E-Learning: The Future of Universities in the 21st Century

New Delhi ::: 6 August 2007

Abdul Waheed Khan
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“If knowledge is the engine of development, then learning is its fuel.”

Hirotaka Takeushi
“The ability to create and maintain knowledge infrastructure, develop knowledge workers and enhance their productivity will be the key factors in deciding the prosperity of the knowledge society.”

Abdul Kalam
Central Role of Knowledge for Development

Knowledge

- Economic Growth
- Social Development
- Cultural Enrichment
- Political Empowerment
Millenium Development Goals

- Goal 1: Eradication of extreme poverty and hunger
- Goal 2: Achieving universal primary education
- Goal 3: Promoting gender equality
- Goal 4: Reducing child mortality
- Goal 5: Improving maternal health
- Goal 6: Combating HIV/AIDS, malaria etc.
- Goal 7: Ensuring environmental sustainability
- Goal 8: Developing a global partnership for development

Knowledge
“Half a hectare of land and one year of labour were required to feed one person in 1900; whereas that same half-hectare now feeds 10 persons on the basis of just one and a half days of labour”.

UNESCO Science Report

Social Transformation

Agricultural Society

Industrial Society

Knowledge Societies
UNESCO’s concept of Knowledge Societies

- Freedom
- Inclusiveness
- Diversity
- Empowerment

Human Needs and Rights
Human development seems to slowly advance in all parts of the world.

Trends of the Human Development Index (HDI)

Source:
UNDP Human Development Report, 2006
Fighting poverty

Asia leads the decline in global poverty

Percentage of people living on less than $1 a day, 1990 and 2002

Digital Divide

Access to ICTs grows steadily, but ‘digital divide’ persists.

Percentage of world population with telephone subscriptions, PCs and internet connections, 1990-2004

A World of Contrast

Knowledge
Prosperity
Globalization
Inclusion

Knowledge Divide or Digital Divide

Ignorance
Poverty
Marginalization
Exclusion
Technology Transformation
Role of Universities in Society (I)

- Government:
  - train policy-makers
  - understand, assess and find solutions to policy challenges

- University:
  - train professionals and business leaders
  - understand, assess and find solutions to practical challenges

- Community:

Role of Universities in Society (II)

- Directly contributing to economic growth
- Fostering redistribution and empowerment
- Strengthening the education sector
- Adapting research and technology
Role 1: Contributing to Economic Growth

Directly contributing to economic growth by:

- Influencing national productivity and international competitiveness
- Training qualified and adaptable labour force
- Assisting a country to access and generate new knowledge, and adapting global knowledge for local use

Role 2: Fostering Empowerment

Fostering redistribution and empowerment by:

- Fostering empowerment through the building of social capital
- Expanding opportunities for employability, income, and social mobility

Role 3: Strengthening Education

Strengthening the entire education sector by:

- Training (and re-training) teachers, school principals and system managers
- Fostering curriculum development and evaluation of primary and secondary education
- Analyzing education performance, identifying problems, providing policy advice

Role 4: Adapting Research and Technology

Adapting research & technology engendering, e.g. improved food supply and rural incomes by:

- Training professionals - doctors, nurses, teachers and administrators - who will oversee and implement MDG activities

- Fostering capacities in research, applied technology and community service that are essential for improving welfare levels of the excluded

_From Aid to Global Sharing of Knowledge: Research Excellence and Commitment to Development_, by William Saint, Lead Education Specialist, World Bank (Africa Region), 2004.
Learning: Meeting the challenges

- Access and reach
- Equity and gender
- Quality and effectiveness
- Relevance and life-long learning
- Cost and efficiency
Change……

“It is not the strongest species that survive, nor the most intelligent, but the ones most responsive to change.”

Charles Darwin
Future of knowledge acquisition and sharing (I)

«Kronberg Declaration»

- Knowledge acquisition and sharing will be increasingly technology mediated
- Traditional educational processes will be revolutionized and new knowledge communities will be formed
- Need for long-term strategies to efficiently harness ICTs to develop new approaches
- Multi-stakeholder partnerships to provide sustained, long-term concrete solutions
Future of knowledge acquisition and sharing (II)

«Kronberg Declaration» (continued)

- Need for open access content, open standards, open data structures, and standardized info-structures
- Creative business models to support the sustained creation and dissemination of high quality digital content
- Need for long-term availability of digital content and interoperability of e-learning systems at the global level
ICT in Learning (I)

- Improves educational quality
- Improves educational management
- Enables lifelong learning opportunities
- Enhances diverse and collective learning processes
ICT in Learning (II)

- Enables non-formal and informal learning environments
- Increases access to basic learning for everyone
- Has capacity to reach the disadvantaged
ICT in Learning (III)

Knowledge Source

- Authors
- Publishers
- Industries
- Academia
- Institutions

Digital Content Development
- Lecture-based (print)
- Web-based (HTML)
- CD/DVD-based
- Video Content
- Audio Content
- Interactive (Java, Flash)

Quality Control

Delivery Technology
- Direct instruction
- Mail Correspondence
- Internet/LAN/WAN
- Video/TV
- Satellite
- Podcasting
- Internet Radio
- Workstations

Pedagogy

Analysis

Knowledge Destination

- Students
- Trainees
- Libraries
- Web repositories
- Academia
ICT in Learning (IV)

Requirements:
- Orchestrated effort
- Wide spectrum of competencies, skills and inputs

Diagram:
- Media Professionals
- Expert NGOs
- Governments and IGO's
- Private ICT industries
- Librarians and Archivists
- Financial & Economic Analysts
- Software Developers
- Audio, Video and Graphics Specialists
- Education Technology Specialists within "Academia"
ICT in Learning (V)

- Information Infrastructure
- Communications Infrastructure
- Capacity Building and Skills Generation
- Digital Content (Creation and Dissemination)
- Educational Issues (Pedagogy, Instructional Design, …)
- Legal and Business Models (IPR, CR, Incentives, …)
ICT in Learning (VI)

Constraints

- Technological Constraints
- Content & Interface Limitations
- Political & Institutional Constraints
- Socio-Cultural Constraints
- Financial Constraints
- Ethical & Legal Constraints
- Human Resource Constraints
Public-private partnerships
Re-engineering Higher Education (I)

- Higher education’s ability to change and to induce change and progress in society
- Higher learning and research as essential components of development
- Traditional education systems no longer sufficient to take up development challenges
- Higher education needs more radical change and renewal than ever before
- ICTs potential to re-engineer higher education
Re-engineering higher education (II)

ICT solutions for universities:

- Revolutionizing research and teaching
- Strengthening interactivity
- Promoting self-paced research, teaching and learning
- Enabling greater participation and better quality of distance and open learning
Re-engineering Higher Education (III)

Educational Providers/Development Agencies  Educational Products  Animators/Facilitators  Consumers

Provider - 1  a
Provider - 2  b
Provider - 3  c
Provider - 4  d

Community Learning Centres

Learners
The Unimaginable! … Expert Visions

- This ‘telephone’ has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.
  Western Union, 1876

- Radio has no future.
  Lord Kelvin, President of Royal Society, 1897

- Everything that can be invented has been invented.
  Charles H. Duell, U.S. Office of Patents, 1899

- I think there is a world market, for maybe five computers.
  Thomas Watson, Chairman of IBM, 1943
Television won't be able to hold on to any market it captures after six months. People will soon get tired of staring at a plywood box every night.

Darryl F. Zanuck, Head of 20th Century Fox, 1946

Computers in the future may... perhaps only weigh 1.5 tons.

Popular Mechanics, 1949

There is no reason why anyone would want a computer in their home.

Ken Olson, president and chairman, of DEC, 1977

640K ought to be enough for anybody.

Bill Gates, 1981

The Unimaginable! ... Expert Visions