa

eace gaming and global village meetings
or a world-order capable of addressing
n interdependent globe.
unities to enhance the job flexibility and

r under-served people of Third World
e educational excellence of many coun-
edia.

ill be based on following general obser-

earnability" and "retainability" increases
with instructors and other students. As
transportation and with ever increasing
we are required to find a way for young
together in order to know and understand

owledge is gained with action to become
ace-to-face or one-way satellite video lec-
ctical, hands-on learning, together with in-
als. Students and trainees will converse
media while they engage in their work in
adeship amongst participants.
rojects are to construct an ever-lasting in-
nts will then have a feeling of accomplish-
d.

---

4. *"Autonomous Learning"*: It is certainly most desirable if students/trainees can go abroad to study in a desired country for a period of time, say, a half year, one year or more. However, this requires them to leave their daily work place. There are also budgetary constrains — not many people can have such a privilege. We therefore attempt as much as possible to utilize advanced computer, information and telecommunications technologies to overcome remoteness and inevitable time differences among countries. This will enable students/trainees to promote their autonomous learning at their desired location and time.

C. Principles

The emerging Global University has a determination to preserve true academic freedom and cultural variety (Utsumi et al. 1990). The shape of GU should also not be determined solely by business, engineering, and technological efforts and concerns. Therefore considerable time is being given to discussion of a global educational philosophy. It is hoped that a great deal of freedom can be maintained in the balance between government, corporate, university and voluntary agency structures, so that no one will dominate.

The purposes, principles, values, and methods of global education are the topic of a working group appointed by GU/USA. This is because, as distance education grows more common, its philosophy will affect the well-being of people and countries everywhere. To explore essential principles, ideas, and philosophies of global education, GU expects to complete a draft of a *"Universal Charter of Global (electronic) Education"* that will become the policy of GU. The charter will speak of the world's needs and of what education can do to help the people of the world fulfill their needs, individually and jointly. We hope that individuals, schools and other associations will participate in the development and final editing of this charter and that those involved in global distance education will adopt this charter as a basis for their own activities. GU/USA will submit the charter to UNESCO for possible adoption when the working group completes its task. The working group welcomes correspondence with anyone in the world, especially from outside the United States and from cultures other than European-American.

VI. ELECTRONIC DELIVERY SYSTEM

In order to create an environment conducive to global peace gaming and information exchange there is a need of communications systems that secure effective participation in decisions affecting all. GLOSAS has therefore been advocating policy changes resulting in less costly and more accessible communications for the purpose of study and discussion of common concerns. GLOSAS ultimately seeks to form cooperative alliances and consortia whose collective weight could be used to lower the costs of communications as well as effect significant changes in policy. For example, a joint effort of GUs in various countries/regions to lease international telecommunications lines and/or satellite transponders will make it possible for members of GU to obtain dis-

counted telecommunications costs. Consortia in any country can thus unite their strengths so that international information and educational exchange can readily become attainable.

A. Computer Conferencing Systems

Electronic-mail or computer conferencing can become the basis of communication amongst students and instructors on a global basis. In contrast to electronic-mail, the Electronic Information Exchange System (EIES) computer conference network of the New Jersey Institute of Technology provides interactive dialogue amongst participants independent of time and space constraints. Their dialogue can be retrieved at any time from almost anywhere on the world. Thereby, all participants, however far apart they may be, "congregate as in a room." Or it can be considered as a "shared file cabinet" for them to use as they participate in various projects. EIES has been used to offer education to Singapore, Scandinavia, and middle eastern countries with teachers in Japan, Venezuela, and elsewhere around the globe.

B. Packet-Radio and -Satellite Systems

The Big Sky Project in the State of Montana uses packet-radio for transmission of audio, text and animated color graphics in a 50 miles range. The packet-satellite technique, developed at the University of North Texas, can connect personal computers linked together in Texas, Florida, Hawaii, American and Western Samoa, and Tonga via NASA's Applied Technology Satellite (ATS) free of charge. The foot-print of the satellite covers all North, Central and South America, and many Pacific islands to Marshall Islands. The linkage enables retrieval of library catalogue at the University of Hawaii.

C. Slow-Scan TV (SSTV) Conference Systems

A slow-scan (or freeze-frame) TV (SSTV) unit is now at the International University of Japan (IUJ) — a gift from the Japan Broadcasting Corporation (Nihon Hoso Kyokai = NHK) by the arrangement made by GLOSAS/USA. It can be used for real-time demonstrations between American and Japanese schools, and for other joint research in various fields. Such connections with SSTV can be an effective supplement to distance education with electronic-mail or computer conferencing, the so-called "Virtual Classroom" or "Global Classroom." A similar unit is now at the University of Puerto Rico which has been used daily for distance education with New York University. Distance education, using the new information technology, doesn't have to be full-motion video (Urbanowicz 1991).

D. Full-Color, Full-Motion Video Teleconference Systems

A recent report counted fifty-four educational programming networks using satellite video at the end of 1990 in North America alone. Twelve years earlier, there were only nine. Many are preparing to extend their services

globally (Nevins and Urbanowicz 1991;

The National Technological Unive commenced the use of digital compresse existing consumer analog video. Basica converting the analog signal to digital ar quires to reconstruct the video. This tec than 15 satellite courses simultaneously via ing the satellite usage costs and also provi course materials which may be recorded tures include simultaneous facsimile trans ceive-only earth station with capability to and off automatically, and a high-speed dat

We plan to use all digital satellite tr of global telecommunication networks fo one-way, from the U.S. to overseas counte audio, slow-scan TV, facsimile, data and through ordinary overseas telephone lines, cy restrictions for uplinking to the INTE premises in various countries. We can e lease the satellite transponder.

E. Project DAWN

GLOSAS/USA initiated Project DAW cational services overseas. This project wi vey; experimenting for one year with the e vices to those countries/regions via inexp Project members are of two types; (1) prot users or receivers. Together with intereste an application to Project ACCESS of INTE (for audio, data, facsimile, slow-scan TV, gr

VII. REGIONAL GLOBAL UNIVERSITI

A. Organization

Experience shows that the expertise n does not yet exist in many parts of the worl in globally-cooperative environmental pea war game, and to promote the cause of pea tion and joint research, GLOSAS/USA is jo around the world to create a **Global (electro** that we can have participants in our peace g issues both today and in the twenty-first cent

They are Global/Pacific University (Global/Latin American University (GLAU) (Villarroel 1992) and Global/European Univer

nsortia in any country can thus unite
formation and educational exchange can

erencing can become the basis of com-
uctors on a global basis. In contrast to
tion Exchange System (EIES) computer
Institute of Technology provides interac-
ependent of time and space constraints.
ny time from almost anywhere on the
ever far apart they may be, "congregate
d as a "shared file cabinet" for them to
cts. EIES has been used to offer educa-
niddle eastern countries with teachers in
d the globe.

e of Montana uses packet-radio for trans-
color graphics in a 50 miles range. The
t the University of North Texas, can con-
her in Texas, Florida, Hawaii, American
NASA's Applied Technology Satellite
of the satellite covers all North, Central
islands to Marshall Islands. The linkage
t the University of Hawaii.

Systems

V (SSTV) unit is now at the International
from the Japan Broadcasting Corporation
arrangement made by GLOSAS/USA. It
rations between American and Japanese
in various fields. Such connections with
t to distance education with electronic-mail
called "Virtual Classroom" or "Global
t the University of Puerto Rico which has
ion with New York University. Distance
n technology, doesn't have to be full-mo-

leconference Systems

our educational programming networks us-
0 in North America alone. Twelve years
ny are preparing to extend their services

---

globally (Nevins and Urbanowicz 1991; Ljutic 1989).

The National Technological University (NTU) — see below — recently commenced the use of digital compressed video technology that is equivalent to existing consumer analog video. Basically, compressed video is the process of converting the analog signal to digital and then reducing the number of bits requires to reconstruct the video. This technology enables the transmission more than 15 satellite courses simultaneously via a single transponder, thus greatly reducing the satellite usage costs and also providing the possibility of quick delivery of course materials which may be recorded onto video-tapes. Other associated features include simultaneous facsimile transmission, addressability of individual receive-only earth station with capability to turn video cassette recorders (VCRs) on and off automatically, and a high-speed data transmission line.

We plan to use all digital satellite transmission techniques as the backbone of global telecommunication networks for the GU. This transmission will be one-way, from the U.S. to overseas counterparts. Return communications (mainly audio, slow-scan TV, facsimile, data and computer conferencing) are to be made through ordinary overseas telephone lines, thus avoiding telecommunications policy restrictions for uplinking to the INTELSAT satellite directly from school premises in various countries. We can expect a much larger advantage if we lease the satellite transponder.

E. Project DAWN

GLOSAS/USA initiated Project DAWN for the extension of American educational services overseas. This project will make a feasibility study/market survey; experimenting for one year with the extension of American educational services to those countries/regions via inexpensive telecommunication networks. Project members are of two types; (1) providers of educational services, and (2) users or receivers. Together with interested parties, GLOSAS/USA will prepare an application to Project ACCESS of INTELSAT for a free narrow band service (for audio, data, facsimile, slow-scan TV, graphics, etc.).

VII. REGIONAL GLOBAL UNIVERSITIES

A. Organization

Experience shows that the expertise necessary to participate in peace games does not yet exist in many parts of the world. To help educate future participants in **globally-cooperative environmental peace games** on the scale of Pentagon's war game, and to promote the cause of peace by enhancing exchanges of education and joint research, GLOSAS/USA is joining efforts with many counterparts around the world to create a **Global (electronic) University (GU)** consortium, so that we can have participants in our peace gaming to meet the challenge of global issues both today and in the twenty-first century.

They are Global/Pacific University (GPU) (Utsumi and Clements 1989), Global/Latin American University (GLAU) (Utsumi and Garzon 1991, Utsumi and Villarroel 1992) and Global/European University (GEU) (Utsumi 1991a) consortia.

Along with a Global/Indian University (GIU) (Charp 1988), these can become part of a true Global University, consisting of a federation of consortia linked in a cooperative network. These strong network regions are determined partly by geography, cultural history and by the footprints of communication satellites.

The GU, with responsibility for the collaboration of groups in each country and region, may consist of a federation of consortia, each invited to have an authorized, cooperative, and collaborative relationship with the **GU/USA**, a divisional activity of GLOSAS/USA. Similar consortia are being created in Canada, Japan, Australia, Sri Lanka, Brazil, Croatia, Russia, Rumania and other countries.

B. Goal, Purpose and Objective

The goal is to contribute to the development of human resources in the Third World countries in the field of distance education through the operation of a network for inter-institutional technical cooperation and assistance for the use of distance education methods. The distance education brings also the need for research and for applying its results to development.

The purpose is to assist in the implementation and initial operation of a regional inter-institutional network dedicated to promote technical horizontal cooperation among distance education institutions in the countries and regions.

Its main objective is to assist distance education and higher education institutions in testing, adopting and institutionalizing innovations in the field of telecommunication networking with the purpose of facilitating the implementation of specialized information systems and promoting the development of distance education processes.

C. Training of Facilitators for Information and Knowledge Management

For smooth operations of "Global Lecture Hall" events and global electronic education, it is a vital necessity to have a capable facilitator at each participating site. Also, effective use of various computer, telecommunication and information technologies has to be made by students of global electronic distance education — for example, the uses of personal computer, word processor and communication software are minimum requirements to converse with their counterparts via electronic-mail and computer conference, and also to retrieve various information databases.

The individual can be regarded not only as an information user, but also as an information and knowledge producer by the use of several media. One of these media is the computer and telecommunication networks. One of the problems facing network users from the Third World is the lack of adequate knowledge to use telecommunication facilities efficiently. Therefore, regional GUs, such as GPU, GLAU and GEU, could offer, in cooperation with Nippon Omni-Management Association (NOMA) in Japan, REDLAED and CREAD in Latin America and WAUSE in Europe (see about them below), this training possibility around the following topics:

1.Use of computers as a mean to process information and produce mes-

sages to be circulated in networks and framework of interest groups. This can tive grammar of messages;

2.The use of media producti produce and organize contents to be cir

3.The use of existing informatio pretation and utilization of d (interpretative grammar of messages) (

Training activities will be organiz the information contents, the technolog vices. The main objective is to train th to read, interpret and use the informatio information and telecommunication te databases, electronic conferences and fo search and development purposes.

In the very near future, equipment such as corporations and universities, a ceiving transmissions; the satellite mast maintains VCRs and monitors; the desi cast room, including telephone hook-ups faculty contact, and the administrative se

The facilitator will assist corporati tional agencies in planning, operating, a education and information update progra cilitator will also coordinate with a site guidance and backing, look at student n course offerings and collect informat providers. He/she circulates catalogs, sc course offerings to students, managers an so takes care of student needs. Videotape dents who miss classes because of job re videotape usually requires a tutor to lead 1991).

GLOSAS/USA will provide distan with facilitator training on how to access encing, as Utsumi did in the fall of 199(— and also to access various databases a erate receive-only antenna, etc. They v electronic education activities in their cou

D. Export of Courses to Overseas

The National Technological Univer a consortium of engineering departments sities distributes courses through satellite corporations, such as AT&T, Boeing, Hewlett-Packard, Honeywell, IBM, M

D

(GIU) (Charp 1988), these can become
sting of a federation of consortia linked
g network regions are determined partly
the footprints of communication satel-

he collaboration of groups in each coun-
ration of consortia, each invited to have
orative relationship with the **GU/USA**, a
Similar consortia are being created in
razil, Croatia, Russia, Rumania and other

development of human resources in the
distance education through the operation
chnical cooperation and assistance for the
The distance education brings also the
results to development.
implementation and initial operation of a
dicated to promote technical horizontal co-
stitutions in the countries and regions.
istance education and higher education in-
stitutionalizing innovations in the field of
he purpose of facilitating the implementa-
ns and promoting the development of dis-

ation and Knowledge Management

bal Lecture Hall" events and global elec-
y to have a capable facilitator at each par-
various computer, telecommunication and
made by students of global electronic dis-
uses of personal computer, word processor
nimum requirements to converse with their
computer conference, and also to retrieve

d not only as an information user, but also
oducer by the use of several media. One of
elecommunication networks. One of the
n the Third World is the lack of adequate
facilities efficiently. Therefore, regional
U, could offer, in cooperation with Nippon
MA) in Japan, REDLAED and CREAD in
rope (see about them below), this training
cs:
n to process information and produce mes-

sages to be circulated in networks and to communicate with peers within the
framework of interest groups. This can be called the development of a genera-
tive grammar of messages;

2. The use of media production methodologies and the rules to
produce and organize contents to be circulated in networks;

3. The use of existing information services and data banks and the inter-
pretation and utilization of data, information and knowledge
(interpretative grammar of messages) (Cartier 19 87).

Training activities will be organized around the following axes: the user,
the information contents, the technologies and the media and information ser-
vices. The main objective is to train the user on how to produce contents; how
to read, interpret and use the information contents that he receives; how to use
information and telecommunication technologies and information services,
databases, electronic conferences and forums more effectively for training, re-
search and development purposes.

In the very near future, equipment and facilities at course-receiving- sites,
such as corporations and universities, also consist of the satellite dish for re-
ceiving transmissions; the satellite master control, which directs receptions and
maintains VCRs and monitors; the designated class-rooms and satellite broad-
cast room, including telephone hook-ups for interactive satellite broadcast or for
faculty contact, and the administrative section.

The facilitator will assist corporations, academic institutions, and educa-
tional agencies in planning, operating, and distributing media-based continuing
education and information update programs for working professionals. The fa-
cilitator will also coordinate with a site education council which will provide
guidance and backing, look at student needs and qualification, and recommend
course offerings and collect information from providers and prospective
providers. He/she circulates catalogs, schedules and other printed materials on
course offerings to students, managers and supervisors. The site coordinator al-
so takes care of student needs. Videotapes of all classes are maintained for stu-
dents who miss classes because of job responsibilities or travel. Instruction by
videotape usually requires a tutor to lead classes and facilitate learning (Kiester
1991).

GLOSAS/USA will provide distance educators in Third World countries
with facilitator training on how to access electronic-mail and computer confer-
encing, as Utsumi did in the fall of 1990 in Caracas, Venezuela, — see below
— and also to access various databases available from the U.S. and how to op-
erate receive-only antenna, etc. They will become the core group of global
electronic education activities in their countries.

D. Export of Courses to Overseas

The National Technological University (NTU) in Fort Collins, Colorado,
a consortium of engineering departments from about forty leading U.S. univer-
sities distributes courses through satellite to domestic buyers of major American
corporations, such as AT&T, Boeing, DEC, Kodak, Du Pont, GE, GTE,
Hewlett-Packard, Honeywell, IBM, Motorola, NCR, Pacific Bell, Texas

Instruments, and Xerox, etc. Its market is mainly for continuing education of engineers who are assigned to locations where advanced courses are not readily available. By participating in the GU, NTU — whose present scope of operations is limited to the United States — will be capable of extending its services to learning centers and individuals around the world. The NTU has already indicated its willingness to work with GLOSAS/USA.

GLOSAS/USA believes that these courses would be useful to companies in various countries for the same reason. Instituto Tecnologico y de Estudios Superiores de Monterrey (ITESM) in Mexico now receives NTU courses daily. Some video tapes of NTU's courses have already been translated into Japanese (Gomi 1988) and Italian for continuing education of employees.

GLOSAS/USA will conduct multi-client projects on the market survey of educational services available from North America to overseas countries —including for employee training of subsidiaries/affiliates of North American organizations. GLOSAS/USA membership is now opened to entitle one to join this multi-client joint project. The results of this survey will be the basis of our business plan and economic and technical feasibility study for extending American courses to target countries on regular basis to create a regional GU.

E. Distance Research and Development

Telecommunication facilities do not only allow us to educate people, but also to conduct research and bring people together in discussion groups around teaching, research and development projects.

It is necessary to explore the possibility of using regional GUs and its telecommunication platform as a means;
1. To promote education in several fields of knowledge,
2. To enhance the conduct of research projects by bringing together several scholars in special interest groups (SIGs), and also
3. To facilitate a working environment for decision-making related to development projects.

These three functions (teaching, research and development) are the basic functions of any university.

A university, of course, is much more than courses. Efforts are being continued in GLOSAS to facilitate international research electronically. The vast amount of electronic collaboration on research projects, from continent to continent, is another evidence of the emergence of the "global electronic university" quite beyond and outside the efforts of all organizations and agencies. The exchange of knowledge among/between countries can make major contributions to world peace, helping to ease frictions, to promote joint research and development and mutual exchange and understanding. An example of such joint effort is our global environmental peace gaming simulation, though it will be conducted at a later stage (Utsumi 1991b).

F. Development of Consortia and Local Chapters

GLOSAS/USA will encourage the development of other consortia and related organizations and groups of every kind, urging them to pool their re-

sources and energies; to work together
nationally and globally; and to form lea
and towns in various countries/regions.

VIII. ESTABLISHMENT OF GLOBA

To help educate future participants
ucational exchanges, GLOSAS is at
University (GPU). The creation of a
course exchange system (see below) is a
ment of a GPU. Our projects between
pared infrastructures in the past two dec
following interrelated steps.

A. Electronic Linkage of American and J

A videoconference on "U.S.-Japan
and Crisis Management for Global Envir
is now planned as a kick-off event to in
Japan (IUJ) with sister schools in th
International Studies (SAIS) of Johns
School of Business Administration of Dar
of this videoconference is to demonstrate
interconnecting those schools on regular b
Global sustainable development is r
tional affairs. Environmental issues are i
cial, economic and political issues. Worl
potential for escalating regional conflicts.
greater role as a world economic power,
Japanese Official Development Assistance
to Third World countries, in relation to th
development issues. For example, 60 to
budget depends on it. Japan now conside
countries. The panel discussion of the vi
jects by faculties of those schools
GLOSAS/USA.
Preparation for the event will includ
ference among the key players. Their disc
permanent electronic course exchanges on
which will be supplemented by occasional
evitable time difference between the U.S.
videoconference. The computer conferenc
get constraints, and the occasional videoco
instructors and students and amongst studen
The electronic linkage among those sc
educational and training course exchange s
receive courses from American schools with

is mainly for continuing education of
where advanced courses are not readily
NTU — whose present scope of opera-
will be capable of extending its services
d the world. The NTU has already in-
OSAS/USA.

courses would be useful to companies
n. Instituto Tecnologico y de Estudios
exico now receives NTU courses daily.
ve already been translated into Japanese
education of employees.

-client projects on the market survey of
rth America to overseas countries —in-
iaries/affiliates of North American orga-
is now opened to entitle one to join this
of this survey will be the basis of our
hnical feasibility study for extending
regular basis to create a regional GU.

not only allow us to educate people, but
ple together in discussion groups around
jects.

ossibility of using regional GUs and its
s;
al fields of knowledge,
research projects by bringing together
rest groups (SIGs), and also
ronment for decision-making related to

, research and development) are the basic

ch more than courses. Efforts are being
nternational research electronically. The
on research projects, from continent to
emergence of the "global electronic uni-
e efforts of all organizations and agencies.
between countries can make major contri-
ase frictions, to promote joint research and
and understanding. An example of such
tal peace gaming simulation, though it will
i 1991b).

cal Chapters

the development of other consortia and re-
every kind, urging them to pool their re-

sources and energies; to work together on a regional and local basis, as well as nationally and globally; and to form learning centers by local chapters at cities and towns in various countries/regions.

VIII. ESTABLISHMENT OF GLOBAL/PACIFIC UNIVERSITY (GPU)

To help educate future participants in peace gaming and to encourage educational exchanges, GLOSAS is attempting to create a **Global/Pacific University (GPU)**. The creation of a U.S.-Japan educational and training course exchange system (see below) is a major first step towards the establishment of a GPU. Our projects between both countries, for which we have prepared infrastructures in the past two decades, now need to forge ahead with the following interrelated steps.

A. Electronic Linkage of American and Japanese Sister Schools

A videoconference on *"U.S.-Japan Perceptions on Conflict Resolution and Crisis Management for Global Environment and Sustainable Development"* is now planned as a kick-off event to interlink the International University of Japan (IUJ) with sister schools in the U.S., i.e., School of Advanced International Studies (SAIS) of Johns Hopkins University and Amos Tuck School of Business Administration of Dartmouth College. The primary purpose of this videoconference is to demonstrate technical feasibility of electronically interconnecting those schools on regular basis.

Global sustainable development is now the top of the agenda of international affairs. Environmental issues are industrial and energy issues; hence, social, economic and political issues. World affairs are closely interwoven, with potential for escalating regional conflicts. On the other hand, Japan has now a greater role as a world economic power, particularly in the allocation of the Japanese Official Development Assistance (ODA) funds ($10 billion annually) to Third World countries, in relation to the global environment and sustainable development issues. For example, 60 to 70 percent of Bangladesh government budget depends on it. Japan now considers to curtail aids to weapon-exporting countries. The panel discussion of the videoconference will be on these subjects by faculties of those schools and members and advisors of GLOSAS/USA.

Preparation for the event will include daily discussion via computer conference among the key players. Their discussion is to become a forerunner of permanent electronic course exchanges on a regular basis among these schools, which will be supplemented by occasional videoconferences. This is due to inevitable time difference between the U.S. and Japan and to still high cost of videoconference. The computer conference overcomes distance, time and budget constraints, and the occasional videoconference increases intimacy between instructors and students and amongst students.

The electronic linkage among those schools, a prototype of the U.S.-Japan educational and training course exchange system, will enable Japanese students receive courses from American schools without leaving Japan, and on the other

hand, the teachers from American schools do not need to spend months in Japan. With telecommunications, more teachers of those Japanese and American schools can share discussions of international problems in business and political affairs. They can work together without the expense and fatigue of long journeys.

This videoconference will be broadcast not only in Japan but also in North America, so that many schools can participate interactively with panelists who are scattered around in both countries. After successful conduct of these events, some of IUJ's Japanese management courses will be uplinked for distribution to the participants with the use of "Global Lecture Hall" videoconferencing technology.

Successful conduct of this videoconference is a step toward the establishment of *international educational course exchange* on a regular basis, setting a precedent which may be followed by other schools in Japan and other countries, particularly in Third World.

B. U.S.-JAPAN Electronic Shadow Cabinet System

The U.S.-Japan relationship is now at an all time low, due to the differences of their traditions, cultures and value systems. In today's increasingly interdependent global economy, the need for greater understanding and cooperation between the U.S. and Japan has never been more urgent, especially the search for common ground and mutuality between both countries. A great demand for education on Japanese subjects is now seen everywhere in the world. America is no exception.

In the past several years, we have been preparing for the establishment of this U.S.-Japan Electronic Shadow Cabinet System to ease the two countries' trade and economic frictions, which are now mainly caused by the differences of business traditions and cultures of the U.S. and Japan. This was proposed to GLOSAS/USA by Mr. Sohei Nakayama, Special Advisor of the Industrial Bank of Japan and the founder and chancellor of the International University of Japan.

Daily conversations will be held between selected U.S. and Japanese panels of experts via electronic-mail, computer conferencing or facsimile. They will discuss real reasons of why and how on the performance and competitiveness of the Japanese economy: its relatively rapid growth, its aggressive development of high-technology industry, its large and continuing export surpluses, etc. The difference in values of both countries will also be discussed; Japan's strength (such as duty and obligation to the group, group identification with the enterprise, discipline, conformity, consistency, goodness, beauty, etc.) is America's weakness; and America's strength (such as innovation, diversity and variation, individualism, entrepreneurialism, autonomy, teamwork, equality, liberty, justice, etc.) is Japan's weakness. As a result of their discussions, they will be able to reach consensus about policy directions.

Edited summaries of their electronic discussions can be published periodically in leading journals to promote public understanding in those subjects and other current issues of both countries. After the end of this project, they can be published in a book form. The book may provide a common conceptual

framework for research, education, and [...] between the U.S. and Japan with the co[...] book may also be used as a policy recom[...] mentation. The system will later be exte[...] of environment and sustainable developm[...]

This project is to help Americans [...] major issues and problems facing their co[...] joint projects will find a way to create a [...] both countries for upheaval of oriental [...] Japanese universities and organizations ha[...] to cooperate.

C. U.S.-Japan Electronic Educational and [...]

The phenomenal economic growth [...] Japan are now the envy of the world. Jap[...] the globalization of their economy and i[...] hand, requires that Japan educate the you[...] nological, manufacturing, and managemer[...] culture which brought her current prosperi[...]

GLOSAS/USA has been working or[...] Educational and Training Course Exchar[...] technology, manufacturing engineering, m[...] tices and culture, via various telecommuni[...] conference (mentioned above) will lead to[...] satellite course exchange for the National [...]

GLOSAS/USA is currently conduc[...] Nippon Omni-Management Association (N[...] and other Asian and Pacific countries to[...] training courses available from NTU (and [...] via satellites and other telecommunication[...] other leading Japanese companies have alr[...] survey will be the basis of our business pla[...] bility study for extending American cours[...] on regular basis to create a **Global/Pacific** [...]

Beneficiaries of the system will be[...] ments, but also employees of industries, [...] and faculties of schools in the U.S. and ot[...] will benefit equally. This will also promo[...] U.S. and Japan, and also improve the imag[...] education in the Age of Knowledge.

D. Creation of GLOSAS/JAPAN

Recently, the U.S. Department of [...] Industry and Technology Management [...] Americans seriously to pay attention to the [...] used by Japan in the areas of science, engi[...]

ools do not need to spend months in
ore teachers of those Japanese and
s of international problems in business
gether without the expense and fatigue

oadcast not only in Japan but also in
n participate interactively with panelists
ries. After successful conduct of these
ment courses will be uplinked for distri-
f "Global Lecture Hall" videoconferenc-

onference is a step toward the establish-
se *exchange* on a regular basis, setting a
other schools in Japan and other coun-

inet System

ow at an all time low, due to the differ-
alue systems. In today's increasingly in-
d for greater understanding and coopera-
never been more urgent, especially the
lity between both countries. A great de-
cts is now seen everywhere in the world.

ve been preparing for the establishment of
abinet System to ease the two countries'
are now mainly caused by the differences
the U.S. and Japan. This was proposed to
na, Special Advisor of the Industrial Bank
cellor of the International University of

d between selected U.S. and Japanese pan-
omputer conferencing or facsimile. They
how on the performance and competitive-
latively rapid growth, its aggressive devel-
its large and continuing export surpluses,
h countries will also be discussed; Japan's
to the group, group identification with the
, consistency, goodness, beauty, etc.) is
strength (such as innovation, diversity and
rialism, autonomy, teamwork, equality, lib-
ess. As a result of their discussions, they
t policy directions.
tronic discussions can be published periodi-
public understanding in those subjects and
es. After the end of this project, they can
book may provide a common conceptual

framework for research, education, and policy development on the relationship between the U.S. and Japan with the context of global interdependence. The book may also be used as a policy recommendations to governments for implementation. The system will later be extended to other countries, on the issues of environment and sustainable development, particularly in Third World.

This project is to help Americans and Japanese think together about the major issues and problems facing their countries. We hope that our U.S.-Japan joint projects will find a way to create a synergism to combine the strengths of both countries for upheaval of oriental and occidental cultures. A number of Japanese universities and organizations have already indicated their willingness to cooperate.

C. *U.S.-Japan Electronic Educational and Training Course Exchange System*

The phenomenal economic growth and technological advancement of Japan are now the envy of the world. Japan needs to educate young people for the globalization of their economy and industry; and the world, on the other hand, requires that Japan educate the young of other countries with their technological, manufacturing, and management know-how, business traditions and culture which brought her current prosperity.

GLOSAS/USA has been working on to establish a U.S.-Japan Electronic Educational and Training Course Exchange System in the fields of science, technology, manufacturing engineering, management know-how, business practices and culture, via various telecommunication media. The successful video-conference (mentioned above) will lead to this system, which will also include satellite course exchange for the National Technological University (NTU).

GLOSAS/USA is currently conducting, in cooperation with NTU and Nippon Omni-Management Association (NOMA), a marketing survey in Japan and other Asian and Pacific countries to extend American educational and training courses available from NTU (and later, other North American schools) via satellites and other telecommunication media, to which Hitachi, NEC and other leading Japanese companies have already responded. The results of this survey will be the basis of our business plan and economic and technical feasibility study for extending American courses to Japan (later to other countries) on regular basis to create a **Global/Pacific (electronic) University (GPU)**.

Beneficiaries of the system will be not only the personnel of governments, but also employees of industries, would-be decision-makers, students and faculties of schools in the U.S. and other countries; and, of course, Japan will benefit equally. This will also promote public understanding between the U.S. and Japan, and also improve the image of Japan as contributing to global education in the Age of Knowledge.

D. *Creation of GLOSAS/JAPAN*

Recently, the U.S. Department of Defense initiated the U.S.-Japan Industry and Technology Management Training Program. It encourages Americans seriously to pay attention to the management and business practices used by Japan in the areas of science, engineering, and manufacturing in light

of Japan's remarkable technological successes in recent years.

At the request of Dr. Lionel Baldwin, President of NTU, GLOSAS/USA plans to bring to the U.S. Japanese courses on high technology, manufacturing engineering, business know-how, and culture in the future which will be delivered through NTU and other systems. NTU is one of the selected recipients of the DoD Program funds. NTU will ask GLOSAS/USA to perform a specific task for this program.

Our preliminary investigation and feasibility study carried out on behalf of NTU revealed some hesitancy and difficulties concerning the DoD program amongst Japanese. However, this is a timely program for the betterment of U.S.-Japan relationships, given the increasing anti-Japanese feelings amongst some Americans, and anti-American tendencies in Japan. Japanese should respond to this program earnestly and seriously, since this is the largest goodwill program which the U.S. government has ever initiated towards Japan, recognizing its importance to the U.S. and its significant progress in high-tech areas. Japanese colleagues have come to a conclusion that there is a need of a coordinating organization, tentatively called GLOSAS/JAPAN.

GLOSAS/USA is now working with Japanese colleagues to create **GLOSAS/JAPAN** as a Japanese national project, under the auspices of various governmental agencies with the support of the Federation of Economic Organizations (Keidanren).

The Goals of GLOSAS/JAPAN are;
1. To overcome Japanese hindrances for the DoD's Program and to coordinate the efforts of its award grantees,
2. To establish a U.S.-Japan educational and training course exchange system in the fields of science, technology, manufacturing engineering, management know-how, business practices and culture, via telecommunication media,
3. To promote "global electronic distance education," to help educate under-served people of the Third World countries, in cooperation with organizations in the United States (such as GLOSAS/USA, etc.) and in other countries, which integratively utilizes computer, telecommunication and information technologies on a global scale,

4. To construct a globally cooperative peace gaming system on the issues of environment and sustainable development, particularly in Third World countries, for contributing to policy analysis and formulation and for training would-be decision-makers on crisis management, conflict resolution and negotiation techniques,

5. To raise Japanese funds to promote and support distance education in overseas countries, such as Pacific Rim and Asia, Latin America and the Caribbean, Mediterranean and Eastern Europe, to establish regional Global Universities, etc.

In a sense, this project will become a U.S.-Japan joint effort of contributing to the distance education, and research and development in the Third World with; (a) educational excellence, (b) advanced technologies in electronic, computer, telecommunications, and information, and (c) financial support of the both countries.

Projects of GLOSAS/JAPAN will i
Japanese, by promoting their friendship v
ly conversation and collaborative learni
hence facilitate Japan's smooth and bette
the Third World countries.

E. Deregulation of Japanese INTELSAT Te

1. Problem

The INTELSAT system was o
telecommunication between countries. E
the downlinking cost in overseas countrie
cational use due to the various PTT (Po
which regulate the charges for informatio
to this, not only the downlinking from th
the United States has been completely de
to INTELSAT satellites has been de-mo
any longer.

On the other hand, due to the ad
Terminal (VSAT) antenna, signals from l
(unofficially) at various sites (in a simila
purpose in Japan. Newly developed digit
enables the transmission of more than 15
single transponder, thus greatly reducing t
viding the possibility of quick delivery
recorded onto video-tapes.

With the use of these new technolog
international INTELSAT satellites telecomm
nomically feasible endeavor, once its mono

2. Current Project

To alleviate this cost, GLOSAS/USA
late Japanese INTELSAT telecommunicatio
antennas to accept signals directly from IN
and non-profit purposes. The technical fea
during the aforementioned IUJ/John Hopkins

We have so far received support letter
governmental agencies and prominent schola
world-renowned Dr. Arthur C. Clarke, the i
tion. Our next step is to submit a petition to
Telecommunications (MPT), the U.S. Trade
Department of Commerce, and the U.S. Fede

3. Expected Benefits

When deregulation is achieved, the Jap

esses in recent years.
vin, President of NTU, GLOSAS/USA
ses on high technology, manufacturing
lture in the future which will be deliv-
TU is one of the selected recipients of
GLOSAS/USA to perform a specific

feasibility study carried out on behalf
fficulties concerning the DoD program
timely program for the betterment of
reasing anti-Japanese feelings amongst
dencies in Japan. Japanese should re-
iously, since this is the largest goodwill
s ever initiated towards Japan, recogniz-
significant progress in high-tech areas.
clusion that there is a need of a coordi-
LOSAS/JAPAN.

g with Japanese colleagues to create
al project, under the auspices of various
pport of the Federation of Economic

re;
rances for the DoD's Program and to
ward grantees,
ucational and training course exchange
, technology, manufacturing engineering,
ess practices and culture, via telecommu

ic distance education," to help educate
hird World countries, in cooperation with
tates (such as GLOSAS/USA, etc.) and in
ratively utilizes computer, telecommu-
nologies on a global scale,
erative peace gaming system on the issues
opment, particularly in Third World coun-
alysis and formulation and for training
nanagement, conflict resolution and negoti-

romote and support distance education in
Rim and Asia, Latin America and the
ern Europe, to establish regional Global

ome a U.S.-Japan joint effort of contribut-
search and development in the Third World
advanced technologies in electronic, com-
ormation, and (c) financial support of the

Projects of GLOSAS/JAPAN will increase global understanding amongst Japanese, by promoting their friendship with overseas counterparts through daily conversation and collaborative learning via telecommunication media, and hence facilitate Japan's smooth and better contribution overseas, particularly to the Third World countries.

E. Deregulation of Japanese INTELSAT Telecommunication Policies

1. Problem

The INTELSAT system was originally established for satellite telecommunication between countries. Because of its monopolistic structure, the downlinking cost in overseas countries is currently prohibitive for any educational use due to the various PTT (Post, Telegraphy, Telephony) agencies which regulate the charges for information received into a country. In contrast to this, not only the downlinking from the INTELSAT satellites at schools in the United States has been completely deregulated, but also even the uplinking to INTELSAT satellites has been de-monopolized and are not too expensive any longer.

On the other hand, due to the advent of the Very Small Aperture Terminal (VSAT) antenna, signals from INTELSAT have been eavesdropped (unofficially) at various sites (in a similar way as a home TV set) for testing purpose in Japan. Newly developed digital compressed video technology also enables the transmission of more than 15 satellite courses simultaneously via a single transponder, thus greatly reducing the satellite usage costs and also providing the possibility of quick delivery of course materials which may be recorded onto video-tapes.

With the use of these new technologies, global educational exchange via international INTELSAT satellites telecommunications is a technically and economically feasible endeavor, once its monopolistic regulation is cleared.

2. Current Project

To alleviate this cost, GLOSAS/USA is now making an effort to deregulate Japanese INTELSAT telecommunication policies for the use of receive-only antennas to accept signals directly from INTELSAT satellites for educational and non-profit purposes. The technical feasibility of this is to be demonstrated during the aforementioned IUJ/John Hopkins/Dartmouth videoconference.

We have so far received support letters (more than 57) from various U.S. governmental agencies and prominent scholars around the world —including the world-renowned Dr. Arthur C. Clarke, the inventor of satellite telecommunication. Our next step is to submit a petition to the Japanese Ministry of Posts and Telecommunications (MPT), the U.S. Trade Representatives (USTR), the U.S. Department of Commerce, and the U.S. Federal Communications Commission.

3. Expected Benefits

When deregulation is achieved, the Japanese can receive American satellite

courses via INTELSAT directly and inexpensively, and American schools can extend their satellite courses to Japan. The satellite courses can also be fed into local cable TV network making it possible for Japanese to follow the courses from their home in Japan. They can then interact with their American instructors for question-and-answer with the use of electronicmail and computer conferencing, thus closing a loop of teaching and learning.

Once Japanese policy is de-regulated on this matter, other countries may then follow the Japanese precedent, as happened after our deregulation of Japanese policies for the use of electronic-mail and computer conferencing, which we accomplished a decade ago.

This affordable trans-Pacific educational services will be the basis of our planned Global/Pacific (electronic) University (GPU) when other Pacific periphery countries follow the Japanese lead, since the foot-print of the INTELSAT satellite can well cover some of those areas, too. Recent development of private international satellites, such as PAN-AM, COLUMBIA, ASIASAT, etc., will also provide us with a good supply of international satellite capacity to make the cost even cheaper in the very near future —more suitable for educational use. (The Chinese TV University with more than 5,000 receive-only antennas scattered throughout China now serves a million students through three transponders on INTELSAT satellites, one purchased and two leased, — less than a half dozen years after their establishment.)

F. Multimedia Japanese Language Distance Education System

A great demand for Japanese education is now seen everywhere in the world. America is no exception. The aforementioned DoD Program requires Japanese language education. NTU wishes to bring Japanese courses to Americans in the near future. In due course, Americans will want to learn them in Japanese. The globalization of Japanese economy and industry also necessitates Japanese language education.

In order to prepare for this, we will develop a Japanese language distance education system via various telecommunication media to aid them as well as to alleviate the severe shortage of Japanese language teachers in the U.S., inasmuch as not many people are qualified to teach Japanese. This will make learning more effective and efficient, so that Americans can become more competent in communicating with Japanese and ready to receive Japanese courses when available. The purpose of this project is to provide Americans with effective and inexpensive Japanese language learning system without constraints of their time and space limitations.

Full-color, full-motion video is essential for distance education of language learning, e.g., lips movement for pronunciation, which electronic-mail cannot provide. On the other hand, satellite courses necessitate students to have expensive dish antenna with difficult installation and operation problems.

This system will take advantages of various advanced information, computer and telecommunication technologies;

1. Digital Video Interactive (DVI) technology with CD-ROM (Compact Disk Read-Only Memory) will store digitized full-color, full-motion video courseware in students' personal computers;

2. Learners' and instructor's per ordinary telephone network. I at all learners' CD-ROM whil ten and facsimile annotations o

3. This system will also provide puter conferencing on variou characters, via data communica

4. A short introductory text in Ja technical terms for each subje tronics, etc.

Although the DVI audio-graphic Japanese language learning, the same t other training fields of Japanese subjec practice, business tradition, and culture. U.S. Such coursewares will meet the above.

IX. ESTABLISHMENT OF GLOBA TY (GLAU)

A. Background

In spite of the considerable educ have invested, some countries of Latin periencing environmental deterioration, not so much as the result of excesses br er parts of the world, but rather due to and poorly educated population. A GL tential that telecommunication network simulation, exchange of ideas, cooperatio

At the present time, few institution required infrastructure and operational el tion programs on their own. Financial a it is essential for distance education insti experience are available. Furthermore, e al cooperation in the field of distance e spond to all the needs. In the particular an obvious inability on the part of its edu sary conditions for self-sustained develop American governments have attempted more efficiently and which is more appro

Since 1976 distance education has ternatives to conventional education in L has dramatically grown in the whole regi by distance teaching institutions of hi American and the Caribbean countries Regional Program for Educational Deve

xpensively, and American schools can
he satellite courses can also be fed into
ble for Japanese to follow the courses
en interact with their American instruc-
e of electronicmail and computer confer-
nd learning.

ted on this matter, other countries may
as happened after our deregulation of
onic-mail and computer conferencing,

ational services will be the basis of our
ersity (GPU) when other Pacific periph-
, since the foot-print of the INTELSAT
reas, too. Recent development of private
M, COLUMBIA, ASIASAT, etc., will al-
ternational satellite capacity to make the
ure —more suitable for educational use.
e than 5,000 receive-only antennas scat-
illion students through three transponders
sed and two leased, — less than a half

ance Education System

ducation is now seen everywhere in the
e aforementioned DoD Program requires
U wishes to bring Japanese courses to
course, Americans will want to learn them
panese economy and industry also necessi-

will develop a Japanese language distance
nmunication media to aid them as well as
panese language teachers in the U.S., inas-
ified to teach Japanese. This will make
so that Americans can become more com-
ese and ready to receive Japanese courses
s project is to provide Americans with ef-
nguage learning system without constraints

is essential for distance education of lan-
t for pronunciation, which electronic-mail
d, satellite courses necessitate students to
fficult installation and operation problems.
ges of various advanced information, com-
logies;
(DVI) technology with CD-ROM (Compact
will store digitized full-color, full-motion
ts' personal computers;

2. Learners' and instructor's personal computers will be interlinked via ordinary telephone network. Instructor can select the desired segment at all learners' CD-ROM while providing additional voice, hand-written and facsimile annotations on real-time basis;
3. This system will also provide students with "Virtual Classroom" computer conferencing on various Japanese subjects in Japanese Kanji characters, via data communication network;
4. A short introductory text in Japanese will be prepared with the list of technical terms for each subject, such as Japanese management, electronics, etc.

Although the DVI audio-graphic technology will first be applied to the Japanese language learning, the same technology can also be applied to many other training fields of Japanese subjects in science, technology, management practice, business tradition, and culture, which are now in great demand in the U.S. Such coursewares will meet the need for the DoD program mentioned above.

IX. ESTABLISHMENT OF GLOBAL/LATIN AMERICAN UNIVERSITY (GLAU)

A. Background

In spite of the considerable educational efforts that their governments have invested, some countries of Latin America and the Caribbean are still experiencing environmental deterioration, ecosystem destruction and species loss, not so much as the result of excesses brought about by development, as in other parts of the world, but rather due to the mass impact of a rapidly growing and poorly educated population. A GLAU can take full advantage of the potential that telecommunication networking offers for education, information, simulation, exchange of ideas, cooperation and problem solving.

At the present time, few institutions of the region can hardly afford all the required infrastructure and operational elements of a successful distance education programs on their own. Financial and human resources are scarce, so that it is essential for distance education institutions to share whatever resources and experience are available. Furthermore, existing mechanisms for inter-institutional cooperation in the field of distance education are no longer sufficient to respond to all the needs. In the particular case of Latin America, there has been an obvious inability on the part of its educational systems to promote the necessary conditions for self-sustained development. To confront this situation, Latin American governments have attempted innovative ways to provide education more efficiently and which is more appropriate to the needs of their societies.

Since 1976 distance education has become one of the most important alternatives to conventional education in Latin America. This educational mode has dramatically grown in the whole region. Its adoption has been spearheaded by distance teaching institutions of higher education. In 1979 some Latin American and the Caribbean countries governments, with the support of the Regional Program for Educational Development (PREDE) of the Organization

of American States (OAS), commenced the implementation of distance education projects with the purpose of improving and expanding educational opportunities for a growing population of students who could not attend the traditional education system. In that year two full fledged national distance teaching universities were launched in Costa Rica and Venezuela. The application of distance education has been so successful that there are nowadays several educational institutions dedicated entirely to distance education in Costa Rica, Colombia and Venezuela, and many more offering both classroom-based and distance education programs. Initiatives for the creation of distance education institutions at the national level are currently underway in other countries such as Argentina, Brazil and Mexico, and at the local and institutional level one can find distance education projects in almost every country in the region (Utsumi and Garzon 1991).

This dramatic growth is in part a result of educational policies enacted at the national level, and in part an outcome of the execution of the OAS/PREDE Multinational Project for the Development and Application of Distance Educational Systems. The multinational and cooperative nature of this OAS project had another impact among the implementing institutions: the development of an infrastructure and expertise for cooperation, as attested by the creation of the Latin American Network for the Development of Distance Education (REDLAED) in May of 1989, and of the Consortium-Network of Distance Education (CREAD) under the auspices of the Interamerican Organization of Higher Education (IOHE) in 1990 with funds provided from the Canadian International Development Agency (CIDA) (Villarroel 1991).

REDLAED is a regional consortium of educational institutions interested in promoting education through the use of distance learning methods and techniques. REDLAED has decided to give highest priority to four topics: environmental problems, literacy, women's issues, and teachers training. However, REDLAED still lacks the needed telecommunication capability to operate as a network.

CREAD is also a regional consortium which allows for the participation of North American institutions. It basically has the same priorities indicated by REDLAED and has a permanent office in Quebec City, Canada. The telecommunication capability of CREAD will be initiated soon with the establishment of an interamerican electronic network.

As a first step, GLOSAS is now joining efforts with REDLAED, CREAD, PREDE, Regional Center for Higher Education in Latin America and the Caribbean (CRESALC) of UNESCO, and many other colleagues in the region to create a **Global/Latin American (electronic) University (GLAU)**, so that Latin American institutions can meet the challenge of global issues (Utsumi and Garzon 1991, Utsumi and Villarroel 1992). This is an initial step towards full implementation of a Global (electronic) University (GU) consortium. GLOSAS/USA is helping to provide their activities with inexpensive international telecommunications. They will become a core of GLAU.

It is important to notice that in the Latin American and Caribbean region there is not a formal state of war among countries. However, there are at least four unconventional wars being fought: (1) the massive destruction of environmental resources, (2) the material and cultural impoverishment of vast sectors

of the population in all countries, (3) t and (4) the guerrilla movement still a and Venezuela. These wars produce (ly to cease in the next few years. Str oriented people in order to dismantle of war. In that respect, GLAU is an i cators, social and nature researcher knowledge on these broad sources of (

B. GLOSAS/USA's Involvement in Lati

GLOSAS presented the techni conference of REDLAED in M

In order to support the efforts GLOSAS/USA organized a demonstr teleconference "Global Lecture Hall" v telecommunication media to show the occasion of the XVth World Confe Distance Education (ICDE) in Novemb tioned above. After the conference, (use of electronic-mail for distance edu gion during a Workshop on Training o by Universidad Nacional Abierta (UNA

C. Telecommunication Network

The initial phase of this project implementation of a telecommunicatio the operation of a GLAU, and for the information among distance education a out the region. This project will strei actively participate in the international sis is given to the applications of the te distance education, scientific and techn national, regional and international leve

This project will build up its o Latin American distance educators with

1. Electronic-mail networking tra munication infrastructure for i tors in the region and the de scientific and technological det ences;

2. Feasibility study of internati exchange system via telecomm in the region and with those in

3. Prototype operation of the n

the implementation of distance educa-
ng and expanding educational opportu-
ts who could not attend the traditional
fledged national distance teaching uni-
nd Venezuela. The application of dis-
that there are nowadays several educa-
to distance education in Costa Rica,
ore offering both classroom-based and
s for the creation of distance education
rently underway in other countries such
at the local and institutional level one
in almost every country in the region

result of educational policies enacted at
ne of the execution of the OAS/PREDE
opment and Application of Distance
nal and cooperative nature of this OAS
implementing institutions: the develop-
e for cooperation, as attested by the cre-
ork for the Development of Distance
989, and of the Consortium-Network of
er the auspices of the Interamerican
OHE) in 1990 with funds provided from
t Agency (CIDA) (Villarroel 1991).
ium of educational institutions interested
se of distance learning methods and tech-
ve highest priority to four topics: environ-
issues, and teachers training. However,
communication capability to operate as a

ortium which allows for the participation
sically has the same priorities indicated by
ce in Quebec City, Canada. The telecom-
ll be initiated soon with the establishment
k.
now joining efforts with REDLAED,
or Higher Education in Latin America and
SCO, and many other colleagues in the re-
rican (electronic) University (GLAU), so
can meet the challenge of global issues
nd Villarroel 1992). This is an initial step
lobal (electronic) University (GU) consor-
rovide their activities with inexpensive in-
y will become a core of GLAU.
n the Latin American and Caribbean region
mong countries. However, there are at least
ght: (1) the massive destruction of environ-
nd cultural impoverishment of vast sectors

of the population in all countries, (3) the organized violence of drug trafficking, and (4) the guerrilla movement still alive in countries such as Colombia, Peru and Venezuela. These wars produce casualties every day and they are not like-ly to cease in the next few years. Strong efforts have to be made by all peace oriented people in order to dismantle the mechanisms that generate these forms of war. In that respect, GLAU is an important initiative that would allow edu-cators, social and nature researchers, and students to exchange views and knowledge on these broad sources of conflict (Chacon 1992).

B. GLOSAS/USA's Involvement in Latin American Activities

GLOSAS presented the technical outline of the GLAU at the inaugural conference of REDLAED in May, 1989, in Cordoba, Argentina.

In order to support the efforts of Latin American distance educators, GLOSAS/USA organized a demonstration of large scale interactive satellite teleconference "Global Lecture Hall" with the use of various inexpensive global telecommunication media to show the possibilities of global education on the occasion of the XVth World Conference of the International Council of Distance Education (ICDE) in November, 1990, in Caracas, Venezuela, as men-tioned above. After the conference, GLOSAS also conducted a tutorial on the use of electronic-mail for distance educators from various countries of the re-gion during a Workshop on Training of Distance Education Trainers, organized by Universidad Nacional Abierta (UNA) and CRESALC-UNESCO.

C. Telecommunication Network

The initial phase of this project for GLAU is for the development and implementation of a telecommunication network for organizing and promoting the operation of a GLAU, and for the exchange of scientific and technological information among distance education and higher education institutions through-out the region. This project will strengthen their capability in order to more actively participate in the international scientific community. Particular empha-sis is given to the applications of the telecommunication network in the field of distance education, scientific and technological research and development at the national, regional and international levels.

This project will build up its operation for the REDLAED and other Latin American distance educators with following stages:

1. Electronic-mail networking training for the operations of the telecom-munication infrastructure for information exchange for distance educa-tors in the region and the development of an electronic forum for scientific and technological debate and some distance education experi-ences;
2. Feasibility study of international educational and training course exchange system via telecommunication media among the institutions in the region and with those in North America;
3. Prototype operation of the network system for distance education

projects addressing, at the regional level, issues of global importance, as well as the development of remote access databases.

D. Prototype Project on Global Distance Education on Environment Management

As a part of the above Stages 2 and 3, a prototype project can be developed perhaps in the span of 16 to 20 months.

One of the major problems of Latin American and Caribbean countries is the untapped destruction of environmental resources, by means of water and air pollution, devastation of forest and animal resources, disorganized growth of urban centers and some other causes. The efforts made by governmental and private institutions have been insufficient, as it is easy to see that these foes have been growing in the last few years.

Objectives of this prototype project are;
1. To rapidly develop an inventory of environmental threats in Latin American and Caribbean countries,
2. To provide conceptual and methodological tools for analyzing these environmental threats, 3. To create awareness of the strategies of environment protection that can be used at national and international levels.

This program will be based on the action-research approach. A module of print and photographic materials on Environmental Education will be developed, using a prototype already experimented by the National Open University of Venezuela (UNA), for several years. This module would be used by other distance education programs of members of CREAD and REDLAED, as a credit and extension course. The participating institutions will be connected on a year-round basis through electronic-mail and computer conferences for the purpose of building an international inventory of environmental threats and environmental solutions. Scientists, educators, public personalities and students will be encouraged to take part of the exchanges. A coordinating institution (to be decided later) will collect and edit the proceedings of the conferences, to be published in a book format. After the first year of operation, the whole experience will be evaluated for further continuation (Chacon 1992).

E. Feasibility Study of Exporting/Importing Satellite Education Courses

The University of Cordoba, Brazilian University Network Distance Education at the Universidade de Brasilia, the University of the West Indies, the National University for Distance Education in Colombia, Empresa Nacional de Computacion e Informatica (ECOM), S.A., in Chile, etc., have shown their interest in importing the NTU courses for continuing engineering education purpose. They are now soliciting cooperations of governmental agencies, professional associations of industries, continuing engineering education and distance education, etc., in their countries. A similar survey to Japanese case will be made in countries of Latin America and the Caribbean region.

F. Formation of Provisional Commi[...]
Thanks to inexpensive tele[...] SprintMail, GLOSAS colleagues [...] formed a provisional committee to [...] tronic) University (GLAU) to discus[...] tronic-mail.

A first step towards this end i[...] ing document (in paper and elec[...] Portuguese, about GLAU, which ca[...] scientific community of Latin Ameri[...] to some English speakers) — an [...] Villarroel 1992). Next, we will ide[...] tribute the documentation and cond[...] along with the feasibility study about [...] course exchange system not only an[...] tween Latin American and the Carib[...] European countries.

X. ESTABLISHMENT OF GLOBA[...]

There is now a strong interest [...] the Community of Mediterranean [...] **Global/European (electronic) Unive[...]** ducting a series of "Global Lec[...] GLOSAS/USA and other prominent [...] Association for the Use of Satellites i[...] in June, 1991, at the University of B[...] will interlink not only member s[...] Mediterranean, African, and Arab [...] America.

The WAUSE aims to guarantee [...] tion of satellites in global education and [...] nizations which are active in the fie[...] WAUSE will not concern itself with t[...] with the problems associated to worldw[...] ing programs delivered via satellites. [...] the problems of using satellite for educa[...] ulatory, economic or technical, would b[...] the same for the benefit of its members [...] training in general (Gentile 1990).

The WAUSE and GLOSAS/USA [...] tions at the occasion of the "Computer [...] University of Lecce, in Lecce, Italy, in [...] teleconferencings, two of them as tw[...] States. The video signals uplinked from [...] ties in Izmir in Turkey, Zagreb in Croat[...] and Bari in Italy, Paris in France, etc[...]

nal level, issues of global importance,
emote access databases.

istance Education on Environment

nd 3, a prototype project can be devel-
nonths.

atin American and Caribbean countries
nental resources, by means of water and
l animal resources, disorganized growth
es. The efforts made by governmental
ufficient, as it is easy to see that these
 years.

ct are;
tory of environmental threats in Latin

thodological tools for analyzing these en
te awareness of the strategies of environ
sed at national and international levels.

the action-research approach. A module
n Environmental Education will be devel-
rimented by the National Open University
rs. This module would be used by other
mbers of CREAD and REDLAED, as a
rticipating institutions will be connected
ronic-mail and computer conferences for
nal inventory of environmental threats and
, educators, public personalities and stu-
t of the exchanges. A coordinating insti-
ect and edit the proceedings of the confer-
rmat. After the first year of operation, the
or further continuation (Chacon 1992).

porting Satellite Education Courses

 Brazilian University Network Distance
Brasilia, the University of the West Indies,
tance Education in Colombia, Empresa
natica (ECOM), S.A., in Chile, etc., have
ne NTU courses for continuing engineering
 soliciting cooperations of governmental
of industries, continuing engineering educa-
, in their countries. A similar survey to
untries of Latin America and the Caribbean

F. Formation of Provisional Committee to Establish GLAU

Thanks to inexpensive telecommunication facilities provided by SprintMail, GLOSAS colleagues in Latin American countries have now formed a provisional committee to establish a Global/Latin American (electronic) University (GLAU) to discuss daily various necessary matters via electronic-mail.

A first step towards this end is to prepare a brochure and a basic working document (in paper and electronic form), in English, Spanish and Portuguese, about GLAU, which can be distributed among the academic and scientific community of Latin America and the Caribbean (and also, of course, to some English speakers) — an example is the reference (Utsumi and Villarroel 1992). Next, we will identify the appropriate population to distribute the documentation and conduct a consultation survey about GLAU along with the feasibility study about the international educational and training course exchange system not only among the regional countries but also between Latin American and the Caribbean countries and North American and European countries.

X. ESTABLISHMENT OF GLOBAL/EUROPEAN UNIVERSITY (GEU)

There is now a strong interest among over 120 member institutions of the Community of Mediterranean Universities (CMU) in establishing a **Global/European (electronic) University (GEU)** with GLOSAS after conducting a series of "Global Lecture Hall" demonstrations. CMU, GLOSAS/USA and other prominent organizations established the World Association for the Use of Satellites in Education (WAUSE) at a conference in June, 1991, at the University of Bari, Italy (De Blasi 1990b). The GEU will interlink not only member schools of the CMU in European, Mediterranean, African, and Arab countries, but also schools in North America.

The WAUSE aims to guarantee an orderly development of the application of satellites in global education and of favoring cooperation between organizations which are active in the fields of education and satellites. The WAUSE will not concern itself with the production of programs, but rather with the problems associated to worldwide promotion of education and training programs delivered via satellites. It will be a forum where solutions to the problems of using satellite for education, be they legal, administrative, regulatory, economic or technical, would be identified and actions taken to solve the same for the benefit of its members and the easy access to education and training in general (Gentile 1990).

The WAUSE and GLOSAS/USA conducted first joint GLH demonstrations at the occasion of the "Computer Architecture Conference" held at the University of Lecce, in Lecce, Italy, in October, 1991. There were four video teleconferencings, two of them as two-way between Italy and the United States. The video signals uplinked from Lecce were viewed at many universities in Izmir in Turkey, Zagreb in Croatia, Yugoslavia, Lecce, Rome, Venice and Bari in Italy, Paris in France, etc., in Eastern and Western Europe,

Mediterranean countries and Ohio, New Jersey, Florida, etc., in the North America. Panelists and participants at Bell Laboratory in New Jersey and Barry University in Miami, Florida also sent their voice or video images to the University of Lecce, so that other downlinking participants could hear or view them (Utsumi 1991b).

XI. ESTABLISHMENT OF GLOBAL/INDIAN UNIVERSITY (GIU)

GLOSAS/USA recently initiated Project DAWN for the extension of American educational services overseas. Together with interested parties, GLOSAS/USA will prepare an application to Project ACCESS of INTELSAT for free satellite time — narrow band service (for audio, data, facsimile, slow-scan TV, graphics, etc.). Arthur C. Clarke Center in Sri Lanka requested support of GLOSAS/USA to receive this benefit. This project may be another step to establishing a **Global/Indian (electronic) University (GIU)**.

XII. CONCLUSION

Global education via satellite and other telecommunication media is the way towards the 21st century Age of Knowledge, laying a social infrastructure for *global citizenship* of the *global village*. Extending communications through a global network and sharing ideas and educational opportunities with other locations is of paramount interest. The exchange of knowledge among countries can make major contributions to world peace, helping to ease frictions, promoting joint research and development, and mutual exchange and understanding. Developments in global electronic education can transform education at all levels around the world, and can enrich and transform human society.

There exist today several factors for the development of global educational and training course exchange. One factor is the persistent and fundamental requirement for accelerating the restructure of manufacturing sector in terms of quality and productivity. The recent achievements of technological progresses, notably in telecommunication and information fields, fulfill this need in education. This process of global electronic educational exchange, an exciting challenge to the present generation, will contribute to build a new world-order of opportunity for accessing knowledge, science and technology, in order to assure sustained and healthy development amongst all peoples.

Global (electronic) University is an evolutionary concept with no global precedent. It can now take shape gradually through parallel steps and many kinds of initiatives in many regions, encouraging a sense of universally *shared* responsibility, a spirit of participation, and of genuine collaboration, in an enterprise truly global in scope.

Seen in a global context, the proposal for a global university consortium may be understood as one of the ways that humankind is responding to the critical challenges that confront us at this time in the history of humanity. Global education is a major key to sustainable survival. The world is "shrink-

ing" in the electronic sense and all peo[ple] becoming increasingly interconnected an[d] another. With this interconnection, howe[ver] calating regional conflicts, so the need f[or] **gaming** has never been greater. In the [i] said that *learning together and working* [...] *world peace.*

The time is ripe for global educa[tion] What we need now are people who are [...] time and to forge ahead toward the 21st [century]

XIII. SUPPORT

We have already received overwhe[lming] encouragement for our project from ov[er] prominent persons around the world, incl[uding] Clarke's research center in Sri Lanka (w[ith] chronous communication satellite) and Dr[...] originated the packet-switching technolog[y] results has also been generated as far a[s] America, and Europe. All was accompl[ished] GLOSAS/USA, on a small budget and [...] support. Perhaps that is the greatest lesso[n]

Our work has been supported for [...] grants from the Americas Society, AT&T[,] Hughes Communications, INTEC of Ja[pan] Technological University, NEC, NHK, [...] Satellites, Private Satellite Network, the [...] Radio Televizja Beograd, Telespazio, So[...] and others and personal funds, to name bu[t]

Generous offers of "in-kind" servi[ces] dozen of our previous "Global Lecture H[all] free of charge. SprintMail, a U.S. comm[...] acknowledges Utsumi's previous effort of [...] cation policies (mentioned above) which b[...] providing colleagues of GLOSAS/USA [...] tion, proposal, report and paper writing.

XIV. REFERENCES

Cartier, M. (1987). "La Maison d'Edition [...]
      Press, Guerin Editeur, Montreal, C[...]
Chacon, F. (1992). Private communication [...]
Charp, S. (1988). "Editorial." *T.H.E. Journ[al]*
De Blasi, M. (1990a). Support letter for G[...]
      Japanese telecommunication policy[...]

w Jersey, Florida, etc., in the North
t Bell Laboratory in New Jersey and
o sent their voice or video images to
ownlinking participants could hear or

/INDIAN UNIVERSITY (GIU)

l Project DAWN for the extension of
as. Together with interested parties,
ion to Project ACCESS of INTELSAT
d service (for audio, data, facsimile,
C. Clarke Center in Sri Lanka requested
is benefit. This project may be another
lectronic) **University (GIU).**

d other telecommunication media is the
Knowledge, laying a social infrastructure
village. Extending communications
ideas and educational opportunities with
st. The exchange of knowledge among
ns to world peace, helping to ease fric-
levelopment, and mutual exchange and
al electronic education can transform ed-
d, and can enrich and transform human

rs for the development of global educa-
One factor is the persistent and funda-
he restructure of manufacturing sector in
he recent achievements of technological
ation and information fields, fulfill this
lobal electronic educational exchange, an
neration, will contribute to build a new
sing knowledge, science and technology,
hy development amongst all peoples.
is an evolutionary concept with no global
radually through parallel steps and many
encouraging a sense of universally *shared*
n, and of genuine collaboration, in an en-

roposal for a global university consortium
ays that humankind is responding to the
at this time in the history of humanity.
sustainable survival. The world is "shrink-

ing" in the electronic sense and all people and all educational programs are becoming increasingly interconnected and more and more dependent upon one another. With this interconnection, however, there comes the potential for escalating regional conflicts, so the need for global education with **global peace gaming** has never been greater. In the international scene, Senator Fulbright said that *learning together and working together are the first steps toward world peace.*

The time is ripe for global education. Technology is now available. What we need now are people who are eager to face the challenges of our time and to forge ahead toward the 21st century education.

XIII. SUPPORT

We have already received overwhelmingly enthusiastic mutual support/ encouragement for our project from over 150 educational institutions and prominent persons around the world, including the world-renowned Dr. Arthur Clarke's research center in Sri Lanka (who originated the idea of a geosynchronous communication satellite) and Dr. Paul Baran in Cupertino, CA, (who originated the packet-switching technology), etc. Considerable interest in the results has also been generated as far as the Pacific Rim, Sri Lanka, Latin America, and Europe. All was accomplished by a non-profit organization, GLOSAS/USA, on a small budget and relying on cooperation and external support. Perhaps that is the greatest lesson of all (Ljutic and Utsumi 1991).

Our work has been supported for years by a combination of ad hoc grants from the Americas Society, AT&T, Colorado Video, Fetzer Foundation, Hughes Communications, INTEC of Japan, Mitsubishi Electric, National Technological University, NEC, NHK, NYNEX, Pacific Telesis, PAN AM Satellites, Private Satellite Network, the Public Service Satellite Consortium, Radio Televizja Beograd, Telespazio, Sony of America, Sprintnet/SprintMail and others and personal funds, to name but a few.

Generous offers of "in-kind" services enabled us to conduct almost a dozen of our previous "Global Lecture Hall" videoconference demonstrations free of charge. SprintMail, a U.S. commercial electronic-mail service, now acknowledges Utsumi's previous effort of deregulating Japanese telecommunication policies (mentioned above) which benefited their business expansion, by providing colleagues of GLOSAS/USA with free accounts for our coordination, proposal, report and paper writing.

XIV. REFERENCES

Cartier, M. (1987). "La Maison d'Edition Electronique," University of Montreal Press, Guerin Editeur, Montreal, Canada.
Chacon, F. (1992). Private communication via email. 19 March 1992.
Charp, S. (1988). "Editorial." *T.H.E. Journal*, 8 August 1988.
De Blasi, M. (1990a). Support letter for GLOSAS/USA's effort to de-regulate Japanese telecommunication policy, August 10, 1990.

De Blasi, M. (1990b). "World Association for the Use of Satellites in Education." *Education in Computing*, Vol. 2, No. 3 September - December, 1990.

Gentile, A. (1990). "A note on the World Association." *Education in Computing*, Vol. 2, No. 3, September - December.

Gomi, H. (1988). "New Media for Lifelong Learning," *Nihon Keizai Shimbun*, 25 June, 1988.

ICIS Forum (1988). 18;1a-1b. Kiester, S. V. (1991). "Learning Centers: The Bay Area Model," *IACEE Newsletter*, News bulletin of the International Association for Continuing Engineering Education (IACEE), Vol. 3, No. 1, March 1991, pp. 4-5.Ljutic, A. (1989). "Distance Education for a Small Planet," *Paper presented at the Pacific-Basin Conference of World Future Studies Federation/"Linking Long-Range Visions to Short-Range Decisions in the Pacific-Basin Networking Community,"* Nagoya, Japan, November 20-23, 1989.

Ljutic, A. and T. Utsumi (1991). "Glasnost *In* The Global Village: A Glosas Project." *Paper presented at the "GLASNOST AND THE GLOBAL VILLAGE" conference*, York University, Toronto, Canada, February 19-22, 1991.

Nevins, C. L. and C. F. Urbanowicz (1991). "Extra-terrestrial Education: Not a Science Fiction at All," *Paper presented at the 1991 Annual Meeting of the American Association for the Advancement of Science*, Washington, D.C., February 14-19, 1991.

Rossman, P. and T. Utsumi (1986). "Waging peace with globally-inter connected computers." In: Didsbury H.F. Jr. (ed) *Challenges and Opportunities: From Now to 2001*, Bethesda, MD: World Future Society, pp. 98-107.

Urbanowicz, C. F. (1991). "Information Technology for The Pacific Basin." *Paper presented at the 17th Quadrennial Meeting of the Pacific Science Congress and the session entitled "Technologies for Development: Prospects for the 21st Century,"* Honolulu, Hawaii, 27 May-2 June, 1991.

Utsumi, T. (1977). "Peace game." *Simulation*, November 1977: p. 135.

Utsumi, T. and J. DeVita (1982). "GLOSAS project." In: Schoemaker S. (ed) *Computer Networks and Simulation II*. Amsterdam: North-Holland Publishing Co., pp. 279-326.

Utsumi, T., P. O. Mikes, and P. Rossman (1986). "Peace games with open modeling network." In: Schoemaker S. (ed) *Computer Networks and Simulation III*, Amsterdam: North-Holland Publishing Co., pp. 267-298.

Utsumi, T. and M. Clements (1989). "Proposal for Global/Pacific (electronic) University." *Paper presented at the Pacific-Basin Conference of World Future Studies Federation/"Linking Long-Range Visions to Short-Range Decisions in the Pacific-Basin Networking Community,"* Nagoya, Japan, November 20-23, 1989.

Utsumi, T., P. Rossman, and S. M. Rosen (1990). "The Global Electronic University," In: Moore, M. G. (ed) *Contemporary Issues in American Distance Education*. Oxford, Engl

Utsumi, T. (1991a). "Towards Establish University." *Paper presented at of a New European Architectu Community's Internal and E University, Fairfax, Virginia, May

Utsumi, T. and D. A. DeMaio (1991). "U HALL' for Global (electronic) U Peace Gaming," Edizioni Fratelli

Utsumi, T. and A. Garzon (1991). "Glob Peace Gaming." In: Crookall Interdependence: Simulation and Gar Conference of the 22nd Annual International Simulation and Gamin 15-19 July, 1991. Sprinter-Verlag.

Utsumi, T. (1991b). "Global (electronic) Peace Gaming with Global Neural C at the Global Lecture Hall video tel SATELLITES FOR GLOBAL EDU Conference held at the University 1991.

Utsumi, T. and A. Villarroel (1992). "T American (electronic) University." *P TY, TECHNOLOGY AND GLOBA HIGHER EDUCATION." Regional C America and the Caribbean (CRE Venezuela.

Villarroel, A. (1991). "CREAD: An Inte Distance Education." *A report on the project which surveyed the state of and the possibilities of technical r Laptop Publishing, State College, Per

ciation for the Use of Satellites in
mputing, Vol. 2, No. 3 September -

World Association." *Education in*
tember - December.

elong Learning," *Nihon Keizai Shimbun*,

. S. V. (1991). "Learning Centers: The
Newsletter, News bulletin of the
or Continuing Engineering Education
arch 1991, pp. 4-5.Ljutic, A. (1989).
all Planet," *Paper presented at*
rence of World Future Studies
nge Visions to Short-Range Decisions in
Community," Nagoya, Japan, November

lasnost *In* The Global Village: A Glosas
t the "GLASNOST AND THE GLOBAL
University, Toronto, Canada, February

(1991). "Extra-terrestrial Education: Not a
er presented at the 1991 Annual Meeting
tion for the Advancement of Science,
14-19, 1991.

6). "Waging peace with globally-inter
: Didsbury H.F. Jr. (ed) *Challenges and*
to 2001, Bethesda, MD: World Future

nation Technology for The Pacific Basin."
7th Quadrennial Meeting of the Pacific
he session entitled "Technologies for
r the 21st Century," Honolulu, Hawaii, 27

imulation, November 1977: p. 135.
"GLOSAS project." In: Schoemaker S. (ed)
Simulation II. Amsterdam: North-Holland
6.

Rossman (1986). "Peace games with open
choemaker S. (ed) *Computer Networks and*
dam: North-Holland Publishing Co., pp.

9). "Proposal for Global/Pacific (electronic)
sented at the Pacific-Basin Conference of
ederation/"Linking Long-Range Visions to
the Pacific-Basin Networking Community,"
20-23, 1989.
. M. Rosen (1990). "The Global Electronic
. G. (ed) *Contemporary Issues in American*

Distance Education. Oxford, England: Pergamon Press, pp. 96-110.
Utsumi, T. (1991a). "Towards Establishing a Global/European (electronic)
University." *Paper presented at Biennial Conference: "The Challenge*
of a New European Architecture: Implications for the European
Community's Internal and External Agendas," George Mason
University, Fairfax, Virginia, May 22 - 24, 1991.
Utsumi, T. and D. A. DeMaio (1991). *"User Manual of 'GLOBAL LECTURE*
HALL' for Global (electronic) University and Global Environmental
Peace Gaming," Edizioni Fratelli Laterza, Bari, Italy.
Utsumi, T. and A. Garzon (1991). "Global (electronic) University for Global
Peace Gaming." In: Crookall D. and Arai K. (eds) Global
Interdependence: Simulation and Gaming Perspectives. *Proceedings of the*
Conference of the 22nd Annual International Conference of the
International Simulation and Gaming Association (ISAGA), Kyoto, Japan,
15-19 July, 1991. Sprinter-Verlag.
Utsumi, T. (1991b). "Global (electronic) University for Global Environment
Peace Gaming with Global Neural Computer Network." *Paper presented*
at the Global Lecture Hall video teleconference on "The Round Table on
SATELLITES FOR GLOBAL EDUCATION." Computer Architecture
Conference held at the University of Lecce, Lecce, Italy, October 24,
1991.
Utsumi, T. and A. Villarroel (1992). "Towards Establishing a Global/Latin
American (electronic) University." *Paper contribution to a book "QUALI-*
TY, TECHNOLOGY AND GLOBALIZATION IN LATINAMERICAN
HIGHER EDUCATION." Regional Center for Higher Education in Latin
America and the Caribbean (CRESALC) of (UNESCO) in Caracas,
Venezuela.
Villarroel, A. (1991). "CREAD: An Inter-American Program in the Field of
Distance Education." *A report on the research of the OAS-IOHE-CREAD*
project which surveyed the state of Inter-American Distance Education
and the possibilities of technical reticular cooperation, Scott Weiner
Laptop Publishing, State College, Pennsylvania, November, 1991.