The Finnish ways to deal with the change: challenges and possibilities

EUNIS rectors conference 3.4.2014

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Ministry of Education and Culture
Ministère de l’Éducation et de la culture
Some higher education facts about Finland

- Population of 5.4 million
- Higher education institution network covers the populated parts of the country
  - 14 universities (four in the great Helsinki area)
  - 25 polytechnics
- Student enrolment altogether ca. 316,000
- National languages: Finnish and Swedish
Topics

• **Backdrop**: Finland and the Finnish Higher Education system
• **Education**: MOOCs, OERs, etc. - need for policy?
• **Research**: Finnish Open Science and Research Initiative (ATT)
• **Primary & Secondary education**: Gateway to Digital Learning
  Resources in the Cloud
The Finnish Higher Education System: two sectors

- **University sector**
  - 14 research universities, by universities act
  - Student enrollment 168 000, (114 000 FTE), including 18 000 doctoral
  - All institutions funded by the state
  - Degrees to be conferred by each university enacted by government decree

- **Polytechnic sector** [universities of applied sciences] (est. in the mid-1990s)
  - Operation permit from government, lists degrees to be conferred
  - 24 from 1.1.2014
  - Student enrollment 148 000, (114 000 FTE)
  - Institutions partly funded by the state, partly by municipalities (state only from 2015-)
  - Regional development tasks
  - Bachelor degrees (vocational and professional degrees)
  - (Professional) Master’s degrees in selected fields
Universities core funding from 2013

**Impact**
- Master’s degrees 15%
- Bachelor’s degrees 9%
- Study credits in open university and in non-degree programmes 2%
- Number of employed graduates 1%

**Research**
- PhD degrees 9%
  - Scientific publications 13%
    - Number of refereed international publications 9%
      (2015 quality based publication forum classes 2 and 3)
    - Number of other scientific publications 4%
      (2015 quality based publication forum class 1)
  - Competed research funding 9%
    - Internationally competed research funding 3%
    - Nationally competed research funding and corporate funding 6%

**Internationalisation**
- Master’s degrees awarded to foreign nationals 1%
- Student mobility to and from Finland 2%

**Other education and science policy considerations**
- Strategic development 10%
  (Strategy of the university, implementation of the strategy, national education and science policy aims)
- Field-specific funding 8%
  (All fields of art, engineering, natural sciences, medicine, dentistry, veterinary medicine)
- National duties 7%
  (Special national duties, teacher training schools, National Library of Finland)
**Polytechnics core funding from 2014**

<table>
<thead>
<tr>
<th>Education 85%</th>
<th>Regional impact and links with business and industry</th>
<th>Quality and internationalisation</th>
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<tbody>
<tr>
<td><strong>Polytechnic Bachelor’s degrees 46%</strong></td>
<td>Number of students who have gained more than 55 study credits 24%</td>
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<tr>
<td><strong>Number of employed graduates 3%</strong></td>
<td><strong>Student feedback 3%</strong></td>
<td></td>
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<tr>
<td><strong>Study credits in open polytechnic, in non-degree programmes and in immigrants’ preparatory education 4%</strong></td>
<td>Internationalisation in education 3%</td>
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</tbody>
</table>
| Degrees in vocational teacher training 2% | - Student mobility to and from Finland 3%  
- Degrees awarded to foreign nationals 1% |

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<thead>
<tr>
<th>R&amp;D 15%</th>
<th>External R&amp;D-funding 8%</th>
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<tbody>
<tr>
<td>Polytechnic Master’s degrees 4%</td>
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<tr>
<td>Publications, public artistic and design activities, audiovisual material and ICT software 2%</td>
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<tr>
<td>Teacher and expert mobility 1%</td>
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<th>Strategic development</th>
<th>Project funding</th>
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• **Backdrop:** Finland and the Finnish Higher Education system
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MOOCs, cMOOCs, xMOOCs, VOOCs, SOCsc, SPOCs, OERs...
Commonly raised issues

• Free to participate in or free to use as material (and develop further)
• Massive dropout rates in MOOCs
  – but why count dropouts when most are drop-ins in the first place?
• Promise of (global) equity
  – but educated, first-world males seem to dominate in participation?
• Credit for MOOCs? New types of credentials
• IPR issues
• Unbundling
  – of degrees - an “iTunes moment” for education ahead?
  – of roles of organizations (HEIs)
• Business models?
• Platforms? Do we need a ”national platform”?
• MOOCs promise great opportunities for self guided learning!
  – but we will need guided learning too
Why MOOCs, OERs?
(or in some sense open/shared educational content) from the point of view of an institution / national policy

Motivation:
- use of quality resources
- more offerings to students, internationalization

Motivation:
- visibility
- global recruitment
- global equity (?)

Local/national sphere
- outreach
- “open university education”
- better pedagogy for degree students ...

Global MOOC sphere

Use (by institution)

Provision

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What is Higher Education?

Teaching

Learning

Assessment

Credentials

Teaching

Learning (by who)

Assessment

Credentials
Assessment

Credentials

Learning (by who)

guidance, facilities
The new Textbook?

“[…] teacher at our department, follows the course and organizes a local evaluation (=exam) after the course. Number of credits (ECTS) will be decided during the course […] To attend, first sign up to the course at Coursera website. […]The exam time is at 16.11.2012 from 4 PM to 8 PM in classroom A111”
MOOC or OER

Assessment

Credentials

Teaching

Learning (by who)

guidance, some facilities
Assessment of prior learning

Credentials

Teaching

Learning (by who)

MOOC

guidance, some facilities?

A

B

A

B

!?
Finnish Virtual University
2001 - 2010†

• Finnish Virtual University was founded in 2001 as a consortium of all Finnish universities
• At first provided support services for teachers offering online courses
• The goal was to make modules with teaching from many universities possible and available to students.
• At first funded by the ministry, then by universities.
• The consortium was disbanded when universities didn’t want to fund it anymore
• Some services (and contracts) remain:
  – The JOO agreement offers to take separately named courses at other Finnish universities. You may apply to take courses via JOO agreement on the electronic application [www.joopas.fi](http://www.joopas.fi).
Going further? - example 1

- Structural development project, Universities Finland UNIFI: report on Social Sciences 2011*:  
  "Alliances or networking at national or regional level and finding each institutions own research and teaching profile are opportunities that should continue to be developed. Commonly organized education over the network of HEIs teaching social sciences should also be considered, as it can free up resources for research. Perhaps it is not necessary to teach basic courses in every university"

A proposal for developing ICT-competences and co-operation through pilots

PILOT 1 “Basics”: A national module of basic ICT education and competence

PILOT 2 “Industries”: Industry specific modules for developing competence and education

PILOT 3 “Networks”: Substance based networks focusing in R&D and Innovation; based on a division of labour between institutions

ICT supporting different industries
- Health care, Manufacturing execution systems, Sports, embedded systems...

Basic competence
- Basic skills in ICT

Vocational competence
- Advanced competence
- Datacenters and cloud services
- Games and gamification
- Security
- Intelligent systems

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Example 3: Computer Science / ICT field in Research Universities?

- Ideas have been proposed for developing a common set of courses for ICT education for all universities to use in Computer Science education.

- Some would provide, others only use.

- Those switching from providing their own teaching to using teaching provided by others, would be able to reallocate resources.

- MOOC –like courses /material & flipped classroom could be a tool here.
Why MOOCs, OERs?  
(or in some sense open/shared educational content)  
from the point of view of an institution / national policy

Motivation:  
- visibility  
- global recruitment  
- global equity (?)  

Co-operation, division of labor?  

Motivation:  
- use of quality resources  
- more offerings to students, internationalization  

- “open university education”  
- outreach  

Global MOOC sphere

Local/national sphere (language!)

 Provision

Use (by institution)
Issues

- What is different now vs. 10 years ago in the Finnish case?
- Opposing forces driving differentiation, division of labour, profilization of HEIs?
- IPR…
- What is needed to fully benefit from co-operation in organizing teaching?
  - Curricula would need to be harmonized, at least up to a point
  - Contracts/trust on arranging studies between HEIs would need to be established: how labour/cost/benefit are divided?
  - Would this really result in rising productivity?
  - This still not be possible in every field.
- If this would happen massively, how would things look like from the point of view, say, of our output based funding model?
Other uses of MOOCs or "MOOC like" teaching

• MOOCs & admissions
  – Admission to degree student status based on a MOOC performance + proctored exam & interview

• Open University/Polytechnic Education
  – meaning education that is a part of a curriculum of degree students, but a study right is given to a small part of education, typically a single course (5-10 ects). A fee of 10€/ECTS can be charged. Additional funding through the funding model.
  – A lot of online education at the moment
  – could be provided "MOOC style"?

• Adult education, life long learning, outreach

• Same materials as are used for degree students could be used in these
Need for policy?

• Is there need?
  – MOOCs and credits from both Finnish and foreign institutions seem to fit the system as it is today?

• Incentives for co-operation?
  – Exist already

• National support structures / infrastructure?
  – platform?

• Openness?
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Finnish approach to Open Science and its sustainability

- Digitalization of science multiplies the amount of data
- Responding to grand challenges and changes in society requires **multidisciplinary and cross sectional approach**
- We Need to ensure the competitiveness of Finnish scientific environment
- Solutions include both hard and soft elements
  - Identification of needs and benefits for individuals, groups and society
  - Identification of problems and finding solutions
  - Financial and other support and incentives on a cost-efficient way
  - Building up infrastructures, harmonization of metadata etc.
  - Changing cultures, trust building
  - Collaboration and open dialogue essential
Open Science and Research 2009-2017

Research Data Survey Project 2009-2011
- Roadmap

National Research Data Project 2011-2014
- Services
- Metadata
- International collaboration
- Awareness

Open Science and Research Project Roadmap 2014
- Open access
- Open data
- Open methods

Open Science and Research Project Target 2017
- National and international collaboration
- Change of culture
- Open Science Handbook
- Services for preservation
- Services for metadata
- Services for access
- Tools e.g. for identification

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Targets for Open Science and Research Initiative (ATT)

• To incorporate open science and research to the whole research process to improve the visibility and impact of science and research in the innovation system and society at large.

• To foster the research system in Finland towards better competitiveness and higher quality, transparent, collaborative and inspirational research process should be promoted.

• The measures promote (1) open publications, (2) open research data, (3) open research methods and tools, as well as increasing skills and knowledge and support services in open science domain.

• Contributions from all research system actors are welcome to change the research culture towards openness.

• Finland will engage in international collaboration to promote open science and research.
Open Science: Gradual and practical approach in Finland

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<th>Solutions</th>
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<td>Creating ownership</td>
<td>ATT and KDK initiatives engaging key actors at different organizational levels</td>
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<tr>
<td>Availability of infrastructures</td>
<td>Infrastructure roadmap including Open Science, funding for infrastructures and services</td>
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<td>Harmonization of metadata</td>
<td>Developing standards</td>
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<tr>
<td>Open access, licence policy</td>
<td>Proposals submitted to the Ministry, implementation to follow</td>
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<tr>
<td>Cultural change towards openness</td>
<td>Seminars, training, guidance (education of researchers)</td>
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<tr>
<td>International collaboration</td>
<td>Standardization, making use of researchers’ networks, active role in key initiatives</td>
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Information infrastructures for open data – a Finnish example
Data: Qualitative or quantitative statements or numbers that are (or assumed to be) factual: 1) raw or primary data or 2) derivative of primary data. Not yet product of analysis or interpretation other than calculation.

Open data: data that meets the criteria: accessible, useable, assessable and intelligible

Big Data: Data that requires massive computing power to process.

Metadata: Metadata “data about data”, contains information about a dataset e.g. why and how it was generated, who created it and when or technical data describing its structure, licensing terms, and standards it conforms to.

Semantic Data: Data that are tagged with particular metadata - metadata that can be used to derive relationships between data.

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Gateway to Digital Learning Resources in the Cloud
Current situation in digital learning in primary and secondary education

- Some schools use modern digital learning resources extensively, but by large,
- Finnish pupils use less digital resources for learning than their European peers.
- Too much effort is needed for acquisition and deployment of digital learning resources by teachers, principals, municipality ICT-services, and providers of digital learning resources.

**This effort should be spent on fostering learning and meaningful activities!**
Aim: An easy to use channel between service providers and schools

Schools with working wifi
EDUCATION RESOURCE GATEWAY
Edutech Ecosystem
Cloud based edutech resource markets

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1. Portal for sharing ideas about the use and development of educational cloud services

2. Marketplace or bazaar for service providers and consumers

3. Piloting the use of public ICT infrastructure and services (Finnish X-road, identity management, identification)
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Thanks!