Skills for the 21st century

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I also work for ...
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Kalmar

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Outline

Part 1
• Trends
• Key skills
• Learning spaces
• Pedagogical shift, course design

Part 2
• New credential landscape
• Open education
• Unbundling the university
• Linking formal and non-formal education
Global trends in higher education

- Growing demand: 332 m students 2030 (56% up from 2015)
- Strong increase in demand for international studies
- Mismatch: demand in developing countries, increasing restrictions in developed countries
- Skills focus
- Lifelong learning, professional development
- New ecosystem for credentials
- Tighter budgets for education
- Increased specialisation of HEIs
- Trust, credibility, relations
- Quality assurance

Skills

• Digital literacies
• Critical thinking
• Teamwork
• Problem solving
• Communication
• Presentation
• Creativity

Source: The new basics, Foundation for Young Australians (FYA) (2016)
What skills are we assessing here?
Digital literacies

- **Media literacy**: Critically read and creatively produce academic and professional communications in a range of media.
- **Information literacy**: Find, interpret, evaluate, manage and share information.
- **Communications and collaboration**: Participate in digital networks for learning and research.
- **Digital scholarship**: Participate in emerging academic, professional and research practices that depend on digital systems.
- **Career & identity management**: Manage digital reputation and online identity.
- **Learning skills**: Study and learn effectively in technology-rich environments, formal and informal.
- **ICT literacy**: Adopt, adapt and use digital devices, applications and services.
DigCompEdu – European digital competence framework for educators
From teacher-centred to learner-centred
Are we ready?

New learning spaces demand new approaches to teaching and learning
Learning spaces

- University of Kent – Creative Campus
- Manchester Engineering Campus Development (MECD)
- Technology Enhanced Collaborative Learning – KU Leuven, Belgium
- UK HE Learning Space Toolkit (UCISA 2016)
Arenas for learning
Online education
Common misconceptions

• Demands less commitment and time and is mostly self-study
• Lower costs for university
• Physical learning spaces always best for interactive, collaborative learning
• Convenient generalisations - digital natives, millennials, miracle solutions etc
Blended learning

Facts, theories, models

Practice, context, inquiry, production, collaboration

On site AND online
## Pedagogical shift

<table>
<thead>
<tr>
<th>Teaching-centred</th>
<th>Learning-centred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning of facts and declarative knowledge</td>
<td>Learning of conceptual knowledge</td>
</tr>
<tr>
<td>Memorising information</td>
<td>Working with information</td>
</tr>
<tr>
<td>Teacher is central</td>
<td>Activity is central to learning</td>
</tr>
<tr>
<td>A focus on passing exams</td>
<td>Applying knowledge, theoretical thinking and demonstrating generic skills</td>
</tr>
<tr>
<td>Drilling of right questions and routines</td>
<td>Problem-solving, design, project work and inquiries</td>
</tr>
<tr>
<td>Learning to pass exams</td>
<td>Learning how to learn</td>
</tr>
<tr>
<td>Focus on information presentation to passive learning</td>
<td>Focus on how learning occurs within an activity</td>
</tr>
<tr>
<td>Technology as a media channel</td>
<td>Technology as intellectual partner in learning</td>
</tr>
<tr>
<td>Learning from resources and technology</td>
<td>Learning with resources and technology</td>
</tr>
</tbody>
</table>

Problem-based learning  

Project-based learning  

Work-based learning  

Entrepreneurial learning  

[Image of a group of people working on a project]
Design for learning – success factors

• Structure and clarity
• Use of learning spaces
  - easy to use
  - interaction and collaboration
  - flexibility and variation
• Inclusive, supportive community
• Support

• Creelman & Reneland-Forsman (2012)
The SECTIONS Model

- **Students**: what do we know about them? How appropriate is our design for them?
- **Ease of use and reliability**: How easy/reliable is the technology for both students and faculty?
- **Costs**: what are the cost implications? [Also think scale – student: facilitator ratio]
- **Teaching and learning**: what kind of learning is needed? What design/approach will serve us (teachers and students) best? What technologies are appropriate? Disciplinary context?
- **Interactivity**: what [level of] interactivity is required?
- **Novelty**: How new is this technology?
- **Speed**: what are the affordances of adopting this technology? Frequent updates to content/software?

Bates & Poole (2003). Effective teaching with technology in higher education

Source: P Prinsloo, (Un)framing online/blended learning: getting the mix right CC BY
What mix of traditional and digital arenas and tools foster effective learning?
Extending the discussion

- Multimodality
- Flipped classroom
- Digital tools for asynchronous interaction
- Backchannel in class
- Inclusive – giving everyone a voice
Course design

**Production**
- Constructing based on current understanding & practical application

**Acquisition**
- Listening, reading, observing
- Exploring, comparing, hypothesizing, synthesizing

**Practice**
- Experimenting, applying theories in practice, followed by feedback
- Discussing, practicing, producing towards a common goal
- Articulating, challenging, responding

**Collaboration**

**Discussion**

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**ABC Learning Design** (University College London)
Active learning classroom

- Student-centred
- Flexible seating
- Focus on investigation, discovery, collaboration, production
- Teacher as facilitator
- Center for educational innovation, University of Minnesota

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Virtual mobility

- Internationalisation at home
- Online collaboration – projects, courses, degrees
  - Erasmus+ Virtual Exchange
- Recognition of partner institutions’ online courses - OUVM
- MOOCs as virtual mobility
- Virtual Exchange Alliance
  Mutually recognised MOOCs
Blurring the boundaries

Formal  Non-formal  Informal
Sharing culture

Photo by Avel Chuklanov on Unsplash
• Many open repositories today: MIT OpenCourseWare, OpenLearn, OER Wales
• Open textbooks: BC OpenEd, OpenStax
• Directives: UNESCO, EU Commission
Those who most need open education don’t know it exists
Digital skills gap

• Learning to learn online
• Digital skills
• Support teachers/facilitators to lead local on-site study groups
• National training MOOCs
• Recognition of skills
Czerniewicz, L. (2018)  
Unbundling and Rebundling Higher Education in an Age of Inequality
New credential landscape

Endorsements
Certificates
Badges
Specialisations
Micromasters
Nanodegrees
Licenses
MOOC development

- Stronger development in Europe than USA
- Institutional motives:
  - Flexible learning opportunities
  - Increase institutional visibility
  - Generating income
  - Learning about scaling
- Societal drivers:
  - Reskilling
  - Improving quality of learning
  - Technical innovation push
- MOOC Strategies of European Institutions (EADTU 2017)
- 2018 OpenupEd Trend Report on MOOCs
MOOCs for credit

• After proctored examination (campus or online)

• **FutureLearn programs**
  Credits from Open University UK or University of Leeds (about $100 per credit)

• Arizona State University (EdX) **Global freshman academy**
  Verified certificates then credit conversion available. Examination by remote proctoring

• MOOC-based degrees
  **Georgia Tech Online Computer Science Master’s Degree** (OMSCS)

• Growing number of institutions, see **Class Central overview**
Wrapped MOOCs

- Combining on-site teaching and examination with MOOC
- Support in own language
Other open education initiatives

- **OERu**
  - 30 partner universities
  - open education with real credentials
- **University of the People**
  - accredited online university
  - tuition-free, fees only for assessment
Open badges – validation of soft skills

Verifiable digital certificates

Exemples

- Beuth University of Applied Technology, Berlin
- ProfilPASS, Germany
- Open University UK
- Who’s issuing open badges?
New credentials

- Coursera Specializations
- EdX verified certificates
- Edraak Specializations
- Udacity nanodegrees
- University Learning Store
  On-demand learning with credentials
- Digital Promise
  Microcredentials for teachers’ professional development
- Deakin University Hallmarks
  Badges for student soft skills
Short learning programs

- Independent learning units
- 5-30 ECTS
- Recognised as part of full degree structures
- EADTU initiative
- EADTU SLP report (2017)
Competency-based degrees

- Recognition of workplace training
- Flexible examination
- Own pace with mentor
- Competency-based education network
CODE University of Applied Sciences, Berlin

- Newly started state-accredited university
- *Students work on challenging projects, seek out learning resources online, define the competencies and skills to be acquired through a learning agreement and are accompanied by university lecturers in their development and learning process. They become digital pioneers and entrepreneurs of their studies.*
- [https://code.berlin/en/](https://code.berlin/en/)
Linking formal and non-formal education

- Problem area - Validation and recognition of new credentials from open education providers
- Open learners are not recognised in formal system (ECTS, EQF)
- New mechanisms and methods needed
- Common standards
  Metadata, identity management, authentication, security

Current projects

**OEPass**
- Standard format for describing open education in terms of ECTS and EQF
- Verifiable digital learning passport

**MicroHE**
- Recognition of microcredentials in line with ECTS and EQF
- European credential clearinghouse

**Benefits and Costs of MOOC-Based Alternative Credentials** (Columbia University, USA, 2018)
Blockchain

- Secure encrypted transactions without intermediary
- Transparent, built on trust
- Validation, credentials, credit transfer
- Blockchain in education, European Commission report, 2017
- Oxford academics launch world’s first ‘blockchain university’ (Times Higher Education, March 2018)

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Learning analytics

For teacher/institution
- Follow student progress
- See who has difficulties
- Where are they struggling
- Offer relevant support

For students
- Set objectives
- Clearer view of own progress
- Receive support

- Learning analytics in higher education (JISC UK)
- Learning analytics and student success (JISC UK)
Dark clouds ...

- Security and integrity
- Surveillance
- Growth of disinformation
- Lack of trust in science
- Net neutrality under threat
- Increasing commercialisation
- Innovating in an age of uncertainty

Attitudes and cultures

Teachers  Students  Institutions  Government
My digital footprints ...

University profile
https://lnu.se/en/staff/alastair.creelman/

Blog on learning and technology
Corridor of Uncertainty

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