Use of ICT in Higher Education

Saori Imaizumi       Global ICT, The World Bank, October 1, 2014

CAREN Regional Networking Conference, Almaty, Kazakhstan
How can we use ICT in higher education?

Ministry of Education

Education Statistics Data Collection

University

School Administration/Management

Research & Innovation

Teaching & Learning

Student Placement to Job Market
Potential Benefits of Using ICT in Higher Education

*Improve*

Access to Education

Quality of Education

Quality and Volume of Research and Innovation

Management Efficiency
Principles of Using ICT

**Open**

- Lower costs
- Connect with global community
- Constant, real-time update
- Access to resources
- Collaboration leads to innovation

**Closed**

- Control and protect contents
- Control access
- Maintenance / support

**Benefits**

**Risks**

- Depends on community
- Privacy and Security

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Principles of Digital Development

1. Design with the User
2. Understand the Existing Ecosystem
3. Design for Scale
4. Build for Sustainability
5. Be Data Driven
6. Use Open Standards, Open Data, Open Source, and Open Innovation
7. Reuse and Improve
8. Address Privacy & Security
9. Be Collaborative
Education Statistics Data Collection and School Administration Management

Education Management Information System

OpenEMIS
The Open Source Education Management Information System

Coordinated by United Nations Educational, Scientific and Cultural Organization
Compatible with SDMX
Managed by OpenEMIS
Sponsored by CSF
Developed by KORD IT
Integrated with DevInfo
Research and Innovation

E-library/Open Access Journals

About Research4Life

What is Research4Life?
Research4Life is the collective name for the four programmes – HINARI, AGORA, CARE and ARDI – that provides developing countries with free or low cost access to academic and professional peer-reviewed content online.

Eligible libraries and their users benefit from:
- Online access to over 44,000 peer-reviewed international scientific journals, books, and databases
- Full-text articles which can be downloaded for saving, printing or reading on screen
- Searching by keyword, subject, author or language
- Resources available in several languages
- Training in information literacy and promotional support

Research4Life is a public-private partnership of the WHO, FAO, UNEP, WIPO, Cornell and Yale Universities and the International Association of Scientific, Technical & Medical Publishers. Working together with technology partner Microsoft, the partnership’s goal is to help attain six of the UN’s eight Millennium Development Goals by 2015, reducing the scientific knowledge gap between industrialized countries and the developing world.

- Eyeless Mexican Cavefish Save Energy by Eliminating the Circadian Rhythm in Metabolism
- The OpenPicoAmp: An Open-Source Planar Lipid Bilayer Amplifier for Hands-On Learning of Neuroscience
- Phylogeny of Courtship and Male-Male Combat Behavior in Snakes
Research and Innovation

Open Lab - Maker Space

Crowdfunding

Innovation Ecosystem

DEMOLA

Building The World's Strongest Innovation Ecosystem

For Universities
Demola offers sustainable university-business collaboration, creating ways to apply theory into practice, as well as getting new research data.

Your students will love it too. Our practical and interdisciplinary approach will spicce up any course catalog.

To top it all off, by joining Demola, you get access to our international network.

For Students
Student, at Demola you are the star. You and your team will work on real cases, and the success depends on your expertise, talent, and ideas.

In exchange, you will get invaluable experience, employer contacts, and new friends. And yes, you get credits, too.

See how you can apply and take a new kind of path to your degree and future career.
Teaching & Learning

Learning/Contents Management System

Massively Open Online Courses (MOOCs)

Open Education Resources

How it works
Authors can:

- Create
- Share
- Adapt

Allowing learners to:

- View
- Download
- Mobile
Student Placement to Job Market

Job Portal and Job Matching Site

Welcome to the new Monster
Aim Higher, Reach Farther, Dream Bigger.
A better career is out there. We’ll help you find it. We’re your first step to becoming everything you want to be.

4 Jobs in Kazakhstan

- **Lead Piping Engineer**
  - Location: Kazakhstan
  - Distance: 0 miles
  - Salary: unspecified

- **Senior Contracts Manager**
  - Location: Kazakhstan
  - Distance: 0 miles
  - Salary: $200000 - $250000 per annum + full package

- **Lead / Senior Quantity Surveyor**
  - Location: Kazakhstan
  - Distance: 0 miles
  - Salary: $160000 - $200000 per
Today’s focus “Teaching and Learning”

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Student Placement to Job Market
# Use of ICT in Teaching & Learning

## 1. Content

- Content Development (continuously evolve with user inputs)
- Content Publishing via:
  - Digital textbooks
  - Videos

### Type of business

- Publishers
- Content development
- Open source

### Industry players

- E-learning Standards
- Publishers
- Developers
- Authoring Tools
- Content Aggregator
- Libraries&Repositories

## 2. Management Systems

- A software platform to manage the learning process and associated content including:
  - Admin/Procurement
  - Testing, certification, self-assessment
  - Library of teaching sources
  - Content management

### Type of business

- Software platform
- Tools
- Smart technologies

### Industry players

- LMS
- TMS
- OCMS/OCW
- SLMS
- Assessment&Analytics

## 3. Distribution

- Address the link from content creation to end-user consumption

### Type of business

- Immersive learning (provides a simulated real world environment)
- MOOCs
- Learning Portal

### Industry players

- Online University
- M-education (mobile phone)
- MOOC
- Immersive Learning
- Serious gaming/ Gamification (simulation using a game format)
- eBooks &Rentals

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**LMS**: Learning Management System  
**OCW**: OpenCourseWare  
**TMS**: Talent Management System  
**SLMS**: Social Learning Management System  
**OCMS**: Open Content Management System  
**MOOCs**: Massive Open Online Courses  

**Sources**: IBIS Capital estimates; Ambient insight research; GSV education report
Global Practice – Korean Government encourages mass adoption of e-learning

Korea’s e-Learning Market Has Been Growing Steadily

Key Points

- The Korean e-Learning market has grown at a steady 9% CAGR from 2004-2010
- The government is expected to invest KRW2.2tn in industry over 2012-2015 to help boost adoption of e-Learning across the country
- Education service providers are working hard to build a stronger presence in the content business, which has grown at a 2005-2009 CAGR of 24%
- Strategic players are seeking horizontal and vertical integration to consolidate market power and create synergies along the value chain, e.g. content, device distribution, media, and character businesses

Smart Education Outlook (2012-2015)

<table>
<thead>
<tr>
<th>Plan</th>
<th>2012 Application</th>
<th>2012-2015 Proliferation and stabilisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud education</td>
<td>Sejong City Office of Education to establish smart school model</td>
<td>System in 30% of schools by 2013 System in all schools by 2015</td>
</tr>
<tr>
<td>Digital textbook development</td>
<td>Digital textbooks are the centre of smart education model</td>
<td>Books developed for middle schools by 2014 and elementary schools by 2014-2015 Books developed for high schools by 2015</td>
</tr>
<tr>
<td>Online classes</td>
<td>System organisation</td>
<td>Online examination of academic ability by 2013 Online scholastic achievement test by 2015</td>
</tr>
</tbody>
</table>
Global Practices – Use of E-learning in the United States

Government’s initiative

• Set the standards for e-learning – Tin Can Project:
  • The US is seeking to develop a new generation of software specifications to manage an individual’s learning experience across multiple formats and environments. The initiative has been called Tin Can and is an API that records and tracks all type of learning experiences. Publishers will need to adapt to these new standards and applications.

Using MOOCs at Universities

• The US university examples:
  • SUNY (State University of New York)
    • Offer credit for MOOCs (to reduce students’ enrolled time on campus and reduce the cost)
    • Offer incentives to campuses to develop and consume online courses that meet general education requirements
    • Some courses could be “guided MOOCs” where a SUNY instructor helps SUNY student work their way through a course that was created by another institution
  • Colorado University
    • Intends to use the MOOC platform as a channel for buying and selling content to extend its course offerings
  • Massachusetts bay Community College
    • Deploys a “flipped classroom” model where a MOOC from MIT provides content, but the college provide discussion and supervision. The Community Colleges award credit and take fees.

Source: “The Maturing of the MOOC” Department for Business, Innovation and Skills
Global Practices – Use of E-learning in the United States

Key Points

- A mix of traditional universities and online university options including: OpenCourseWare (OCW), Massive Open Online Courses (MOOCs), online accredited courses and online courses

- 6.5m students studied at least one online course in 2011 which is expected to grow at a faster rate than student enrolment

- Private not-for-profits play catch-up to implement blended learning capabilities

Is Online Education Critical to the Long-term Strategy of the institution? (a) (%)

Source: IBIS Capital Estimates
Global Practices – Russia

A Phase Approach for Building Educational Resources

Mid 1990s

The Government has paid attention to the informatization of education, the development of telecommunication networks, and production of information and education resources.

First Phase

Set up an NREN for Russia called the Russian Research and Educational Network RUNNet, in the framework of the National Program “Universities of Russia”.

Second Phase

The government created educational resources through launching several large-scale education portals under the framework of the Federal Targeted Program “Development of the Integrated Educational Information Environment” (2001-2005). 10 Federal Educational Portals were set up between 2002 and 2004. Special attention was paid to professional education and advanced training of pedagogical, administrative, engineering and technical staff. 42 regional centers were used for training teachers in a distant mode.
Lessons Learned for e-Learning – Policy Level

1. Quality Assurance
2. Be Strategic about Course Provision
3. Phase Approach for building Educational Resources
4. Capacity Building of Teachers and Students
Lessons Learned for e-Learning – Course Creation

1. Use of MOOCs and other online tools for course creation
2. Leverage existing resources and partners for course creation (e.g. partnering with publishers and other schools)
3. Localize materials and languages
4. Use of Open License (i.e. creative commons) requires culture of sharing
Lessons Learned for e-Learning – Course Delivery

1. Be Flexible on Delivery Format (physical center, CD-ROM, and Online)
2. Shift to Blended Learning
3. Shift in Teachers’ Roles as Facilitators
1. Do not have to convert all teaching/learning activities into a LMS
2. Conduct a training on LMS from a user-centric perspective (How LMS can help users) instead of a tool-centric perspective (explain the functions of the tool)
Thank you!

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