UNU Strategy to enhance teaching & learning, research and capacity development through information technology

REPORT AND RECOMMENDATIONS

***Draft v5 29 Sept 2010***

1 – 4 September 2010
UNU International Institute for Software Technology
Macau
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1 Introduction

This report draws on earlier UNU consultations (November 2008 and October 2009) associated with the strategic development of technology-enhanced teaching & learning, research and capacity development. Key recommendations from the 2009 meeting brought forward into this report include:

- identification of a technology-enhanced learning and research steering committee;
- designation of an e-strategy focal person at each UNU Institute and Programme;
- establishment of communication links between the technology-enhanced learning and research steering committee and the Graduate Programmes Committee;
- change leadership;
- E-learning quality centre; and
- development of UNU-wide technology-enhanced learning and research services.

The present report features the outcomes of the technology-enhanced learning and research ad-hoc working group, which met from 1-4 Sept 2010 at UNU-IIST in Macau. The objectives of the meeting were to recommend an effective strategy for UNU to engage in the use and development of information technology to enhance teaching, learning, research and capacity development and to achieve an understanding of:

- the role that technology-enhanced learning and research can play in serving the needs of UNU institutes;
- the variety of technology-enhanced learning approaches, associated pedagogical models, and subject areas for which they are best suited; and
- the institutional and quality assurance issues in running online degree programs.

The ad-hoc working group comprised:

- Prof. Govindan Parayil
- Prof. Peter Haddawy, Chair
- Prof. Lynne Hunt
- Jeffrey Sanders
- Brendan Barrett
- Maike Schansker
- Andreas Meiszner
- Abegboyega Ojo
- Martin Schäf

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1 http://www.unu.edu/elearning/workshop_200811/
2 We use the terms technology-enhanced teaching & learning, research, and capacity development to mean the use of information technology to enhance the effectiveness of these activities.
The ad-hoc working group consulted by video-conference with a number of UNU Institutes and Programmes as well as external experts, namely:

- UNU-INWEH, Adeel Zafar
- UNU-WIDER, Luc Christiaensen
- UNU-MERIT, Luc Soete
- UNU-FTP, Tumi Tomasson
- UNU-EHS, Thomas Zschocke
- UNU-ViE, Virginie Aimard
- UNU IAS, Sulayman Sowe
- UNU Centre, Luis Patron and Laureline Blanes
- Peer to Peer University, Philipp Schmidt (formerly with UNU-MERIT)

The consultations revealed a cross-section of current technology-enhanced projects at UNU that includes:

- Water Virtual Learning Centre – UNU-INWEH
- Openedworld – UNU-MERIT
- Science Connect – UNU-ViE
- OpenECBCheck – UNU-ViE
- Online learning support for the Climate Energy and Food Security and the Disaster Management and Humanitarian Assistance courses of the Asia Pacific Initiative – UNU Centre
- Intelligent Simulation Environment for Dental Surgical Training – UNU-IIST
- Intelligent Tutoring for Medical Problem Based Learning – UNU-IIST
- Online learning support for the Masters in Geography of Environmental Risk and Human Security in collaboration with the University of Bonn, - UNU-EHS
- Online learning support for the PhD block course entitled “From vulnerability to resilience in disaster risk management – UNU-EHS
- Online learning courses developed with TERI University and the School on Sustainable Development with the Royal Melbourne Institute of Technology - UNU-IAS

The outcomes of the consultations indicated that the use of technology-enhanced strategies is proceeding apace at UNU and that it is now timely to develop a more coordinated, cross-institutional approach to technology-enhanced learning, teaching, research and capacity development.
2 Recommendations

1. This report recommends the integrated use of information technology to enhance
   - teaching and learning,
   - research collaboration, and
   - capacity development.

2. This report recommends establishment of a UNU-wide program of research in the use of
   information technology in teaching and learning, research, and capacity development,
   including one or more cross-institute flagship research programmes that will have
   sufficient critical mass to achieve global impact.

3. This report recommends that technology enhancement at UNU be guided by appropriate
   use of innovative and effective technology that:
   a) contributes to the continued evolution of UNU as a cohesive organization;
   b) contributes to the global academic community and the UN;
   c) accords with UNU’s quality assurance standards;
   d) enhances efficiency through interoperability standards and shared resources;
   e) is based on a scholarly, rigorous and evidence-based approach;
   f) enables flexible, engaging and authentic learning;
   g) facilitates openness and transparency in regard to access and participation,
      software, content, and intellectual property.; and
   h) is supported by sustainable processes and strategies, including financial self-
      sustainability through the implementation of adequate funding models.

4. This report recommends that technology-enhancement at UNU be supported by a policy
   and quality framework that follows international standards in teaching and learning
   including, but not limited to:
   a) standards for course and programme development;
   b) assessment guidelines;
   c) good teaching guidelines;
   d) standards for online teaching;
   e) standards for computing;
   f) material development guidelines; and
   g) graduate qualities and skills templates.

5. To facilitate use of technology enhancement at UNU, this report recommends the move
   towards:
   a) a common research collaboration platform;
b) the adoption of a Learning Management System (LMS) ready for use by Institutes and Programmes that currently have no LMS in place;

c) adoption of interoperability standards, compatible with the systems already being used by Institutes and Programmes;

d) the establishment of appropriate support services including:
   a. ICT support for educators, learners and researchers;
   b. design and delivery of educational programs; and
   c. professional development.

6. This report recommends partnerships with universities that can support technology-enhanced teaching and learning, research, and capacity development.

7. This report recommends that UNU adopt a coordinated resource mobilisation strategy that includes approaching funding sources such as:
   a) Hewlett Foundation;
   b) Gates Foundation;
   c) Carnegie Foundation;
   d) McArthur Foundation;
   e) Ford Foundation;
   f) UN Foundation; and
   g) Development agencies such as SIDA, DANIDA, DFID, NORAD, USAID, GTZ and JICA, amongst others.

8. This report recommends that UNU adopt a change leadership strategy that includes:
   a) professional development programmes;
   b) tutor support systems;
   c) internal communication plan;
   d) incentive systems;
   e) online learning networks and communities; and
   f) identification of champions.

9. This report recommends that technology enhancement at UNU be implemented through a project mandate that includes quick wins and long-term goals together with implementation stages and timelines including but not limited to:
   a) establishment of a steering committee by December 2010 to support and sustain project development;
   b) assignment of a project officer by February 2011;
   c) needs assessment and prioritisation by March 2011;
d) resource requirements including budget documented by June 2011;

e) resource mobilisation plan by August 2011;

f) project evaluation strategy by September 2011; and

g) incorporation of a strategy for technology-enhanced teaching and learning, research, and capacity development into the UNU institutes’ strategic plans by October 2011.

3 Issues arising from consultations

The following issues were raised in consultation with UNU Institutes and Programmes. They are recorded here to capture the richness and creativity of the discussions so as to inform the direction of technology enhancement at UNU. The issues raised can be placed into five broad categories: integration and coordination, support systems, pedagogy, openness and access, and technology.

Integration and Coordination

- The strategy to be implemented should connect to UNU’s areas of work (peace, security, climate change, disaster management, governance, etc.).

- Centrally provided systems and services to support the disseminated UNU should be implemented.

- Development of integrated post-graduate study programmes across the UNU.

- Need to establish “UNUness” of the study programme, suggestions included:
  - relevant scientific knowledge;
  - cultural inclusiveness including traditional knowledge;
  - pedagogy that includes:
    - a case study approach
    - internationalization
    - possibilities for localization of material
    - interdisciplinary work
    - a student-centered approach
    - problem-based learning (or related pedagogical approaches, such as project-based, or inquiry based learning)
    - authentic and immersive learning
    - Communities of Practice and/or learning networks

- Provision of common foundation courses, such as digital literacy (including web 2.0 technology), statistics and the UN system.

Support Systems

- Establishment of a reward system for teaching and learning.
- Capacity development within UNU including the coherent professional development programme and the identification of champions.
- An innovative and sound (financial) sustainability model.
- Establish a public private partnership schemes.
- Provide an online catalogue of resources.
- Include benchmarking of e-strategies.

**Technology**

- A potential innovation for UNU includes tools (e.g. Fieldtrip) to author and share case studies.
- Set up online research collaboration platforms that supports twinning.
- To be able to function in low connectivity environments address the potential of mobile phones.
- The need to support synchronous and asynchronous modes of learning.
- Look at promising areas for research, e.g. intelligent tutoring and serious games.
- Develop a UNU e-portfolio system to facilitate learning and research networks and a UNU alumni.
- Consider the establishment of remote access laboratories and simulation environments.
- Decide on a consistent UNU approach to support the use of technologies, including Learning Management Systems.
- Establish UNU standards and criteria to determine requirements on functionality and extensibility of technologies.
- Ensure the alignment of UNU copyright practices with the digital age and with UNU’s mission to cater for the developing world.
- Facilitate the development of a single digital resource to foster research collaboration and capacity development.
- Effective use of social media in an education context.

**Pedagogy**

- Defined UNU graduate attributes and skills.
- Supporting a range of assessment techniques.
- Provide students of short term training courses with continued opportunities for lifelong learning.
- Online personal learning environments and a flexible curriculum framework to facilitate individually-tailored degree structures, including the potential to study across UNU institutes and programmes.
- A flexible curriculum framework that facilitates early and mid-career learning needs.
- Use of technology to support the full spectrum from formal degree programmes to informal learning.
- Establish (online) research mentoring programmes.

**Openness and Access**

- Openness to allow for access, collaboration and sharing.
- Help developing countries to build capacities for technology enhanced learning.
- UNU as a facilitator of knowledge exchange and circulation.
- The contemporaneous development of open and free learning alongside the development of UNU postgraduate courses
- Promote openness, inclusiveness and transparency as well as the use of open educational practices.
- Use of technology to widen access to education, particularly the “Education for All” Movement.
- Take the OpenCourseWare initiative forward.