Openness and ICT

Presentation to the CHERI-HEPI Seminar Series
“Open Thinking on Higher Education”

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Introduction

1. Definitions, Examples and Purposes
2. ICT and Openness
3. Open Source, Open Educational Resources
   • Questions and discussion
4. Openness between OUs
5. Web 2.0 and the Future
   • Questions and discussion
The Concept of Openness in Higher Education

• Come to prominence with the UKOU in 1960s

• Lord Crowther definition: people, places, methods, ideas; still the definition for UKOU personnel

• Openness to people includes: - no required prior educational qualifications;
  - people with disabilities or special requirements;
  - incarcerated individuals;

• Openness particularly a property of HEIs delivering ODL
Focus on Openness and ICT in these institutions
Openness to Methods

Crowther quote:

“The world is caught in a communications revolution… Every new form of human communication will be examined to see how it can be used to raise and broaden the level of human understanding” – even truer today.
Five Aspects of Openness

• Freedom from constraints
• Freedom of student control
• Openness as sharing of materials and expertise
• Openness between OUs
• Openness as self-revelation (“digital intimacy”)

www.ou.nl
Major Constraint: Lack of Educational Qualifications

- Decision of Planning Committee: no PEQs required on entry
- Meet the needs of capable, unqualified people
- Small percentage of 18 year old cohort going on to university
- OU students required to be 21+; mature, disciplined
- Decision never challenged since.
Freedom to Control Educational Process

- ODLQC definition of ODL:

  “Open and distance learning includes any provision in which a significant element of the management of the provision is at the discretion of the learner, supported and facilitated by the provider”

- Significant elements include:
  - start time of study;
  - sequence of courses to be studied
  - pace of work
  - mode of study (distance learning or f2f group learning)
  - time of assignment submission
  - use of Web 2.0 applications
  - use of Personal Learning Environment
## Comparison of “Openness” Criteria

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<thead>
<tr>
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<th>PEQs</th>
<th>Control start of study</th>
<th>Control order of study</th>
<th>Control assignment submission</th>
<th>Control pace of study</th>
<th>Control mode of study</th>
<th>Use Web 2.0 in study</th>
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The Purposes of Openness

- Social Justice and Widening Participation
- Alleviating Social and Economic Deprivation
- Expanding the Skilled Workforce
  “Today, more than one third of adults do not hold the equivalent of a basic school-leaving qualification. Almost one half of adults (17 million) have difficulty with numbers and one seventh (5 million) are not functionally literate.”
  “Over 70 per cent of our 2020 workforce have already completed their compulsory education”

Leitch Report, pages 1-2
Open Education Works: the Keller Plan

• Keller Plan = Personalised System of Instruction

• Principal features of Keller Plan:
  go-at-your-own-pace so students can proceed according to their abilities, interests, and personal schedules;
  unit-perfection requirement which means students must demonstrate mastery of a unit before proceeding to other units;
  lectures and demonstrations for motivation instead of for communication of critical information;
  stress on the written word for teacher-student communication which helps develop comprehension and expression skills; and
  tutoring/proctoring which allows repeats on exams, enhanced personal-social interaction, and personalized instruction
Results of Keller Plan Instruction

- Solid evidence that Keller produces better results in comparison to lecture-led instruction in the same subject
- Very heavy demand on tutors
- Self-pacing could not defeat human nature; procrastination in completing the modules and taking the quiz
- Numerous ODL institutions use deadlines to pace student learning
Freedom to Control Educational Process

• There are students that can deal with the freedom they are offered, others appreciate more structure.

• Choice is offered:
  – Freedom in start, pace and sequence
  – Planned start, pace and sequence

• Example: student plans his studies independently and orders courses accordingly

• Example: student enrols in a bachelor programme and commits himself to study 5 specific courses with all the exams planned in a 10 month period. The university plans for this group the tutoring, assignments and exams in advance.
Assessment of Prior Learning APL

• first university in the Netherlands to formally acknowledge students’ prior learning and achievement

• students are awarded exemptions and admitted to all the university’s Bachelor programmes, based on:
  – their work experience
  – other studies or training

• The APL can be formally requested after a student has finalized a self-assessment using an online instrument http://evczb.ou.nl
  – 2 or more years relevant professional experience
  – List tasks, activities, responsibilities in a portfolio with proof
  – It ‘feels’ like an online job application
Assessment of Prior Learning APL

- Acknowledgement of relevant knowledge and skills acquired in one's professional life is a big encouragement for ‘to be’ students
- OUNL is the official APL provider in the Netherlands
- Assessment is time consuming; online instrument saves efforts on both sides
- A formal individual portfolio not related to a specific university education will be beneficial, for example as a “Life Long Learning” Service
Life Long Learning

- The theme of lifelong learning occupies a prominent place on the political and social agenda.
- Dutch national initiative: Life Long Learning, to increase the level of HE from 30% to 50%.
- During one’s professional life, one may easily switch careers two to three times.
- Open Universities have a good position to fill in the policies developing by concrete services, based on their knowledge and practical experience.
- At OUNL efforts are made to bundle expertise:
  - Setting up specific services for individuals, companies etc.
  - Bundling research on LLL in the Netherlands Laboratory for Lifelong Learning.
ICT and Openness

• OUUK historical examples
• Partnership with BBC – open circuit broadcast
• Shift in technology – VCRs in mid eighties
• Improvement for students – decline in openness.
Freedom from Constraint

- Prior educational qualifications
- Disability
- Cultural constraint
**Freedom from Disability**

- UKOU has 20,455 students with disability or additional requirement:

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<th>Condition</th>
<th>Count</th>
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<td>1054</td>
<td>Mental Health</td>
<td>2845</td>
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<td>Dyslexia</td>
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<td>Mobility/Physical</td>
<td>3174</td>
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<td>Hearing</td>
<td>761</td>
<td>Manual</td>
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<td>Personal Care</td>
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<td>4271</td>
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<tr>
<td>Unseen Disability</td>
<td>1087</td>
<td>Autistic Spectrum</td>
<td>74</td>
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Application of ICT to Alleviate Mobility Impairment

ERA – Enabling Remote Activity:
an Earth Sciences, KMi and DRT project

The solution

The technology

The student in a base vehicle

The “sherpa” at the rockface
Alleviation of Motor Control Difficulty: the Virtual Microscope

- Virtual reproduction of microscope operation
- Slide rotation
- Variation of light source properties
- Variation of magnification
- Rotation of sample
- Created for disabled students; now mainstreamed

Virtual Microscope
http://kmi.open.ac.uk/projects/microscope/version2/single/
Alleviation of Cultural Barriers to HE Study

- Student group of young Muslim women in Bradford
- Higher education acceptable; attendance at main campus not acceptable
- OU programme involves:
  - Familiarise students with ICT, at local community centres (safe places)
  - Get students to use OU’s OpenLearn repository of learning materials and communication facilities
  - Encourage students to advance from the OpenLearn materials to register on OU course

Staff must be sensitive to cultural norms, work within them; build relationship with accepted community centres
Support of OUNL students with disabilities

- Students with a disability or (chronicle) illness are supported individually.
- Written text can for example be provided in audio or braille.
- Special arrangements are made for attending an exam.
- There is a special consultant appointed to help students with these arrangements.
- Principally these arrangement are to be agreed upon before actually starting a course or study.
ICT and Openness

Objective:

• students choose their favourable delivery formats
  – which differ in accessibility
  – which differ in pricing (to be decided)
  – which for the students tend to depend more on technology.. besides paper

• Services originally designed for disabled students can be made available more broadly
  – From CD’s with courses with in audio format
  – To Podcasts (using text-to-speech)
  – From braille paper to computer mediated tactile devices
ICT and Openness

- Textbook materials
  - Downloadable via the internet to one's computer, eBook, PDA or phone
  - Printed at home or one's local print shop
  - Ordered a printed version from our stock

- Multimedia materials
  - Same approach.

Hurdles:
- Technology is available but...
- We need to rethink our pedagogical approach and...
- Working methods of academics need to change
Openness, Open Source and OER

- Characteristics of Open Source:
  - Public availability of source code for software applications
  - Anyone can make modifications of the code to suit their applications
  - Development of the code controlled by an individual or small group
  - Not all modifications accepted into following releases
  - Open Source code taken up by large corporations
  - Open Source is monetised by companies that provide extra services (maintenance, trouble-shooting etc)
  - Striking success is the willingness of individuals/groups to take up the code of other members of the community.
  - Impressive alternative to formal methods of programming – join an open source community working on your software
  - OU and Open Source: Moodle
### Open Courseware MIT initiative

<table>
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<tr>
<th>Year</th>
<th>Event</th>
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<td>2001</td>
<td>Initiative announced in New York Times</td>
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<tr>
<td>2002</td>
<td>50 course pilot launched</td>
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<tr>
<td>2005</td>
<td>1250 courses launched</td>
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<tr>
<td>2008</td>
<td>All courses available: 200 courses revised</td>
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- Pedagogic quality variable
- Reuse and revision did not take off
UKOU OpenLearn

- OpenLearn supported by Hewlet Foundation
- Initial Development period: April 2006-April 2008
- 5400 hours of study current study material mounted
- Over 8000 hours of archived study material from discontinued courses mounted
- OU material built for self-study, adapted to open content type initiative
UKOU OpenLearn

- Site structured in two major parts: LearningSpace and LabSpace
- LearningSpace contains material for self-study; selections from a wide variety of subjects, not whole courses
- LabSpace provides more facilities for user engagement
  - Course materials that can be copied and reworked
  - Communications tools to connect users in discussion
  - Knowledge-mapping software to help analyse structure of argument
  - Collaborative project spaces
  - Learning Journal to document one’s progress
- Major feature is the ability to revise and reuse course material. Intention is that the newly revised materials will be returned to the LabSpace for further public use.
OpenLearn Success Story

- OL met production targets – very demanding
- Integrated production tools to handle large volumes
- 2,000,000 visitors per year.
- 4400 OpenLearners have registered for an OU course.
- LabSpace has substantially fewer visitors
- Very little reversioning and returning activity
- Visitor request; more material, self-assessment
- Behaviour similar to MIT experience
OpenER project  24 courses of 25 hours:

http://www.opener.ou.nl/
OpenER project  Widening participation

- Many visitors
  - > 550,000 unique visits of website since launch (end 2006)
  - 60% of the visitors did not participate in Higher Education before
    (10% of 4400 registered learners)

- OER offered affects future choices (1500 filled questionnaires)
  - 25% has plans for buying courses on the level of HE
  - Of existing OU-students 69% indicated that this project affects
    their further study plans
  - 10% of actually newly registered regular students via OpenER (Spring 2008)
OpenER project characteristics

- Self-study materials
- Some courses offer self-tests or are linked to TV-programmes,
- Opportunities for formal testing and certification as a starting point for a full study programme
- Secondary schoolteachers use resources, supported by our University
- Need for a business model for OER to make the development and use sustainable
Questions & Discussion
Openness between OUs

Collaborating on different issues

– Bilateral
– Networked via EADTU

• Study points exchange (ECTS) leading towards Virtual Mobility (incl. virtual internship)
• Formally this has been arranged between OUs….the practical arrangements are the most difficult!

Work together on the development, sharing and adapting of OER study resources

• Next step can be collaborating in the course design and production
• Open Source tools sharing
Web 2.0 and Openness

• Students today  

• New way in which people are using online interaction

• Enormous levels of participation

• Awesome degrees of consumer loyalty

• Force two questions:
  – Can the same applications deliver education to such a massive and loyal audience?
  – How to monetise our Web 2.0 activity?
Web 2.0 Activities

- Social Networking
- Producing and sharing user-generated content
- Harnessing collective intelligence
- Voluntary collective activity to create unique product
- Communities of interest
- Reusing or remixing public content
- Exploiting “network effects”
- Users becoming co-developers
- People-power
- Open Standards, Open Systems
Shift from Web 1 to Web 2.0

- The user becomes an active participant in Web-based creative activity, rather than being simply a passive recipient of the information riches of vast databases.

- The user exploits the capacity to join communities of interest online through the use of applications that facilitate the making of interest-based connections.

Web 2.0 activities focused on informal learning and social activity. HEIs want to integrate these forms of activity with their educational activity.
The Openness of Web 2.0: Digital Intimacy

- Prime characteristic of Web 2: self-revelation
- Web 2.0 applications promote creation and sharing of profiles. (MySpace, Facebook, LinkedIn)
- Zuckerberg’s gamble (News Feed to all your friends)
- Blog to the world, intentionally or not!
- Compose your song and sing it on YouTube
- Expose your interests through social bookmarking
“Digital Intimacy” to the Limit: Twitter

- Small messages (140 characters max.) to selected set of "followers".
- User follows the messages of an agreed set of users;
- System is expected to be on 24x7
- Messages often sent and received every half-hour; results are a mixtures of the banal, everyday and more serious concerns
- Can be used for more formal applications
- “Living in the Stream”: Intimate knowledge of others
Relationship of Web 2.0 to Education

- Web 1 software provides the vehicle for desired activity
  - TV and Radio deliver the level of intimacy desired by the performers
  - Sender controls the degree of formality/informality over email

- Web 2.0 applications come with a requirement for self-revelation built in which, possibly, polarises the community of potential users.

- Do students want to use intimate media for formal educational activity? Present answer seems to be “no”
Example: Social bookmarking MA Active Learning

- Preparation of the annual student conference.
- Students used a localised version of Scuttle (scuttle.org) for sharing their bookmarks of papers and other resources of relevance.
- Afterwards the students had to write a paper about the conference’s theme.
- 21 students participated as well as 2 teachers.
- Most of the students involved added their own bookmarks; on average 5.6 bookmarks per student. The total collection of different tags amounted 156.
- The majority appreciated the social bookmarking approach as a valuable one, be it that they found it difficult to establish the appropriateness of the bookmarks.
- Bookmarks of fellow-students were appreciated much higher than bookmarks of teachers.
- Advised is to raise the application level of such tools to a substantial set of courses or even to curriculum level.
Example: Online knowledge dating for the arrangement of peer tutoring

A network-based allocation mechanism to arrange real time support by fellow-learners. Rather than posting a call for help in the uncertainty of the community, the requesting student is actively paired by the networking mechanism which selects the best peer candidate to provide online support.

In the pilots large scale use by the students failed to occur.
1. students knew each other too well
2. the course contents gave rise to trivial questions rather than non-trivial ones,
3. regular face-to-face meetings greatly interfered with the suggested pairing mechanism
4. initial participation was low and this created a self-establishing effect.

So, the approach should preferably be directed to large distributed student populations, deprived of face-to-face contacts, little availability of teachers, and content that raises conceptual questions rather than factual questions.
Web 2.0 at OUNL

• Various pilots in the general curriculum
  – Virtual classrooms
  – Weblogs and Wiki’s
  but also
  – Online exams
  – Portfolio’s (within the university context)
• Learners are generating knowledge beyond their regular assignments.. What to do with that?
• Learners are practising skills they need in their professional life
• Tricky are privacy, trust, security, continuity.. Can we rely on ‘outside’ services?
Résumé

• Openness not a simple concept
• Openness does not always increase with advance in technology (negative effect; neutral effect)
• Openness is a value-laden term; not always effective
• HEIs pursue openness for a variety of purposes
• Which drives which? ERA in one direction, YouTube in the other
• Web 2.0 software has a built in requirement for self-revelation- activity must conform to it. That can possibly constrain the possibilities of formal educational use.
Where from Here with Openness

- Web 2.0 applications getting into our psychological make-up (Twitter in particular shapes the life and the emotions of its regular users)

- Suppose it gets into our physical make-up??

- Two examples

- RFIDs and ambient networks
INTERNAL G.P.S. First, tracking devices were installed in cars so they could be found if stolen. Then, pet owners began putting chips in their dogs and cats. Now it’s human beings who are being “chipped.” An epidemic of kidnappings has led wealthy and even middle-class Mexicans to pay $4,000 to have tiny transmitters implanted that can pinpoint their location by satellite.

Chipping people has already begun in the United States, where VeriChip has inserted chips in 200 Alzheimer’s patients for a pilot program. Future Big Brother applications are not hard to imagine, like chipping prisoners, the mentally ill and teenagers who lie about where they’re really spending Friday night.