Implementing Technological Change

Education Innovation Quest: A Century in the Service of Knowledge
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Why universities must change: the challenge of technology

Overview
1. SA needs: technology can help
2. Defining and understanding e-learning
3. Why e-learning is important
4. Changing students and technologies
5. Implications for academic planning
6. Conclusions

Meeting local needs
Technology not a panacea: tools need to be used appropriately
Needs assessment essential (difficult from Canada)
Main challenges to SA HE:
• expansion/equity/the knowledge economy/quality of HE
Ng’ethe: so far in African higher education: expansion only

Needs of SA HE
Dep. Min. Ms Phunzile Mlambo-Ngcuka, UNISA, Feb 2007:
• development of ICT skills
• retrain unemployed graduates
• engineering, planning, telecoms, energy
• management in health/education
• maths, science, ICTs, languages in schools
Meeting the needs

ICTs/e-learning can help meet these needs, but ONLY if:
• there is a parallel shift in the design and delivery of teaching
• there is an institution-wide plan/strategy for e-learning
• academic departments/faculties are fully involved in the planning

What is e-learning?

My definition:
all computer and Internet-based activities that support teaching and learning - both on-campus and at a distance

What is e-learning?

(Bates, 2005)

face-to-face

no e-learning

class-room

lap-top

mixed

distance

education

blended

learning

distributed

learning

programs/labs

mode

(less face-to-face + e-learning)

Why is e-learning important?
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Different economies

Resource-based: agricultural, mining, fishing: land/sea-based, local
Industrial: manufacturing: urban, national, factories, hierarchical, economies of scale, specialist skills
Knowledge-based: financial, biotechnology, ICTs, telecoms, entertainment: ‘virtual’, global, networked, multi-skilled
All three economies in parallel

Shifting economy

% share of Canadian industrial employment


Services

Goods

Source: Globe and Mail, 27 April 2006, B9

Skills of knowledge-based workers

• problem solving, critical thinking
• communication skills
• computing/Internet skills
• independent learners
• entrepreneurial, initiative
• flexibility
• team-work/networking
AS WELL AS subject expertise

Why the shift?

Knowledge explosion: too much to learn by heart: smarter rather than more
Skills required in knowledge-based businesses (and in life):
• critical thinking, creative thinking, problem-solving, communication, use of ICTs
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Changing students and changing technologies

Changing students: digital natives (Prensky, 2005)

Under 25 years of age: brought up with technology: computers, mobile phones

Changing students:
digital natives (Prensky, 2005)

Lifelong knowledge workers: a major new market

On-going education/learning essential for economic survival; LLs need access to latest research
3 months training over five years
In Canada, nos. = univ. entrants from school
Most do NOT want traditional offers
NOT the same market as traditional continuing education

New programs for lifelong learners

Modules, certificates, industry accreditation leading to masters
Inter-disciplinary, ‘topic-based’
New knowledge since they graduated
Flexibly delivered:
- Part-time (evenings/weekends/half-days)
- Blended (campus + online)
- Fully distant (home or workplace)
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Online learning 1995-2006

Main driver: Internet + learning platforms:
- WebCT, Blackboard, Moodle, Virtual Campus
- integration of teaching and administration
- proprietal vs open-source
- institution/teacher-focused

New technologies: 2005 -

user-created content: blogs, YouTube
social networking: MySpace
mobile learning: phones, MP3s
virtual worlds: Second Life
emerging publication: wikis, e-Portfolios
multi-player games: Lord of the Rings
simulations: MyPhysicsLab.com
synchronous: Skype, Elluminate

Why e-learning is important

E-learning supports the development of skills needed in knowledge-based societies, e.g. how to seek, organize, analyse and apply information
Allows new markets to be served
Won’t succeed though without:
- an institutional strategy
- major changes in the organization/design of teaching

Implications for academic planning
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The ‘natural’ development of e-learning

1. Early adopters - all alone
2. Grants for early adopters
3. Rapid expansion; low quality
4. A strategic plan
5. Focused, sustainable, high quality e-learning

Where are you?

Why strategic planning is needed

Third stage:
- rationale for e-learning not clear
- concerns about poor quality
- duplication
- faculty (and student) workload increases
- increasing costs
- disillusion grows, growth stops

Change is difficult

Change is about people, not technology
Professors are difficult to manage
Institutions have inertia
But we know how to change

Managing professors
The importance of academic departments in change and innovation

Two typical approaches to change:
• top down: Vice-chancellors or governments decide a strategy then try to implement it
  ■ universities like graveyards; autonomy of the faculty member
• bottom up: early adopters; Lone Rangers

Institutional strategy

Leadership: recognition of importance of ICTs for economy
Set clear/measurable institutional goals, e.g.
  every UoP student will graduate with the ICT skills needed in their profession
Put in place processes to achieve this

The critical role of academic departments

Academic department/faculties determine programs and curriculum
Bridge between autonomy of faculty and institutional objectives
Place where consensus can be built
Academic faculties/departments determine the success of e-learning
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### Making choices

For any program:
- Where should each course in a program be on the continuum of e-learning?
- Should this continuum reflect course sections or students?
- Who should make this decision?
- These are academic decisions - must be made by academic programs

### Departmental vision

e-learning a tool, not a panacea
- need to identify where it will bring most benefit
- depends on type of students, nature of topic
- program teams to develop vision of teaching/learning + role of e-learning that drives funding

### Markets

What are your markets?
- undergraduate: full-time
- undergraduate: part-time
- graduate (research)
- graduate (lifelong learners)
- men/women/international/……
- Who will benefit most from online learning? Why?

### What teaching roles are suitable for online learning?

What is best done online? What face-to-face?
- transmitting information
- collecting data/finding information
- preparation for lab work
- designing experiments
- doing experiments
- discussing best ways to do things
- problem solving…….
Planning goal for academic units

**Academic faculties/departments:**

Each program will develop a vision and plan for teaching and learning, including the appropriate use of e-learning

Determining the role of e-learning

- who are - should be - our students?
- what new programs do we need?
- where does e-learning fit in the faculty’s programmes?
- how will e-learning change the way we teach?
- what do we need to support e-learning

Building a plan for e-learning

- Faculty/university plan
  - Program plan: content/methods/resources
  - Vision for teaching and learning
  - What: markets/technology/resources?
    - SWOT
  - Academic programs + EI
  - Other plans

Critical factors for change

- technology
- pedagogy
- policies/planning
- re-organization
- culture

An on-going, continuous process
Further information

Bates, A.W. (2005) Technology, e-Learning and Distance Education
London: Routledge
Paris: OECD
San Francisco: John Wiley
San Francisco: John Wiley

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