Skilling a Nation’s Future

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The Commonwealth of Learning

WHAT IS IT FOR?

To help Commonwealth governments and institutions use various technologies to improve and expand education, training and learning in support of development.
Plan

The Global Context

Game Changer 1: Technology Enabled Learning

Game Changer 2: Open Education

Skilling at Scale
The Global Context
The Youth ‘Bulge’

• In 2013, 1.2 young people in the world: 17% of the world’s population

1.2 billion youth
17% of the world's population
74.5 million unemployed youth
Population of Youth in Egypt

Egypt has 22.9 million young people between the ages of 10 and 24 which equivalents to 28% of its population in 2014.

Source: UNFPA report, State of World Population 2014
Global Youth Unemployment Rate

Source: ILO - Global Employment Trends for Youth 2013
Youth unemployment (% of total labor forces ages 15-24) in Egypt 2003 – 2013

Exploding demand for HE

- **2007**: 150.6 million tertiary students globally
- **2012**: 165 million
- **2025**: 263 million
The Demand

4 new universities to cater to 30,000 needed each week to accommodate children who will reach enrolment age by 2025

Everitt in Liyanagunawardena et al, 2013
Tertiary Gross Enrolment Ratio in Egypt 2003 – 2013

Surprisingly...

- 36% of college graduates did not show any significant cognitive gains over 4 years
  
  Arum & Roksa, Academically Adrift, 2011

- Half the employers say they have trouble finding qualified graduates to hire
  
  Chronicle of HE and Marketplace

Cover Credit: Photographs by Peter Hapak for Time
Can the phenomenal growth in ICTs help?
Percentage of households with Internet access, by level of development, 2005-2014

ICT in Egypt 2004 - 2014

ICT Trends: Horizon Report 2015

**TRENDS**

**SHORT-TERM**
- Increasing Use of Blended Learning
- Redesigning Learning Spaces

1-2 years in each direction

**MID-TERM**
- Growing Focus on Measuring Learning
- Proliferation of Open Educational Resources

3-4 years in each direction

**LONG-TERM**
- Advancing Cultures of Change and Innovation
- Increasing Cross-Institution Collaboration

5+ years in each direction
Technology Enabled Learning
Online learning: Increasing Access

The proportion of higher education students taking at least one online course now stands at 33.5 percent for a total of 7.1 million.

Source: Babson Survey, 2014
Middle East Self-paced eLearning Market

In the Middle East, elearning is expanding in Bahrain, Egypt, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Turkey, the United Arab Emirates (UAE), and Yemen.

Source: Ambient Insight, 2015-2020 Middle East Self-paced eLearning Market (Available in Early 2016)
Massive Open Online Course

“…a MOOC is a type of online course aimed at large scale participation…MOOCs are a recent development in the area of distance education…”
Massive Open Online Courses

Coursera

Future Learn

Udacity

edX
Features of MOOCs

- Massive enrolments (Over 25 million since 2012)
- Open to anyone without restrictions
- Online without face-to-face contact
- Courses offered by top institutions and professors
Most MOOC learners are having a first degree (about 70%).

Gender participation rate is a function of the subject matter of the MOOC.

MOOC learners are serial MOOC takers.

Source: Mcleaod et al, TechTrends, 59 (1), Jan/Feb 2015
Impact on Learners

Learners motivated by career or educational advancement even more likely to report benefits

The Career Builders

52% of learners surveyed took online courses to advance their careers. These learners reported the following benefits.

- **87%** Reported Career Benefits
- **33%** Reported Tangible Career Benefits¹

The Education Seekers

28% of survey respondents came to Coursera to pursue academic goals. These learners reported the following benefits.

- **88%** Reported Educational Benefits
- **18%** Reported Tangible Educational Benefits²

¹Tangible career benefits include receiving a pay raise, a promotion, a new job, or starting a new business.
²Tangible educational benefits include gaining credit towards an academic degree or completing prerequisites for an academic program.

Impact on Learners

Online learners from less educated and less affluent backgrounds more likely to report tangible career benefits.

Career builders with no bachelor’s degree, from low SES brackets, and from emerging economies are more likely to report tangible career benefits.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>from developed economies¹</td>
<td>32%</td>
<td>36%</td>
</tr>
<tr>
<td>has a bachelor’s degree or higher</td>
<td>35%</td>
<td>42%</td>
</tr>
<tr>
<td>high socio-economic status²</td>
<td>35%</td>
<td>39%</td>
</tr>
</tbody>
</table>

¹Developed and emerging economies are evaluated using indicators from the Organisation for Economic Co-operation and Development (OECD).
²SES, or socioeconomic status, is evaluated as a combination of factors including income, level of education, and occupation. SES was self-reported by respondents.

In 2012, Duke University began using MOOCs to promote innovation in teaching and learning within the campus community. 30 instructors developed 31 MOOCs, attracting 2.8 million enrollments and issuing more than 72,000 certificates. Instructors reported improvements in classroom materials and activities, crafting better measures of student learning, and experimenting with new pedagogies.

Cost Of MOOCs

<table>
<thead>
<tr>
<th>Institution</th>
<th>Type of MOOC</th>
<th>Length of MOOC (weeks)</th>
<th>Total estimated costs per MOOC</th>
<th>Costs per completer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers College, Columbia University</td>
<td>xMOOC</td>
<td>8</td>
<td>$38,980</td>
<td>$74</td>
</tr>
<tr>
<td>University of Manitoba</td>
<td>cMOOC</td>
<td>12</td>
<td>$65,800 - $71,800</td>
<td>*</td>
</tr>
<tr>
<td>American Museum of Natural History</td>
<td>xMOOC</td>
<td>4</td>
<td>$104,620</td>
<td>$272</td>
</tr>
<tr>
<td>Large Midwestern University</td>
<td>xMOOC</td>
<td>5-8</td>
<td>$203,770 – $325,330</td>
<td>*</td>
</tr>
</tbody>
</table>

* Completion data were not available for these MOOCs. See Cases 10, 11, 12, and 13 for sources.
MOOCs in Ag

- Mobiles for Development
- Audio MOOC for Gardeners
- AgMOOCs Consortium
Open Education
Open Education Resources
What are Open Education Resources (OERs)?

Materials that are

- Free and freely available
- Suitable for all levels
- Reusable
Rise of OER

14 COUNTRIES HAVE MADE NATIONAL COMMITMENTS TO OPEN EDUCATION
Legislation or projects that lead to the creation, increased use, or improvement of open educational resources by requiring an open license like CC BY.

Number of Creative Commons-licensed works

Source: https://stateof.creativecommons.org/report
93.8% of K12 teachers agree or strongly agree that they used a **broader range of teaching and learning methods** due to use of OER.

89.7% agree or strongly agree that they make use of a **wider range of multimedia**

88.6% agree or strongly agree that they **reflect more** on the way that they teach.

Impact of OER on Teaching

Impact of OER use on teaching

To what extent do you agree with the following statements about the impact on your teaching practice of your using OER? N=977

- I have broadened my coverage of the curriculum
  - Strongly agree: 17.6%
  - Agree: 41.4%
  - Neither/nor: 27%
  - Disagree: 5%
  - Strongly disagree: 9%

- I use a broader range of teaching and learning methods
  - Strongly agree: 17.8%
  - Agree: 46.5%
  - Neither/nor: 23.8%
  - Disagree: 3%
  - Strongly disagree: 8.4%

Source: OER Hub
### Impact of OER use

In which of these ways has your use of OER made an impact on your formal studies? N=1167

<table>
<thead>
<tr>
<th>Impact Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased participation in class discussions</td>
<td>32.6</td>
</tr>
<tr>
<td>Increased interest in the subjects taught</td>
<td>61.9</td>
</tr>
<tr>
<td>Increased satisfaction with the learning experience</td>
<td>60.7</td>
</tr>
<tr>
<td>Grades improving</td>
<td>38.9</td>
</tr>
<tr>
<td>Gaining confidence</td>
<td>51.6</td>
</tr>
<tr>
<td>Having increased independence and self-reliance</td>
<td>51</td>
</tr>
<tr>
<td>Increased engagement with lesson content</td>
<td>46.5</td>
</tr>
<tr>
<td>Increased experimentation with new ways of learning</td>
<td>53.2</td>
</tr>
<tr>
<td>Increased collaboration with peers</td>
<td>26.8</td>
</tr>
<tr>
<td>Increased enthusiasm for future study</td>
<td>60.4</td>
</tr>
<tr>
<td>Becoming interested in a wider range of subjects</td>
<td>54.7</td>
</tr>
<tr>
<td>Being more likely to complete my course of study</td>
<td>46.9</td>
</tr>
</tbody>
</table>

Source: OER Hub
Impact on Learning

Students who used open textbooks scored .65 points higher on end-of-year state standardized science tests than students using traditional textbooks.

Source: (Robinson et al, 2014)
Cost Savings: OER Textbooks

31% students in the US don’t register for a course due to textbook costs.

Source: Thanos & Wiley, 2014

Utah Open Textbooks project: $5 per printed and zero for online content
OER on Skills Development

Directory of Open Educational Resources
doer.col.org
Khan Academy

COMPUTING

Computer programming

Learn how to program drawings, animations, and games using JavaScript & Processing.js, or learn how to create webpages with HTML & CSS. You can share whatever you create, explore what others have created and learn from each other.

Create:
- New Program (JS + Processing.js)
- New Webpage
- New SQL script

Intro to JS: Drawing & Animation
Learn how to use the JavaScript language and the Processing.js library to create fun drawings and animations.

Intro to HTML/CSS: Making webpages
Learn how to use HTML and CSS to make webpages. HTML is the markup language that you surround content with, to tell browsers about headings, lists, tables, etc. CSS is the stylesheet language that you style the page with, to tell browsers to change the color, font, layout, and more.

Intro to SQL: Querying and managing data
Learn how to use SQL to store, query, and manipulate data. SQL is a special-purpose programming language designed for managing data in a relational database, and is used by a huge number of apps and organizations.

Advanced JS: Games & Visualizations
Once you've taken Intro to JS, go here to learn techniques to help you make multi-scene programs, 3D graphics, button menus, and scored games.

Advanced JS: Natural Simulations
Once you've taken Intro to JS, you can go through this course to learn how to combine JS, Processing.js, and mathematical concepts to simulate nature in your programs. This course is a derivative of "The Nature of Code" book by Daniel Shiffman (natureofcode.com), used under CC BY-NC.
Skilling at Scale
Sustainable Development Goals
GOAL 4

ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

SUSTAINABLE DEVELOPMENT GOALS
More at sustainabledevelopment.un.org/sdgsproposal
Goal 4

Quality education leading to effective learning outcomes

Skills for employment and entrepreneurship

Knowledge and skills for peace and global citizenship

Qualified teachers
**“Employers, Education Providers and Youth Live in Parallel Universes”**

<table>
<thead>
<tr>
<th>Country</th>
<th>% of youth who believe that their Secondary Education Improved their Employment Opportunities</th>
<th>% of Employers who believe that new graduates are not adequately prepared for entry level vacancies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>59</td>
<td>48</td>
</tr>
<tr>
<td>India</td>
<td>54</td>
<td>53</td>
</tr>
<tr>
<td>Turkey</td>
<td>46</td>
<td>56</td>
</tr>
<tr>
<td>United States</td>
<td>44</td>
<td>45</td>
</tr>
</tbody>
</table>

Skills for employability?

- **Non-cognitive skills**: leadership, communication, honesty/ethics, teamwork and flexibility
- **Cognitive skills**: analytical and critical thinking and the ability to learn

Burnett, 2012
C21 requires ‘relationship workers’

• Social skills
• Problem solving
• Creativity

Geoff Colvin, *Humans are Underrated*, 2015
Education to Employment Strategy in Europe

- **Innovate** with design, course delivery and financing to make education more affordable and accessible
- **Focus** on young people, employers and education providers on improving employment readiness
- **Build** the supporting structures that allow the best intervention to scale up
- **Share** relevant practices on matching labour market demand and supply

Source: Education to Employment: Getting Europe's Youth Into Work, McKinsey Center of Government
http://www.mckinsey.com/insights/social_sector/converting_education_to_employment_in_europe
In the second quarter of 2015, Swiss youth unemployment dropped from 7.7% (2014) to 6.4%. The overall EU rate of youth unemployment is 20.3%, rising as high as 49.2% in Spain and 50.3% in Greece.

Innovation: The correlation between the quality of the workforce and economic performance is persuasive, particularly with regard to the apprenticeship system.
If someone can give me the **skills** and the **opportunity** to work, I know I can achieve my goals.

young woman, Ethiopia GMR, 2012, p.13
The Role of Governments

Sound education policies related to policies in agriculture, trade and industry

Stiglitz & Greenwald, Creating a Learning Society, 2014
The Role of Institutions

- Transform the **curriculum** to integrate cognitive and non-cognitive skills
- Harness appropriate **technologies, MOOCs and OER**
- Facilitate the **convergence** between education, the labour market and the learner
Nations progress when they are clear about ‘what is to be learned, the process of learning and the determinants of learning’

Stiglitz & Greenwald, Creating a Learning Society, 2014