

# Massive Open and Online Courses (MOOC) in an international perspective: New global agenda for innovation in higher education

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## **About this report**

This report is written based on a note provided by ICDE's Secretary General Gard Titlestad to the Norwegian Government. It has been slightly modified to adapt it for an international audience and a working translation has been made from the original Norwegian text.

The conclusions in the report in particular address the governmental layer, the macro level in the educational system, even though they can also have relevance for senior management in institutions (micro level) and the research and infrastructure stakeholders (meso level).

Oslo, 24 November 2013.

# Content

|  |           |
|--|-----------|
| <b>Executive Summary .....</b>   | <b>6</b>  |
| <b>Introduction .....</b>  | <b>10</b> |
| <b>Some words and concepts .....</b>   | <b>10</b> |
| <b>What is Open .....</b>  | <b>10</b> |
| <b>What is Online .....</b>  | <b>11</b> |
| <b>What is MOOC .....</b>  | <b>12</b> |
| <b>What is disruptive innovation .....</b>   | <b>13</b> |
| <b>Drivers and deep trends for change and open education.....</b>  | <b>14</b> |
| <b>Need for higher education-need of lifelong learning.....</b>  | <b>16</b> |
| <b>Costs.....</b>  | <b>20</b> |
| <b>Technology and technological maturity.....</b>  | <b>21</b> |
| <b>Open education, OER.....</b>  | <b>22</b> |
| <b>Students.....</b>   | <b>22</b> |
| <b>Political initiatives .....</b>   | <b>24</b> |
| <b>USA .....</b>   | <b>24</b> |
| Online education .....   | 24        |
| Textbooks.....   | 25        |
| OER .....  | 25        |
| <b>Asia, China .....</b>   | <b>26</b> |
| <b>Africa, African Union.....</b>  | <b>27</b> |
| <b>Europe, EU .....</b>  | <b>27</b> |
| <b>Europe, France .....</b>  | <b>29</b> |
| <b>MOOC: Prevalence .....</b>  | <b>29</b> |
| <b>Access to international research and statistics about online higher education, MOOC and OER .....</b> | <b>29</b> |
| <b>Timeline for MOOC .....</b>   | <b>30</b> |
| <b>MOOC participating higher education institutions - worldwide .....</b>                                | <b>30</b> |
| USA-global basis.....  | 30        |
| Enterasys-worldwide survey .....   | 31        |
| ICDE-global temperature gauge among members .....  | 31        |
| Brief discussion .....   | 32        |
| <b>Overview - MOOC initiatives globally .....</b>  | <b>32</b> |
| <b>USA .....</b>   | <b>33</b> |
| <b>MOOC-American global localization, hubs and participation of students .....</b>                       | <b>33</b> |
| <b>Asia-China.....</b>   | <b>35</b> |
| <b>Asia-Taiwan .....</b>   | <b>35</b> |
| <b>Asia-Indonesia.....</b>   | <b>36</b> |
| <b>Asia-Myanmar .....</b>  | <b>36</b> |
| <b>Asia-Japan.....</b>   | <b>36</b> |
| <b>South East Asia - SEAMEO .....</b>  | <b>36</b> |
| <b>Australia.....</b>  | <b>36</b> |
| <b>New Zealand.....</b>  | <b>36</b> |
| <b>South America-Brazil.....</b>   | <b>36</b> |
| <b>Africa .....</b>  | <b>36</b> |
| <b>Europe.....</b>   | <b>36</b> |
| <b>The Nordic Countries.....</b>   | <b>38</b> |
| <b>MOOC: Trends .....</b>  | <b>38</b> |
| <b>Gartner hype cycle .....</b>  | <b>38</b> |
| <b>Google's trend overview .....</b>   | <b>38</b> |

|  |           |
|--|-----------|
| Online education and MOOC.....   | 39        |
| Online university versus MOOC.....   | 40        |
| Different types of MOOC.....   | 41        |
| Students and MOOC .....  | 41        |
| Teachers, senior management-and MOOC .....                                   | 42        |
| Cost-MOOC .....  | 44        |
| Quality-education online and MOOC .....                                      | 45        |
| <b>Open education and MOOC.....</b>  | <b>47</b> |
| Emergence of Open Education, open education .....                            | 47        |
| Open educational resources, OER .....  | 47        |
| Open Courseware-OCW.....   | 48        |
| OCW-development and dissemination .....                                      | 49        |
| OER, OCW and MOOC.....   | 50        |
| Is MOOC open – or MOC? .....   | 50        |
| Costs and OER, such as textbooks.....  | 51        |
| Sustainable models for OER, as NDLA .....                                    | 52        |
| Why spend so much space on OER in a note on MOOC? .....                      | 53        |
| <b>Mind to MOOCs, Beijing .....</b>  | <b>54</b> |
| <b>Some issues.....</b>  | <b>55</b> |
| Why MOOC .....   | 55        |
| Is MOOC democratizing.....   | 57        |
| Mass Education-elite education .....   | 57        |
| MOOC and "learning analytics ", ownership and use of data-Big Data.....      | 58        |
| Public higher education institutions and commercial firms.....               | 58        |
| MOOC and developing countries.....   | 58        |
| Is MOOC disruptive? An avalanche? A tsunami? For who?.....                   | 59        |
| MOOC as a catalyst for innovation in education .....                         | 59        |
| Small countries, cultures and languages.....                                 | 60        |
| <b>Appendix: Creative Commons – Licences .....</b>                           | <b>64</b> |
| <b>Appendix: NordicOER.....</b>  | <b>65</b> |
| <b>Appendix: Ecosystem for open educational resources, OER – NDLA? .....</b> | <b>66</b> |
| <b>Appendix: Excerpts from ICDE "Mind to MOOCs" report.....</b>              | <b>68</b> |

## Executive Summary

After more than half a century of mass education and ten years of the development of knowledge-intensive societies Massive Open and Online Courses (MOOC) celebrates perhaps its biggest global success by uncovering the colossal need for, and the great joy of learning. The second success is that web-based and open education is on the agenda for higher education. Moreover the MOOC phenomenon has kick-started innovation in education worldwide. At the same time it may be observed that there are several phenomena which develop simultaneously, including the fact that because higher education through its immense popularity and development is pervaded by change. Of particular importance to this paper is the simultaneous development of the "new pedagogy" and distance learning. There are strong indications that the development in terms of innovation in education is in its infancy, although MOOC has spread quickly. The distinction between distance education and conventional education is further reduced through online education becoming more commonplace. "Learning analytics", personalization, personalized learning and new teaching and learning methods have a more prominent place on the education agenda.

We can observe that beginning in Canada and the United States, MOOC quickly spread, primarily in the U.S. market, but also with shoots spring up on all continents, followed by rapid development especially in Europe and to some extent Australia. The most significant MOOC initiatives coming in part from prestigious American universities (for example Coursera, EDX and Udacity), partly from open universities (Openup Ed, Future Learn and Open2Study) and partly on the basis of "normal" higher educational institutions (e.g. University of Amsterdam and Graz, Austria). MOOC initiatives split into for profit (such as Coursera) and not for profit (such as EDX and Openup Ed). Some aimed to meet higher education community obligations; some were for the purpose of branding and fishing for talent, others for experimentation and others to reposition the institution. Motives are different. Some offer open content (Openup ED) and others not (Coursera). Some are obvious national initiatives supported by the Government (such as the French FUN and English FutureLearn), other brought about by local enthusiasts. The truly Massive courses with more than 100,000 participants have been followed by a series of new variations in device (for example, within the institutions), in format and size. New terms have followed, e.g. "little MOOC", and SPOC, Small Private Online Course.

MOOC evangelists have highlighted the democratizing properties of MOOC, and have argued that MOOC will democratize education worldwide, because the marginal cost is almost zero. Today good evidence for this does not exist. On the contrary, it is argued that MOOC is as likely to contribute to a stratification where the "haves" gain access to higher quality education, while the "have nots" are offered pre-packaged education in a form determined by others (companies, countries and cultures). If MOOC is to have a democratizing effect it is claimed that a number of characteristics of MOOC must be developed (for example, better adapted communication, use of technology, based on the success of cognitive science), and that MOOC in a completely different way must be based on and rooted in the learner's and the teacher's own culture, language and locality.

The disruptive power of MOOC in relation to today's higher education institutions is disputable and can hardly be compensated, at least not at this stage of development. Users of MOOC are significantly different from users of traditional higher education and

the motivation to take MOOC is very different in different parts of the world. This may change for demographic reasons, as students increasingly make use of online study and as there is a greater harmonization between the various education “markets” globally.

Quality comes much more into focus during the emergence of MOOC, both in terms of crediting of completed education, mutual recognition and especially quality in terms of the student, the learner, and educational achievement.

Open universities are challenged by MOOC as it is increasingly used by groups that are in part traditional target audiences for these universities. Conventional universities are challenged as traditional teaching and learning methods are not sustainable (alone) in the long run. Impoverished local higher education institutions are challenged by “free” education offered in other languages, cultures and formats than those locally favoured. But an innovative, adaptable and diverse higher education has primarily opportunities within a paradigm where online education, openness and new forms of learning accelerate. After having been wholly or partly protected as a model for hundreds of years, universities have to “reinvent” themselves under a new education agenda and post-2015 development of evolutionary character. This is first and foremost a wonderful opportunity to be welcomed by all friends of knowledge.

Globally, a new education agenda could help lift tens of millions out of poverty, but development must be based on these countries and regions' needs, language and culture.

Development could also mean a breakthrough for global commercialization of higher education, by aggressive commercial players seizing opportunity in a world fashioned by technological and content development, many years of efforts by government and not for profit institutions and actors; whether conventional universities, distance universities, open universities or other actors.

Strong economic, national and public interests in higher education raise questions about the framework, values and direction of the agenda.

UNESCO Deputy Director General for Education, Quin Tang, claimed recently (November 2013) at UNESCO's General Conference that it is necessary to reaffirm the fundamental principles of education, including as a human right and for the public good, and more.

These values are challenged and various private and public players will position themselves for their interests. A new education agenda can promote or undermine these values.

## **Conclusions**

Therefore, the first conclusion of this review of international developments is that:

- 1) Governments contribute to a comprehensive framework that promotes open online education in line with UNESCO 's values and helps to establish incentives for education in dialogue with key stakeholders in the field, primarily higher education institutions, where the specific goals must be set. A clear policy for OER based on the UNESCO

declaration must be part of this framework.

### **Leadership**

Leading institutions in the transition to a more open and online existence with success for students, teachers and the economy, and through this process reinforcing the knowledge triangle and its interaction is not part of the routine of higher education institutions, cannot be delegated and was hardly a selection criterion for current leaders in higher education.

2) Leadership in transition to more open and distance higher education must be supported, facilitated and expertise built.

### **Teaching staff**

Teachers are the key to success in a long-term restructuring of higher education. Several studies show resistance and to some extent opposition by substantial sections of the teaching staff as a major obstacle to more open and online education. Many MOOC (USA) initiatives have sidelined teachers at the provider institution, which has triggered considerable criticism. A global trend is that production of OER is discouraged and there are few or no incentives for the development of open and distance education.

3) Incentives and support for teachers retraining, upskilling and improvement of working conditions for more open and online education.

### **Students**

Students are a driving force for more open and distance education, but the conditions for taking part in and making progress under new conditions are different and must have an eye for MOOC development which can develop new, unintended and unfair distinctions. The challenge is MOOC development that puts the learner at the centre. The development of personalized learning placing the student at the centre requires the MOOC concept to be complemented and developed with a mind to pedagogy with professional study support considered where this is necessary. MOOC and similar offerings as part of mass education will also have to include equality of opportunity in order to qualify for and participate in a more open and online education system. The student's rights both in learning, participation in learning and in relation to "Big Data" and Learning analytics should be further investigated.

4) Frameworks and methodologies to put the learner at the centre.

### **Collaboration**

One of the prerequisites for reorganization to have a positive economic effect is that higher education actors, institutions, teachers, researchers, students, build on each other's work and successes. MOOC and similar concepts assume that good solutions can be scaled up and possibly reused.

5) Cooperation across institutional boundaries and possibly borders, on content and platforms for more open and distance education, including MOOC.

### **Open Content**

There is a plethora of technologies, platforms and concepts to deal with when an



institution wishes to engage in MOOC. Eventually, the issue of interoperability, i.e. where the provider can freely move content between different platforms and ultimately release it as an OER / OCW, become a key issue.

6) Interoperability between different solutions.

### **Definitions and comparable statistics**

There has long been a lack of common definitions and data sources to monitor the development of distance and open education, for comparisons and policy development. MOOC has intensified this need. Since the development is now global, there must be a global concerted effort to establish common databases and understanding so that data and statistics are comparable across national boundaries and regions.

7) Common global outlook, statistics and understanding of fundamental concepts.

### **Research and innovation**

MOOC has unleashed great potential for innovation, research and development in education. We are in the early stages of development and an early investment in knowledge and innovation can have major long-term gains. It is very important that research and innovation supports and secures the participation of all actors, both in terms of development and human resource development.

8) Specific goals and plans for research and innovation firmly rooted in the stakeholder institutions and communities.

## Introduction

The purpose of this note is to give an overview of the development of Massive Open Online Course, MOOC, from an international perspective and to describe how it influences what can be called a global education agenda.

This paper makes a global review beyond the United States, as far as possible. The challenge of this approach is that other countries and stakeholders in the world are largely related to developments in the U.S., both because initiatives taken by the U.S. elite universities have been trend-setting, but also because the largest U.S. initiatives have global character, such as Coursera, EDX and Udacity. Access to data is also less good outside the United States. For example, large, repeated surveys like U.S. Online Education (Babson Survey) and ECAR (EDUCAUSE) deliver results that have some international transfer value and similar studies are not available in other regions of the world, although some countries have comparable data to illustrate trends in flexible and distance higher education over time, such as Brazil and Sweden.

### Some words and concepts

The most common concepts related to MOOC are:

- Open Educational Resources, OER
- Open CourseWare, OCW
- Massive Open and Online Courses, MOOC

The criterion for whether a teaching/ learning resource is an OER or not, is whether it is licensed as OER, such as with a Creative Commons licence.

Is this nitpicking? Hardly for the institution, student or teacher who either enjoys free use, and the right to reuse, modify, copy, and share educational resources without risk of legal action for abusing the rights of others.

MOOC is a true child of the movement for open education and open educational resources, OER and open courses, OCW, and rides on the positive response to open education. Note for example the fact that MOOC actors must accept criticism in relation to their transparency, and whether it is offering MOOC or MOC (Online but not Open). Note also for example UDACITY, a commercial MOOC provider which has initiated the Open Education Alliance:

<https://www.udacity.com/opened>

### What is Open

In higher education, "open" has multiple meanings.

Open relative to:

- No entry requirements
- No payment
- Implementation pace determined by the student
- location
- time

The Open University, UK, which since its start in 1969 has set a standard for "open" in higher education, whose "mission is to be open to people, places, methods and ideas." <http://www.open.ac.uk/about/main/the-ou-explained/the-ous-mission>

In the report 'Open ' as the default modus operandi for research and higher education is the main point of the open is that it is an important modus operandi for an effective research and higher education system. It is seen as an approach, not as an ideology or a goal in itself. A main conclusion of the report is:

"To Realize the full potential of 'Open ' e-InfraNet recommends a broad policy framework that covers open access to content and infrastructure as well as open approaches to the further development of 'Open ' itself, and to the way research and higher education are Conducted."

The following figure illustrates the range of "Open" in higher education:

The phrase 'Open' encompasses a range of open approaches including the following

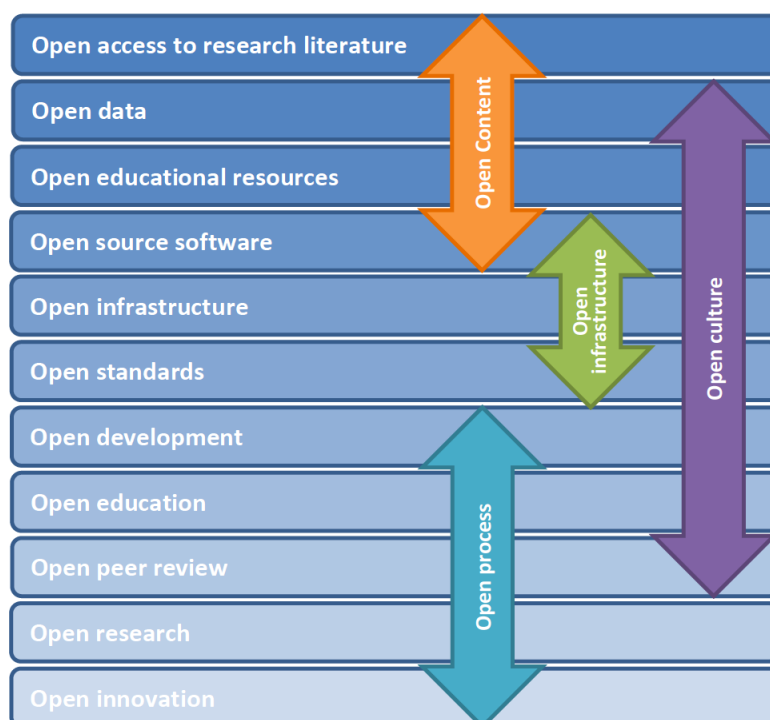


Figure 2—The range of 'Opens'

"European Network for the co-ordination of policies and programs has on e-infrastructures"

e-InfraNet: 'Open ' as the default modus operandi for research and higher education.

### What is Online

The term "online learning", or education online / online education / learning is popularly used to cover a wide range of teaching and learning methods that vary greatly in terms of learning outcomes, costs and access for students.

Generally speaking, online learning, distance learning, is a course conducted over the Internet, or online.

Hybrid learning, or blended / "blended" learning is a course that partially completed online and partly face to face, such as in a classroom on campus.

There is a lack of common definitions and concepts globally. Therefore, international (and sometimes national) comparisons often demanding, mutual learning and policy

design will be distorted. For example defines someone an online student as one who conducts his education 100 % over the net and other more vague as "primarily" on the web.

The most commonly used definition in the U.S. (and ICDE user):

"Online courses are those in which at least 80 percent of the course content is delivered online. Face-to-face instruction includes courses in which zero to 29 percent of the content is delivered online, this category includes both traditional and web facilitated courses. The remaining alternative, blended (sometimes called hybrid) instruction has between 30 and 80 percent of the course content delivered online." Between 1-29 % are considered "web facilitated".

I. Elaine Allen and Jeff Seaman 2013 "Changing Course: Ten Years of Tracking Online Education in the United States"

<http://www.onlinelearningsurvey.com/>

### What is MOOC

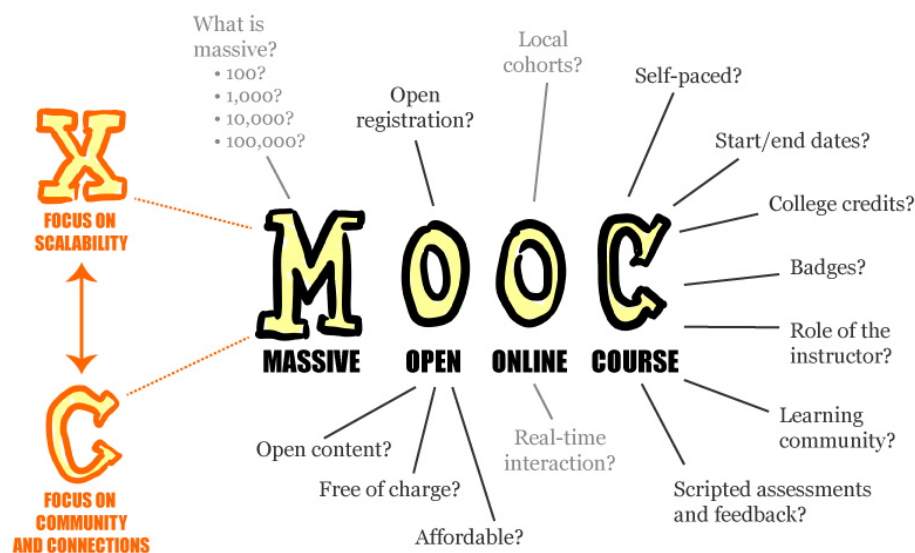
MOOC is simply a form of online education, but distinguishes itself from other online course because the courses are available free of charge, does not cost anything and can cater for participants in large numbers. according to The Oxford English Dictionary:

"A course of study made available across the Internet without charge to a very large number of people:

anyone who Decides To Take a MOOC simply logs on to the website and signs up"

<http://www.oxforddictionaries.com/>

Wikipedia reproduces a poster that says "Mooc, every letter is negotiable", which is also emblematic of discussion about the different types Mooc, cMOOC and xMOOC, whether it is solid or not, open or not, etc.



[http://en.wikipedia.org/wiki/Massive open online course](http://en.wikipedia.org/wiki/Massive_open_online_course)

Structurally MOOC can be described in that it must have a virtual platform in the cloud (cloud) that can manage the users having technical expert support of the platform, educational support platform and specialists to support teachers' production (design, structure, use of media etc.). Sebastian Thrun (Udacity) Starter history (first MOOC made in the basement with a camcorder having had received for Christmas from my wife) is inspiring but hardly durable as guidance for developing MOOC.

University of California at Berkeley, The Berkeley Resource Center for Online Education (BRCOE), gives the following description in What is a MOOC?:

A "Massive Open Online Course"(or "MOOC") is a course available to anyone with an Internet connection that goes beyond simply making course materials available online. Its distinguishing features are:

Short (7-12 minute) lecture segments on a single topic, rather than 60-90 minute long lectures  
Each short lecture supplemented with simple self-assessment questions (machine graded) to ensure students understood the lecture material  
Homeworks and exams that are machine graded, either by using question types built into the EdX MOOC platform or by creating custom auto grader programs  
Discussion forums monitored by a combination of Berkeley TA's (undergrads OK) and "Community TA's"(usually, volunteers who have already taken and did well in the MOOC version of your course)

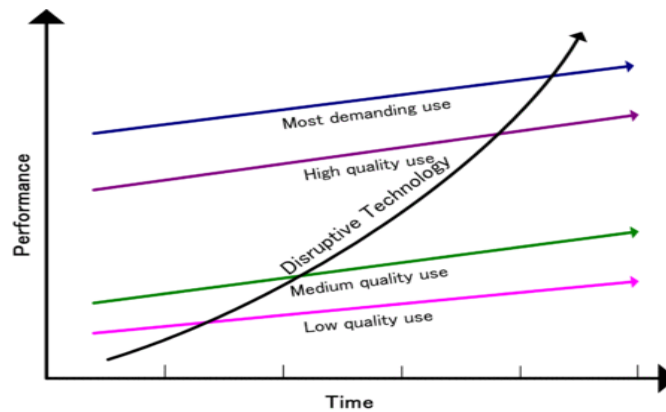
<http://online.berkeley.edu/moocs>

### **What is disruptive innovation**

It has been argued that higher education will never be the same after MOOC . Many consider the use of MOOC as an example of disruptive innovation in higher education, and expressed as a tsunami comes, comes an avalanche has been serviced to characterize MOOC its effect on higher education.

Clayton M. Christensen is attributed to the concept of disruptive innovation, and in 2011 he published "Disrupting College, How Disruptive Innovation Can Deliver Quality and Affordability two Postsecondary Education" with Michael B. Horn, Louis Caldera, Louis Soares . [http://www.innosightinstitute.org/innosight/wp-content/uploads/2011/02/future\\_of\\_higher\\_ed-2.3.pdf](http://www.innosightinstitute.org/innosight/wp-content/uploads/2011/02/future_of_higher_ed-2.3.pdf)

Disruptive innovation is described as a technology-facilitated process where a sector that has serviced get through the complicated, expensive and inaccessible services are being transformed into a sector that provides services that are simple, affordable and comfortable to use, and serving many regardless of purchasing power and expertise.



Wikipedia describes four types of innovations, all terms used in the debate on innovation in education: Sustaining, evolutionary, revolutionary and disruptive innovation.

| Types of Innovation <sup>1</sup>              |   |
|---|---|
| <b>Sustaining</b>                             | An innovation that does not affect existing markets.  |
| <b>Evolutionary</b>                           | An innovation that improves a product in an existing market in ways that customers are expecting. (E.g., <a href="#">fuel injection</a> )   |
| <b>Revolutionary (discontinuous, radical)</b> | An innovation that is unexpected, but nevertheless does not affect existing markets. (E.g., the <a href="#">automobile</a> )  |
| <b>Disruptive</b>                             | An innovation that creates a new market by applying a different set of values, which ultimately (and unexpectedly) overtakes an existing market. (E.g., the lower priced <a href="#">Ford Model T</a> ) |

[http://en.wikipedia.org/wiki/Disruptive\\_innovation](http://en.wikipedia.org/wiki/Disruptive_innovation)

Clayton Christensen Institute explains the term as:

“The theory explains the phenomenon by which an innovation transforms an existing market or sector by introducing simplicity, convenience, accessibility, and affordability where complication and high cost are the status quo.”

And asserts:

“Online learning is rapidly disrupting our traditional education system.”

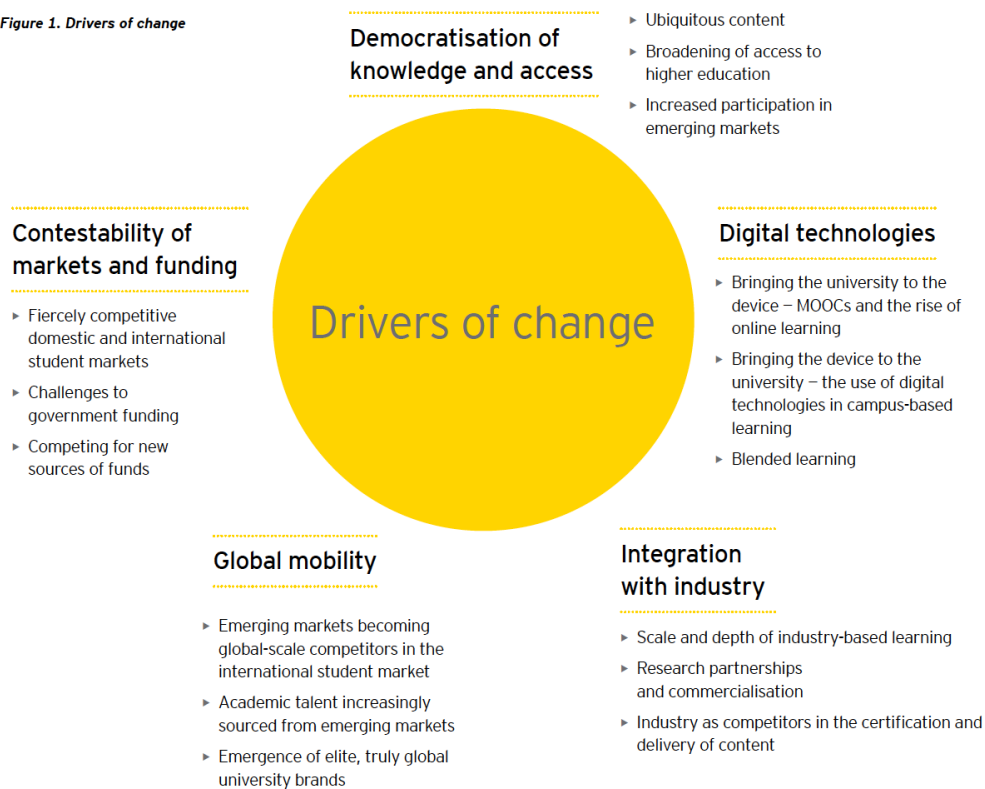
<http://www.christenseninstitute.org/key-concepts/disruptive-innovation-2/>

## Drivers and deep trends for change and open education

Ernst & Young, Australia, published in autumn 2012 a report based on studies of Australian institutions that received broad coverage in terms of the upcoming changes in the university sector. The report launched five drivers for change in higher education:

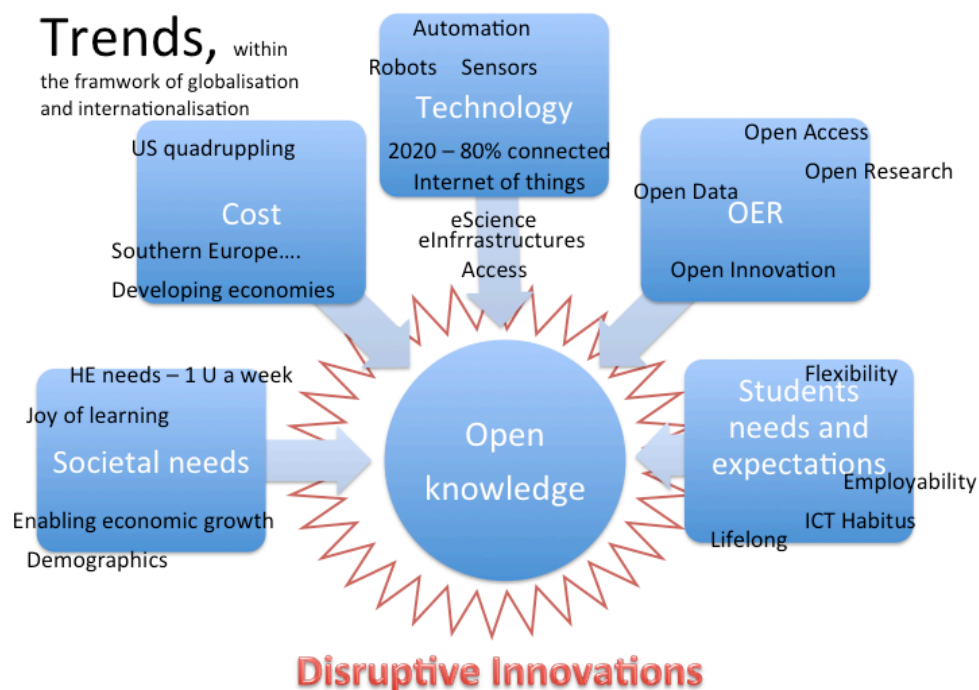
The democratization of knowledge and access to education, digital technologies, integration with the private sector, industry, global mobility and competition for markets and financing. The analysis stands up well too almost a year after “the year of the MOOC”.

Figure 1. Drivers of change



Future university, analysis Australia, Ernst & Young, see [http://www.ey.com/AU/en/Industries/Government---Public-Sector/UOF\\_University-of-the-future](http://www.ey.com/AU/en/Industries/Government---Public-Sector/UOF_University-of-the-future)

A more specific analysis of drivers of open education and MOOC, however, a slightly different picture. Within the framework of the drivers of globalization and internationalization, believed the needs of education and societal needs in this context, the technological development, OER and other forces for open education, open access and others, students' needs and expectations and costs to be the key drivers. There are no dramatic differences to the Australian analysis, but the content page, students and social needs are emphasized more in the past. Further emphasis disruptive innovation in the past, whether it is big or small it is said nothing about-but the observation is that the tension between these very strong drivers, there is good basis for disruptive innovations that change the relationship between users, providers and other stakeholders in the global education market.



Ref. Gard Titlestad, ICDE, 2013.

### Need for higher education-need of lifelong learning

The rapid development of global MOOC is difficult to understand without taking account of the great needs of higher education in a more knowledge- intensive world. The need arises from the possibility of social benefit (competitiveness, ability to problem-solving), public benefit (what is available back in tax money from investing in higher education) and personal gain (earnings over the life cycle, employment and life expectancy in times of crisis). All is well shown by the statistics and analysis of the OECD. See "What are the returns on higher education for individuals and countries?", OECD Education Indicators in Focus-2012 /06.

According to the EU Commission will present 100 million students (this estimate is believed to be too low) up to 414 million students by 2030, and where the largest increase occurs in China, Brazil and India. See Com (2013) 499, European higher education in the world.

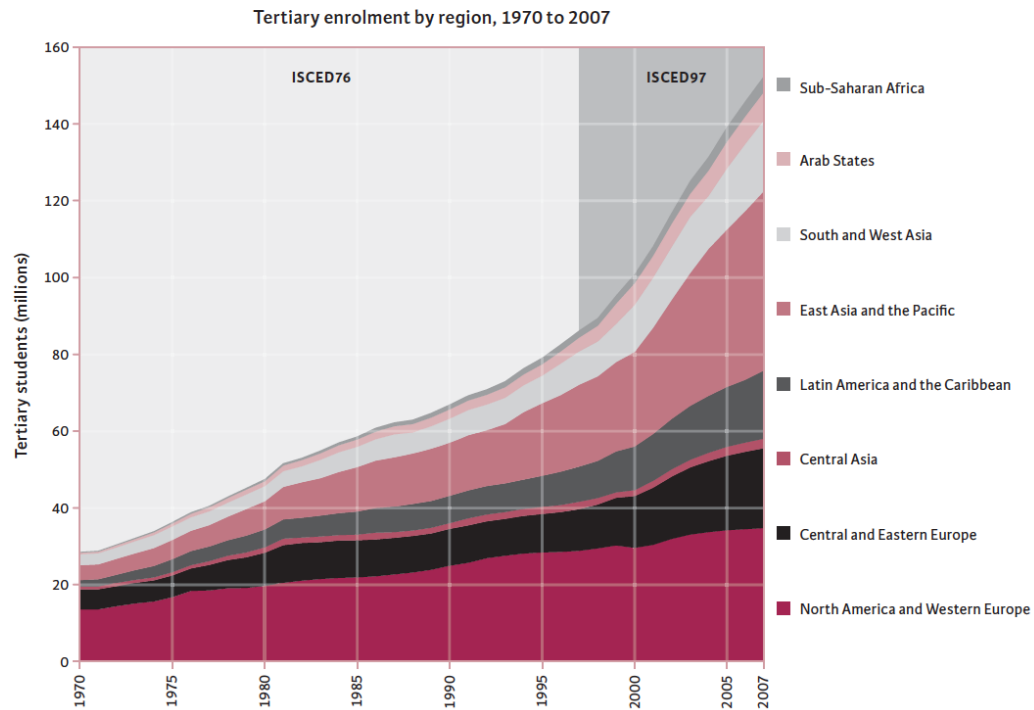
This is difficult, many would say impossible, to imagine without significant stakes when it comes to online education.

UNESCO published in 2009 the number of students in higher education in the period



1970-2007, see figure below.

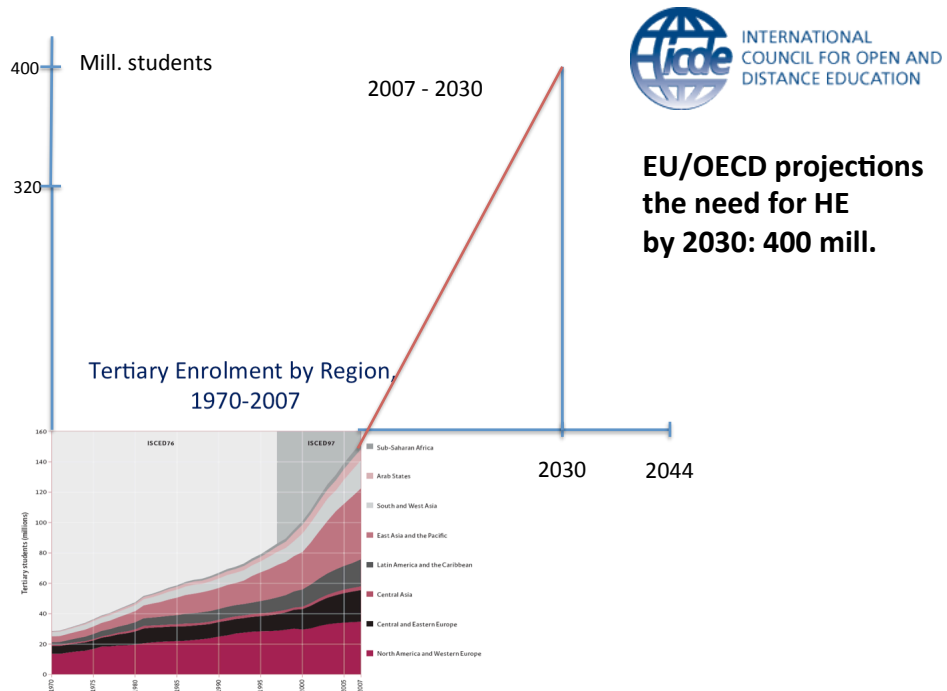
How did the absolute number of tertiary students change over the last decades?



Ref: GLOBAL EDUCATION DIGEST 2009, Comparing Education Statistics Across the World, UNESCO Institute for Statistics

<http://www.uis.unesco.org/Library/Documents/ged09-en.pdf>

If this figure projected by the EU Commission forecast to 2030 gain a following picture:



Ref. Gard Titlestad "The Future of Higher Education the Future of Learning", Higher Education Leadership Forum Dubai, 12 November 2013.

This means that we should go through a major change within a very short time. The newborn child or grandchild today will be 17 years and ready for higher education as we know it, but how does it look like in 2030? It is difficult to predict, especially about the future (Piet Hein), but some trends can be observed:



In relation to MOOC and online education is particularly trends personalization, open and virtual that is relevant, but the whole is included to show the pressure world education is below, and to illustrate that most of what it is we do not know.

When it comes to teachers in particular, will be a need for additional 1.6 million in 2015 to take away the need for education at primary level, a need to increase to 3.3 million by 2030, according to UNESCO. Reference the table below.

For higher education means that one should provide the world with skilled teachers who master online teaching and new learning methods for achieving world goals.

**TABLE 1. NUMBER OF NEW TEACHING POSITIONS NEEDED TO ACHIEVE UPE**

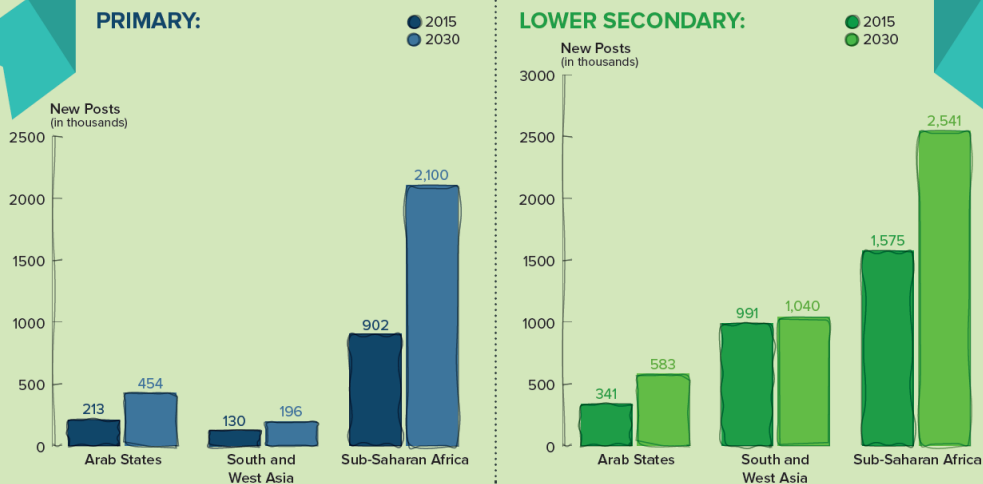
| Regions                          | Number of primary teachers in 2011 (in thousands) | New teaching posts needed to achieve UPE (in thousands) |              |              |              |
|----------------------------------|---|---|--------------|--------------|--------------|
|                                  |   | By 2015   | By 2020      | By 2025      | By 2030      |
| Arab States                      | 1,931   | 213   | 345          | 399          | 454          |
| Central and Eastern Europe       | 1,127   | 84  | 170          | 166          | 111          |
| Central Asia                     | 340   | 26  | 68           | 64           | 45           |
| East Asia and the Pacific        | 10,378  | 57  | 52           | 65           | 90           |
| Latin America and the Caribbean  | 3,102   | 36  | 26           | 34           | 38           |
| North America and Western Europe | 3,801   | 128   | 237          | 256          | 302          |
| South and West Asia              | 5,000   | 130   | 187          | 187          | 196          |
| Sub-Saharan Africa               | 3,190   | 902   | 1,295        | 1,716        | 2,100        |
| <b>World</b>                     | <b>28,870</b>                                     | <b>1,577</b>  | <b>2,381</b> | <b>2,886</b> | <b>3,335</b> |

A Teacher for Every Child: Projecting global teacher needs from 2015 to 2030.

UNESCO Institute for Statistics FACT SHEET OCTOBER 2013, No.27.

<http://www.uis.unesco.org/Education/Documents/fs27-2013-teachers-projections.pdf>

## WHERE TEACHERS ARE NEEDED MOST, 2015 - 2030



### THE BURDEN OF HIGH ATTRITION RATES:

In addition to creating 2.1 million new primary teaching posts, by 2030 sub-Saharan Africa must fill about 2.6 million posts vacated by teachers leaving the profession.

## WHAT IS DRIVING DEMAND IN SUB-SAHARAN AFRICA?



### POPULATION GROWTH

For every 100 primary school-age children today, there will be 143 in 2030.

Now

2030



### HIGHER DEMAND FOR EDUCATION

The numbers of pupils enrolled in primary and lower secondary education have soared by 66% and 123% respectively since 1999.



### ATTRITION

Countries simply don't have the resources to hire and train enough teachers. In Eritrea, 10 primary teachers leave the profession for every 7 hired.



### OVERCROWDED CLASSROOMS

In Chad there are as many as 63 pupils per primary teacher — many of them overage, and 44 per lower secondary teacher.

The Chronic Shortage of Teachers to Persist Beyond 2030,  
UNESCO Institute for Statistics.

<http://www.uis.unesco.org/Education/Documents/wtd-2013-if-web-en.pdf>

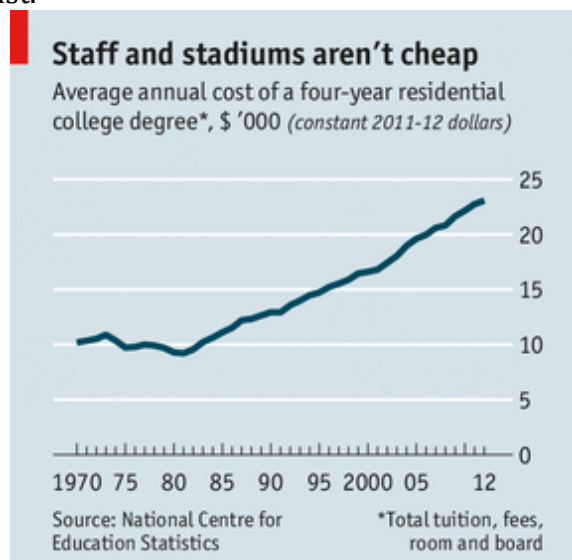
These major tasks are also why the ICDE has joined the UNESCO campaign for literacy and UNESCO task force on education of teachers in Africa.

Alongside these immediate needs can be observed a great need among the already educated part of the population by the arrival of MOOC, which can be attributed to that we now see one of the effects of many years of mass education and the development of knowledge-intensive society, the emergence of an educated knowledge seeker population requiring more and renewed knowledge of their lives. The outright joy of learning MOOC has unleashed is a new observation and explaining some of the rapid uptake of MOOC.

### Costs

In much of the world followed less funding from the government to cover increased costs for students and strained budgets for institutions. In the U.S., this has turned out particularly strongly and explains some of the development and organization of the American MOOC initiatives

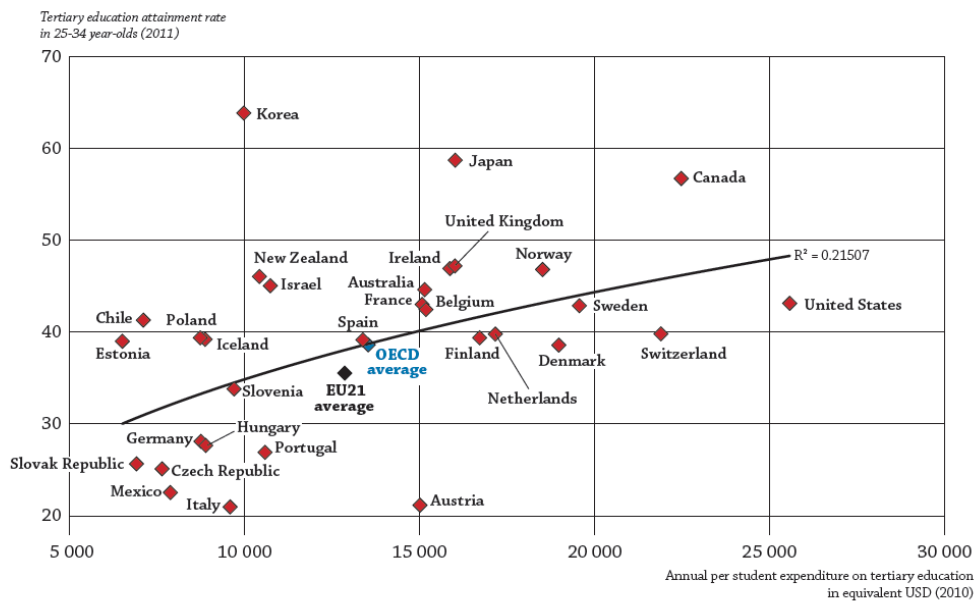
The chart below shows the trend of the cost of a 4-year higher education degree (campus). Source: Economist.



But also in several European countries, the cuts have been violent, and then as part of the overall cuts in public budgets.

A study by the OECD shows that there is only a weak correlation between the cost (per student) and attained higher education in the population. See figure below, which indicates that it is how the money is used and not the volume that determines a country's success, which is puzzling for the high cost in the United States.

## Annual per student expenditure and tertiary attainment rate among 25-34 year-olds



How can countries best produce a highly-qualified young labour force?  
 OECD, Education Indicators in Focus – October 2013.

See also:

<http://oecdeducationtoday.blogspot.fr/2013/10/smart-policies-matter-in-education.html>

### Technology and technological maturity

More than 10 years of internet maturing population, heavy infrastructure initiative (cf. Geant-the European education and research infrastructure, Nordunet, Nordic, Uninett the national and similar in many parts of the world and now explosive mobile broadband growth has opened for heavy web applications as MOOC. Meanwhile driver automation and robotics million out of the labour force and in need of re-education.

Although two-thirds of the population in developing countries do not have internet connection, the development of mobile broadband very promising. It grows by 30 % per year, faster than any technology in human history. According to a projection published by Ericsson Mobile Broadband will now almost 7 billion subscribers in 2018 (there can be multiple subscribers per person). Experts in Google have estimated that around 85 % of the world's population will be connected in 2020.

Thus, there are strong indications that the majority of the populations of developing countries can take part in online learning in the course of 5-7 years and MOOC and accordingly will have a growing market that has the

infrastructure to study online.

**01** While **Internet penetration globally will reach 38.8% by the end of 2013**, more than **two thirds of people in developing countries will still remain unconnected**, as will over **90% of people in the world's 49 least developed countries**.

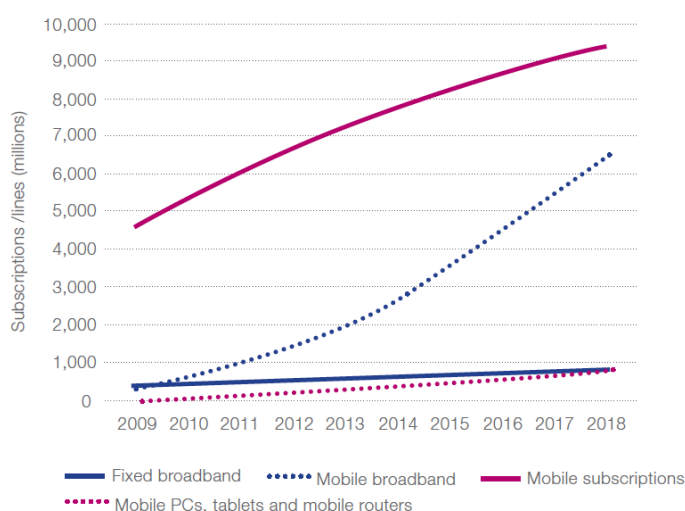
**02** Mobile broadband continues to show the **highest growth rate of any ICT, at over 30% per year**. By the end of 2013, mobile broadband subscriptions will exceed fixed broadband subscriptions by a ratio of 3:1 (up from 2:1, just two years ago).

**03** **Mobile broadband is growing faster than any technology in human history**. Five countries now have mobile broadband penetration in excess of 100 connections per capita (Singapore, Japan, Finland, Korea and Sweden). By the beginning of 2013, **32 economies had mobile-broadband subscription penetration in excess of one subscription for every two inhabitants**, compared with just 13 countries at the beginning of 2012.

From State of Broadband Report 2013

[www.broadbandcommission.org](http://www.broadbandcommission.org)

Figure 2: Mobile Broadband Bridges the Gap: Fixed Broadband and Mobile Subscriptions, 2009-2018



Source: Ericsson Mobility Report, June 2013.

## Open education, OER

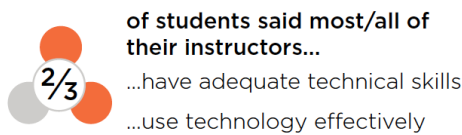
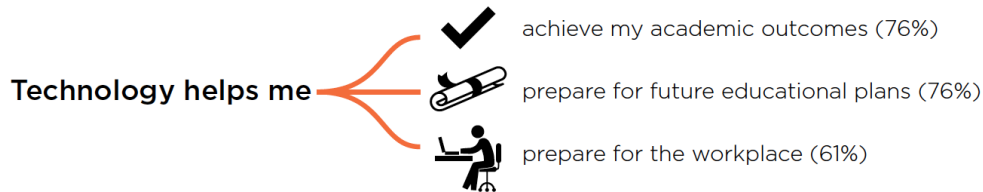
Open Education and OER deadlines with lower cost, more personalization and focus on the learner, the opportunity for innovation in education through participation in creating educational resources. Along with other relatives in the open family (Open Access, Open Data, Open Science and Open Innovation) gives indications about an untapped reservoir of knowledge development, acquisition and sharing. See more about this in the discussion of OER later.

## Students

Students are an impetus for more open and online education through its appetite for new learning opportunities, the use of electronic tools in their own learning needs for personalization and more flexible education.

## Technology Value and Use

Students value the ways in which technology helps them achieve their academic goals and prepares them for their future academic and workplace activities.

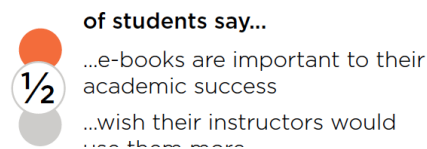
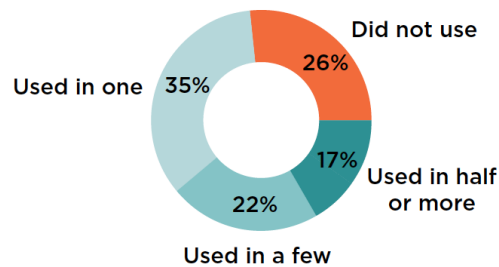


### OPEN EDUCATIONAL RESOURCES

**71%** of students use open educational resources

**54%** feel they are very or extremely important

### E-BOOK USE IN COURSES



The most comprehensive data are published annually in EDUCAUSE's report ECAR Study of Undergraduate Students and Information Technology, 2013. See [www.educause.edu/ecar-student-2013](http://www.educause.edu/ecar-student-2013)

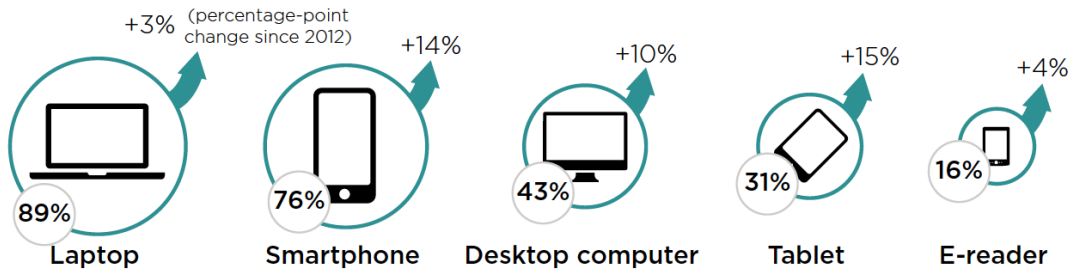
The findings in the latest report shows a strong and persistent tendency to prefer the use of digital media in higher education. While the findings show that to good effect must be made for the use of digital media skills must be cultivated and it must be guided in the right use in higher education. In addition to what is shown in the figure above may be mentioned that most students follow the more connected with teachers, other students and the institution through technology. Otherwise, a consistent finding in several studies that use more and more experience increases appetite.

One of the paradoxical findings show that where students' desire is strongest in the use of technology (smart phone), which prevents / prohibits the institution / teacher use. This coincides with two studies done in Europe for UNESCO in 2012, see "Mobile learning for teachers in Europe" and "Turning on mobile learning in Europe". About this blockage by the use of smart mobile says one of ECAR students, teachers (lecturers / professors) are stuck in the stone age. The only way that he / she did not use cell phones is the teacher's attitudes-who believe the student sits and SMS while the student is actually using mobile to capture (lectures) and search for relevant information.

## Mobile Device Ownership and Use

Students are poised to use their mobile devices more, and look to institutions and instructors for opportunities and encouragement to do so.

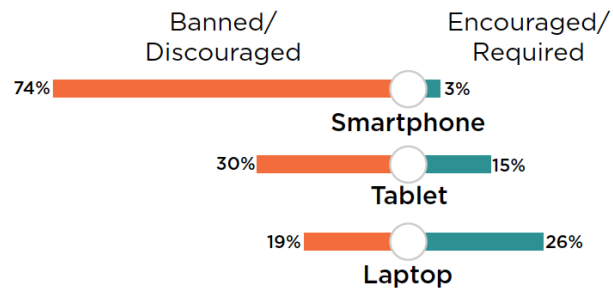
### DEVICE OWNERSHIP



### Top 5 in-class uses for smartphones:

- 1 To look up information
- 2 To photograph information
- 3 To access digital resources
- 4 To record my instructors
- 5 To participate in activities

### STUDENTS' IN-CLASS BYOD EXPERIENCES



**58%** of students own **three** or more Internet-capable devices

## Political initiatives

Although web-based and flexible education since the millennium has been steady and good progress in all parts of the world, it was an observation for a couple of years ago that development had passed the existing policies and frameworks for education. Today it is a rapidly growing awareness of the potential of open and distance education, although globally also exists much confusion, some confusion during the run as well as exaggerated expectations of what can be achieved by OER, online education and MOOC.

### USA

#### Online education

There is no clear overarching policy initiatives for online education in the United States, but rather a number of initiatives at the state level, which must be understood based on the U.S. federal structure.

example:

"California Governor Jerry Brown has proposed state funding increase item two offerings on Internet courses and graduate students more Quickly.



Brown's proposed 2013-14 budget provides \$ 16.9 million to two community colleges to increase the number of courses available through technology and \$ 10 million each to the University of California and California State University. Priority will be given to development of courses that serve more students while receiving equal or better learning experiences."

<http://www.ccclarion.com/2013/03/20/governor-pushes-for-online-education-reform/>

### Textbooks

There are several initiatives for textbooks OER (free textbooks) in North America, for example, in Canada, British Columbia, and the United States:

"United States Senators Dick Durbin of Illinois and Al Franken of Minnesota have introduced legislation called the Affordable College Textbook Act that seeks to make college textbooks affordable and openly available under the Creative Commons Attribution license. According to Durbin's press release, Bill S.1704 does five things:

- Creates a grant program to support two pilot programs at colleges and universities to create and expand the use of open textbooks with priority for those programs that will achieve the highest savings for students;
- ensure that any open textbooks or educational materials created overusing program funds will be freely and easily accessible to the public [via CC BY];
- Requires entities who receive funds to complete a report on the effectiveness of the program in achieving savings for students;
- Improves existing requirements for publishers to make all textbooks and other educational materials available for sale individually rather than as a bundle, and
- Requires the Government Accountability Office to report to Congress in 2017 with an update on the price trends of college textbooks."

We can thus expect political debate at the national level in the United States on free textbooks in higher education.

<http://creativecommons.org/weblog/entry/40598>

### OER

In the United States, which in many ways has been a leader in introducing OER (see MIT), has been a fierce political battle for OER. The Obama administration wanted to launch a heavily subsidized OER initiative from the Ministry of Education (50 million U.S. dollars / year for 10 years)-but the proposal was shot down in Congress. However, similar initiatives, only much larger (500 million U.S. dollars / year for 4 years), realized by the Ministry of Labour (Convention decisions not necessary, authorization was given)-with the aim of re-educating the proportion of the workforce that had been vacant due to international competition. The first call for proposals for the production of OER was made by the U.S. government in 2011. This is the largest investment in OER ever made. See lecture by Hal Plotkin, Senior Policy Advisor to the US Under Secretary of Education, United States, ICDE's 24<sup>th</sup> World Conference:

[http://www.youtube.com/watch?feature=player\\_embedded&v=6uP580\\_TytQ](http://www.youtube.com/watch?feature=player_embedded&v=6uP580_TytQ)

However, publishers and publishers were strong opponents of the initiative and various attempts have been made from these players to stop the initiative. See, for example, posting in Wired Campus:

“Publishers Criticize Federal Investment in Open Educational Resources”

<http://chronicle.com/blogs/wiredcampus/publishers-criticize-federal-investment-in-open-educational-resources/31483>

Education authorities in the United States, the article represented by Karen Cator, director of technology in education in the Ministry of Education, argue that the industry should see OER as an opportunity.

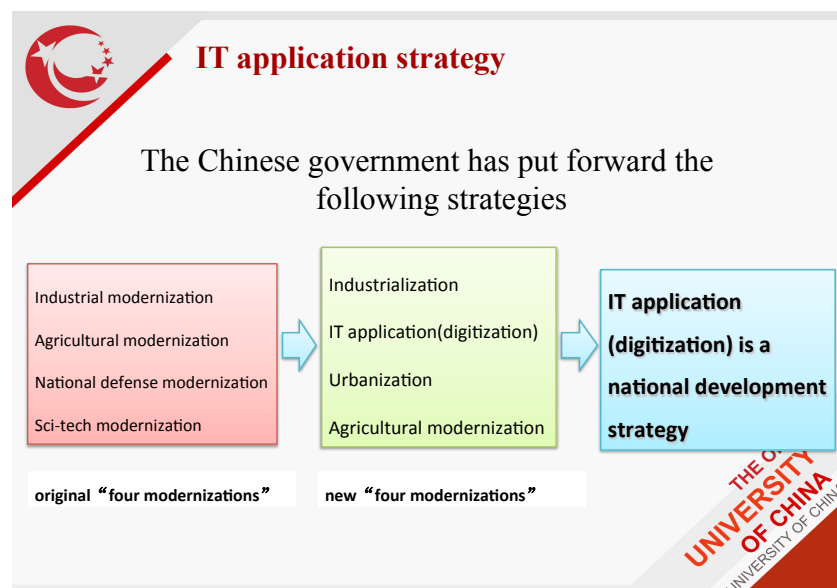
Industry representatives fear, however, that OER will worsen the situation in a market with declining revenues from printed material, and how digital learning tools is still in its infancy.

In light of MOOC see a sign that this is turning. See Chronicle 17.9.2012”Publishers See Online Mega-Courses as Opportunity to Sell Textbooks”.

<http://chronicle.com/article/Can-MOOCs-Help-Sell/134446/>

### Asia, China

The Chinese government has a very aggressive use of IT as part of the overall strategy for China's development, see figure below.

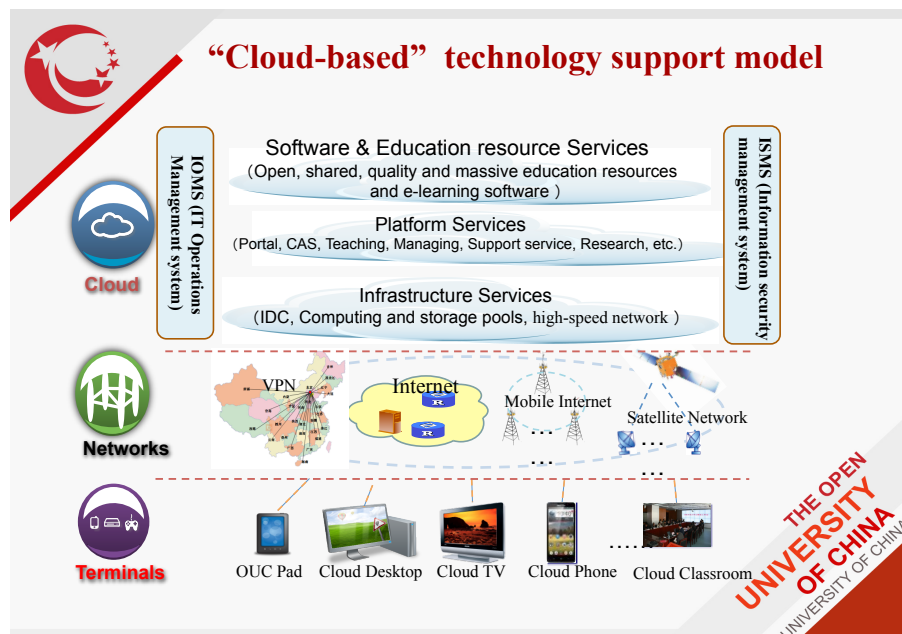


Education authorities have the use of IT as a high priority and has developed the concept "Three Acquisitions", "two platforms" and "Mooc plan"(open rates for residents).

Summary:

- There should be access through broadband to all schools, teacher resources in all classes and distance learning for all.
- Education should be facilitated through a national public platform for digital education resources and a platform for education information management.
- Higher educational institutions and the Ministry will organize MOOC-initiative jointly. It should be given financial support to educational institutions for this and prices will be made freely available to citizens.

To support its commitment to open learning progresses (and implement) China national infrastructure based on web-cloud below.



Ref. Yang Zhijian, president Open University of China, ICDE world Conference, Tianjin, China 2013, <http://www.tjrtvu.edu.cn/icde/en/index-en.html>

### Africa, African Union

In Africa, no obvious visible political MOOC initiative, but the region is active in OER and distance education and online learning.

For example, the African Union appointed African Council of Distance Education, ACDE, which follows on from teacher education in Africa through Open and Distance Education.

### Europe, EU

EU Commission launched in late September 2013 a comprehensive and the largest ever investment in Opening up education, at the regional level in the world, ref [http://ec.europa.eu/education/news/20130925\\_en.htm](http://ec.europa.eu/education/news/20130925_en.htm)

”The main goal of this initiative is to stimulate ways of learning and teaching through ICT and digital content, mainly through the development and availability of OER. Amongst its actions, the most important one is to change the role of digital technologies at school. All the actions within the initiative are put in place with the hope that they help attain the ultimate objective, namely to boost competitiveness and growth at the European level.”

Ref. <http://openeducationeuropa.eu/en/initiative>

The purpose is to stimulate learning and teaching through IT and digital content especially through OER. Thus, the two turn points indicated: IT & OER. MOOC is seen as part of the OER.

The initiative is described in detail in the Commission communication Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources, COM (2013) 654, also in COMMISSION STAFF WORKING

DOCUMENT Analysis and mapping of innovative teaching and learning for all through new Technologies and Open Educational Resources in Europe, SWD (2013) 341.

The initiative is made together by Androulla Vassiliou, Commissioner for Education, Culture, Multilingualism and Youth, and Neelie Kroes, Vice-president of the EU Commission and responsible for the Digital Agenda.

A total of 24 measures (actions) are listed in the initiative.

The initiative will be discussed at the EU Education meeting on 25-26 November 2013 under the leadership of the Lithuanian Presidency of the EU.

The program for ministerial discussion, the Presidency that the following discussion:

”With a view to enabling education and training systems, in particular the higher education sector, to take full advantage of the potential of new technologies in meeting the ever-increasing demand for high quality education, Ministers are invited to outline the overall approach being adopted at national level towards Open Educational Resources and MOOCs, and to share their ideas on how issues such as quality assessment and the recognition of skills and competences acquired by such means might be addressed.

Ministers are also invited to indicate how action at EU level might provide added value in this process.”

Financing of the implementation of the initiative will come from EU programs Horizon 2020 (the EU research program) and Erasmus +. Erasmus + was adopted by the European Parliament 19 November, and has a budget of € 14.7 billion or about. U.S. \$ 20 billion, and is 40 % larger than the previous program.

43 % of the Budget check to be allocated to higher education.

One of the ”key actions” aim to:

- To Enhance stronger Cooperation between HEI and with key stakeholders (enterprises, research Organisation, social partners, local / regional Authorities, other E & T or youth REP) two foster quality and innovation in HE

And activities to achieve this would be:

- Develop, test, Implement new joint curricula, joint study programs have, common modules, intensive programs have
- Develop project-based Cooperation with enterprises two study real-life cases
- Exploit the potential of Open Educational Resources, collaborative and personalized learning
- Integrate various study modes (distance, part-time, modular)

The opportunities for international partnerships with European will be greater in the coming Erasmus +.

The EU's massive initiative on Opening Up Education, we have the next year expect a

substantial network-oriented cooperation between higher education institutions (and stakeholders in the private and public sectors) in theme, stimulated by Erasmus + and Horizon 2020.

One must also expect Opening up Education will issue in the European governments through 2014-2015.

### Europe, France

The French government have set up the initiative of France Université Numérique-for French MOOC, ref

Now, the French Minister of Culture followed up by asking himself at the head of an initiative to open France using Creative Commons licenses:

French minister of culture and communications Aurélie Filippetti launched a set of initiatives yesterday (7 November 2013) designed to promote a more creative, more open France. The impressive announcement covers a lot of measures, including an open data policy for cultural data, the launch of a new workspace designed to stimulate cultural innovation, and much more. But of particular interest to us are the new partnerships Filippetti announced with the Open Knowledge Foundation and Creative Commons France.

The ministry of culture and communication will work with CC France to educate students, cultural creators, and society in general on understanding and using Creative Commons licenses. According to the announcement, "These tools align with intellectual property law and fit perfectly within the minister's policy of digital inclusion as a part of her great national project for arts and cultural education."

<http://www.culturecommunication.gouv.fr/Espace-Presses/Discours/Discours-d-Aurelie-Filippetti-ministre-de-la-Culture-et-de-la-Communication-prononce-lors-de-la-ceremonie-de-cloture-de-la-journee-d-echanges-Transmettre-la-culture-a-l-ere-du-numerique-et-de-remise-des-prix-de-l-Automne-numerique>

## MOOC: Prevalence

### Access to international research and statistics about online higher education, MOOC and OER

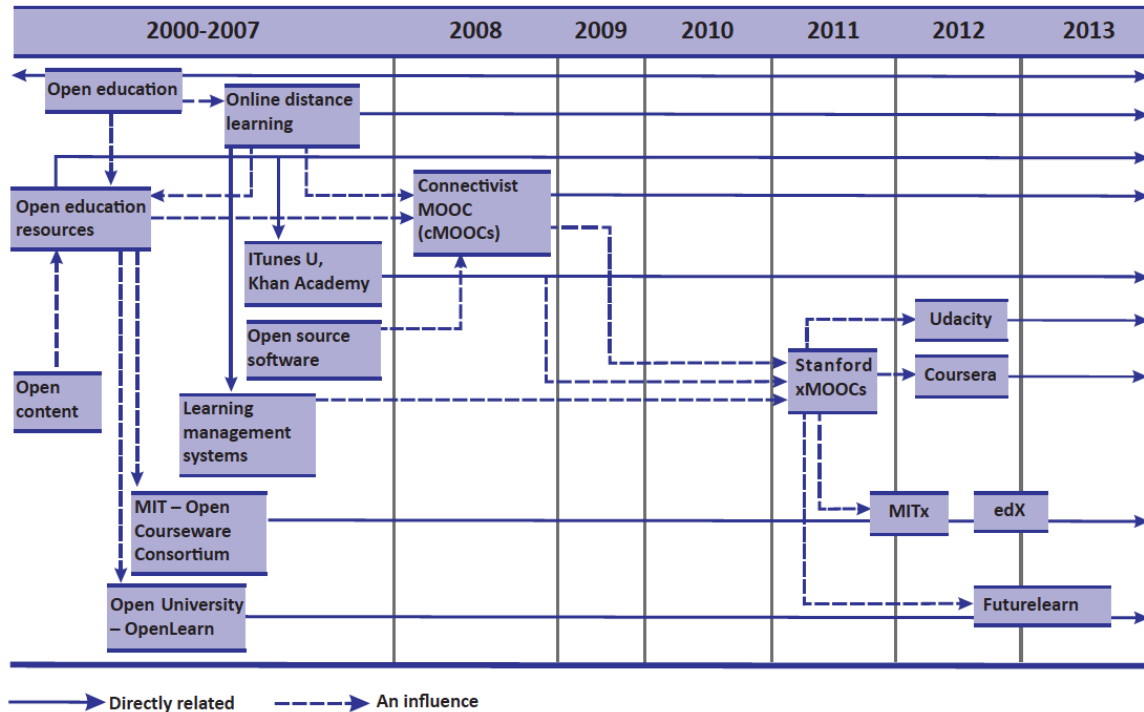
There exists little internationally comparable data and definitions of terms that may throw light on online higher education, OER and MOOC. This forms the basis for the ICDE together with partners (UNESCO, European Commission, International Association of Universities, SLOAN-C, Babson Survey and Study Portal) has taken the initiative to establish the Global Online Higher Education Report, a report that aims to provide global overview of online education, MOOC, OER and management views on evolution. Provided the project fails to find funding, the first report be submitted during 2014.

But for now, we are referred to the various individual sources where especially the U.S. are in great majority and rich.

## Timeline for MOOC

The timeline below taken from UNESCO publication (2013) "Introduction to MOOC: Avalanche, Illusion or augmentation?"

It shows how MOOC has evolved from OER / OCW / ODL to various initiatives today.



**Figure 1: Timeline of MOOC developments**

Adapted from Yuan and Powell (2013)

*MOOCs and Open Education: Implications for Higher Education (CETIS)*

Ref: <http://iite.unesco.org/publications/3214722/>

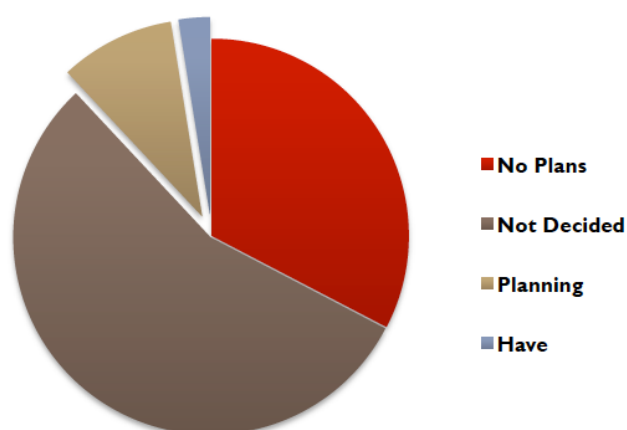
## MOOC participating higher education institutions – worldwide

### USA-global basis

Since MOOC initiative in 2011-2012 was totally US-dominated, the survey Babson survey conducted in 2012 also be fairly representative of the global.

It was found that only 2.6% reported that MOOC offered, 9.6% plan to offer and a third have no plans while the rest are uncertain about what one should do. It is interesting that at this time there are public institutions that are in the lead and with the greatest proportion MOOC providers, while private come by and then in a larger proportion. The survey confirms the picture of the MOOC is driven by research-intensive university.

### Plans for MOOCs - 2012



Babson Survey is in the final stages of the survey for 2013, where the findings will be presented at the annual Sloan- C Conference 20-22 November 2013, ref <http://sloanconsortium.org/conference/2013/aln/welcome>

In conversation with the project manager Jeff Seaman 9 November this year stated that there are significant changes (increased) awareness MOOC the U.S. chief among academics, compared with 2012. Meanwhile, respondents so far significantly reserved in relation to whether MOOC is a sustainable teaching method (under a quarter agree that MOOC is a sustainable method of providing courses) .

#### Enterasys-worldwide survey

Enterasys, an international network provider, completed spring 2013 what they call a "world wide survey "of MOOC trends in higher education. The survey found that 13 % offer MOOC, 43 % plan to offer MOOC within 3 years and 44 % have no plans. Details of the study is not known, but the findings are described on their website.

<http://blogs.enterasys.com/trends-in-massive-open-online-courses-infographic/>

#### ICDE-global temperature gauge among members

ICDE announced in October 2013 a simple questionnaire to take the temperature of MOOC among its members and found that 37.2 % of respondents claimed to have one or more MOOC, 44.2 % plan to launch within the next 6-12 months and 18.6 % have no plans. The surveys were addressed to the President / Rector of the member institutions and the response rate was 33

In a 3-5 year perspective mean 20.5% of respondents that MOOC will have a revolutionary impact on higher education, 75 % think MOOC will find its place as part of online education and 4.6 % believe MOOC will not be viable in education.

The answers are distributed worldwide as follows (total institutional ICDE members in bracket): Africa 5 (14) Asia 15 (57), Australia and Oceania 7 (8), Europe 12 (32), North America 5 (14), South America 2 (14).

8 of the institutions had more than 100,000 students, 36 between 180 and 100,000 and

1 no .

Respondents reported that 89.1 % of their students (a total of just under 6 million) in online education .

The total student body behind the survey between 6-10 % of the world's total student body .

Ref . [http://icde.org/.b7C\\_wRfWY8.ips](http://icde.org/.b7C_wRfWY8.ips) (details of the study are not yet published, but can be sent on request to the author) .

### Brief discussion

Wikipedia's definition of MOOC and Babson Surveys definition of online education was assumed in the study. It may still be that the number of ICDE members claiming one has MOOC is too high because some may think that learning objects / micro lectures can be / can be part of MOOC, ref

Although the findings of ICDEs survey is skewed in relation to all higher education institutions, since these member institutions in some or a great extent already occupied by distance and online education, and that some respondents may have over reported MOOC, then indicate the three surveys that MOOC has a very fast uptake globally and that institutions already offer online education mainly has a positive outlook on MOOC .

### Overview – MOOC initiatives globally



Ref. Darco Jansen, EADTU (October 2013). <http://www.eadtu.eu/>

Review shows that it is MOOC initiative in the U.S. (more), Mexico, Brazil, Europe (several), China and Australia (more), see chart above.

In addition, significant MOOC activity where universities recruited to global MOOC platforms, such as Coursera, or where these platforms are out to establish so-called hubs.

Besides this rough, overall picture, it is reported from many of the so-called "little Mooc"



or small MOOC to be inconsistent, driven by enthusiasts. And many other forms and directions that MOOC takes in concept-based higher education.

## USA

Providers (not exhaustive):

- Khan Academy
- Coursera
- EDX
- Udacity

These four above, is the best known in the United States, where 50% or more of the leaders of academic institutions are well acquainted with initiatives (source Jeff Seaman).

- ALISON
- Canvas Network
- Academic Earth
- Peer to Peer University
- Class 2 go
- Saylor.org
- Udemy
- Open MOOC
- NovoEd
- Google Course Builder
- Coursesites

## MOOC-American global localization, hubs and participation of students

Udacity publishes where they show places of Participants:

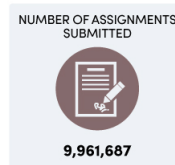
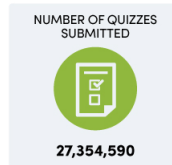
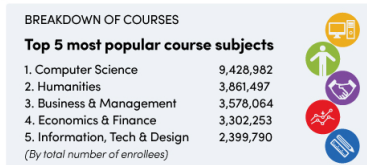
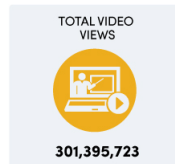
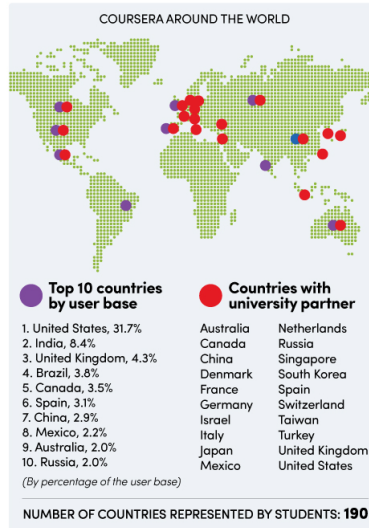
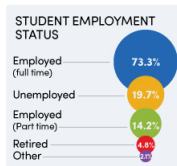
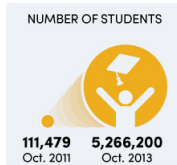


Coursera shows in a recent infographics, below, information on student base and countries contributing to MOOC Coursera platform.



# Education for Everyone: Coursera by the Numbers

In just two years Coursera has grown from a revolutionary idea to thriving community of more than 100 partner institutions, 5 million+ students from 190 countries, and 500+ courses across a diverse range of disciplines.



October 24, 2013

Coursera has also made public where they have established so-called Learning Hubs, see below.



”Coursera Learning Hubs: Locations include: Baghdad, Buenos Aires, Cairo, Chennai, Hanoi, Helsinki, Juba, Kyiv, La Paz, Lima, Manila, Mountain View, Phnom Penh, Port au Prince, Port Louis, Prague, Santiago, Seoul, Shanghai, Tbilisi, Kakamega, Moscow, Mumbai, and Port of Spain”

<http://blog.coursera.org/>

The U.S. government has just initiated MOOC Camp (in more than 40 countries) . 30th October the Bureau of Educational and Cultural Affairs partnership with Coursera "to expand learning opportunities worldwide as part of its MOOC Camp initiative . The State Department and Coursera will work together to engage young people and Promote interest in U.S. higher education . "

See <http://eca.state.gov/programs-initiatives/mooc-camp>

The World Bank has also partnered with COURSERA for MOOC in developing countries "to help meet the demand for practical solutions-oriented learning on pressing issues in Developing countries. "

<http://www.worldbank.org/en/news/press-release/2013/10/15/world-bank-coursera-partner-open-learning>

A request sent by the undersigned to ICDE members in Africa showed that none of them were familiar with these initiatives to establish MOOC in Africa.

### Asia-China

A group of Chinese universities in cooperation with the government partnered with EDX . Several universities launches courses through Coursera .

University World News reports:

"Chinese universities such as Tsinghua, Peking and Shanghai Jiao Tong were now launching MOOC to "join the club" of first-class universities in the world, to share resources industry and to help transform teaching methods in their own universities, said Huang, a leading Beijing-based researcher on digital technology .

"It is Recognised that international online learning will have a significant impact on higher education, and it may transform the function and structure of [ China 's ] universities . "

Chinese platforms such as Tsinghua University 's XuetangX.com, Launched in October, would carry a mix of local and international programs have, including some translated into Chinese .

<http://www.universityworldnews.com/article.php?story=20131031165710979>

However, it seems that the trend is set (for now) on hold while the government clarify its policy in relation to MOOC (quality control, cheating, mechanisms for credit transfer and recognition for all universities) .

Open University of China which is the headquarters of 47 autonomous universities are working with MOOC-but it is still a little unclear about what is real MOOC or more "learning objects "that are offered.

Given the massive commitment that is en route from the government side (see earlier), it's probably only a matter of time before significant initiatives for online and MOOC-like deals rolled out.

### Asia-Taiwan

The government has launched a MOOC project which so far is not visible.

### **Asia-Indonesia**

Rector of Universitas Terbuka, Tian Belawati, planning MOOC as one part of the social mission of the university, but not implemented as part of the general education.

Universitas Ciputra Entrepreneurship Online (UCEO) launched a MOOC in August 2013.

### **Asia-Myanmar**

The Open University has launched MOOC .

### **Asia-Japan**

MOOC initiative observed: Schoo .

### **South East Asia – SEAMEO**

Four open universities in South East Asia (Philippines, Thailand, Vietnam, Malaysia and Indonesia) is planning to launch a MOOC (in ASEAN) in 2014 .

### **Australia**

Open University of Australia has launched a MOOC initiative with considerable success, Open2Study and over 100,000 participants. Ref: <https://www.open2study.com/>

Australian universities are participants in Coursera.

### **New Zealand**

An exciting initiative, and considered by many as a MOOC competitor, coming from the Open Education Resource University.

The OER University was officially launched at an event held at Thompson Rivers University, Canada on 1 November. The OERu aims to provide free learning to all students worldwide using OER learning materials with pathways to gain credible qualifications from recognized education institutions. It hopes to develop a parallel learning universe to augment and add value to traditional delivery systems in post-secondary education. Through the community service mission of participating institutions the OERu offers learners formal academic credit and reduced fees for assessment and credit.

Ref:

<http://oeruniversity.org/>

### **South America-Brazil**

An initiative has been observed, Veduca . There are reports of many enthusiasts and keen interest, but not visible MOOC initiative in South America.

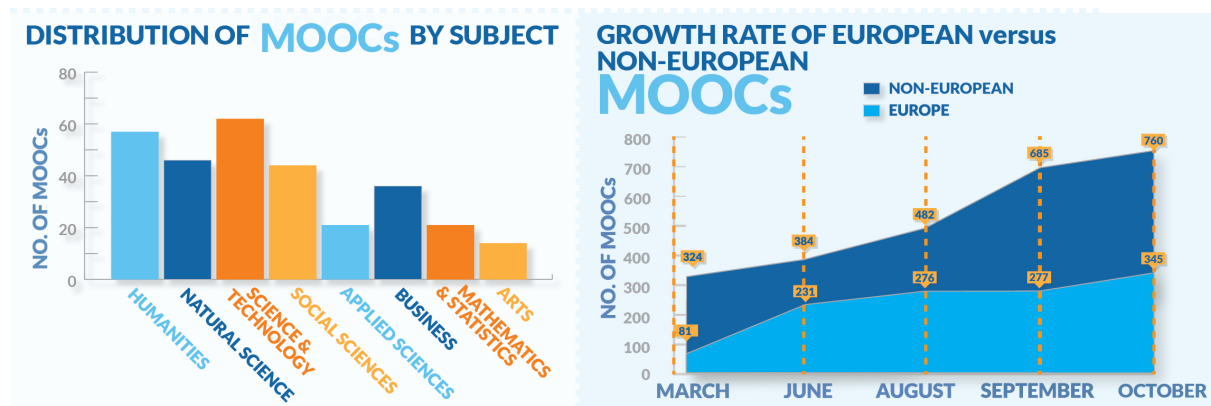
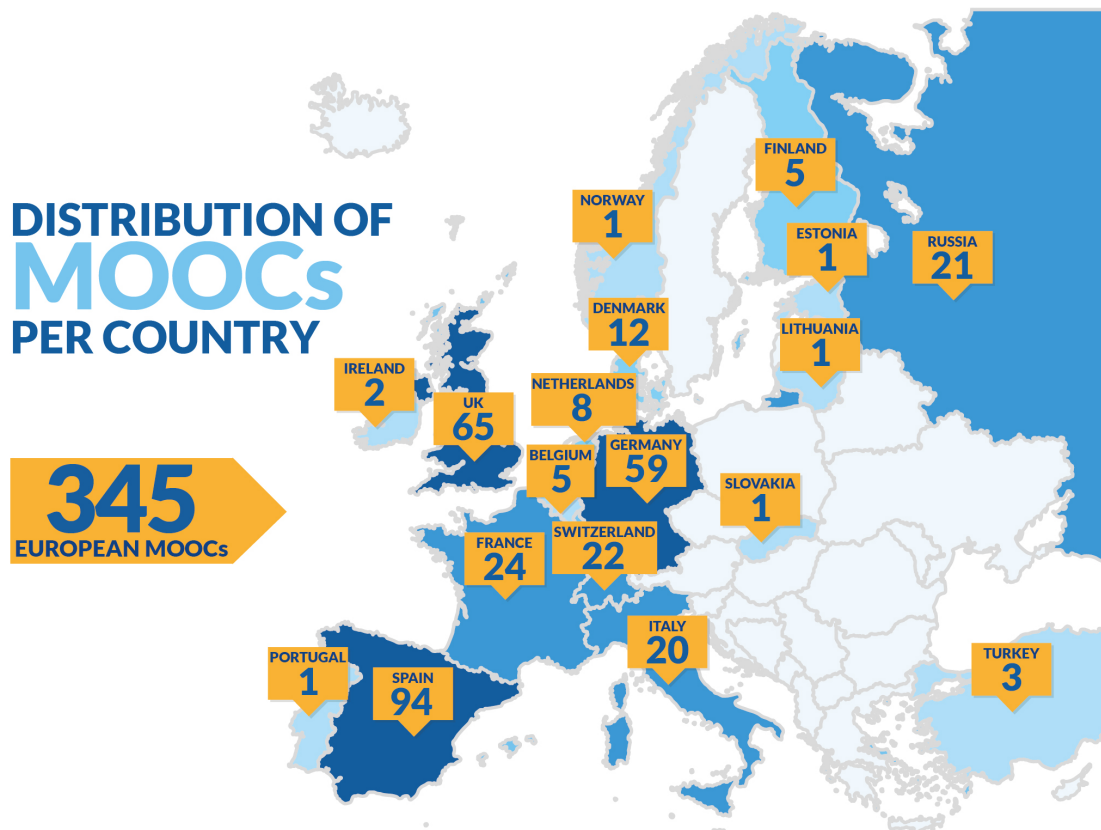
### **Africa**

No visible MOOC initiative or providers .

### **Europe**

How is the prevalence of MOOC in Europe is well illustrated by the European MOOC Scoreboard, below .

The overview shows European MOOC as a proportion of all registered MOOC, regardless of MOOC provider . The list is kept constantly updated and below the overview is on 31 October 2013.



There are several independent European MOOC initiatives (the list is not exhaustive):

- Future Learn (Open University UK)
- OpenupEd (EADTU-Netherlands / Europe)
- Miranda X (Spain)
- France Université Numérique-FUN (French authorities)
- OpenHPI (Germany)
- Open Course World, OCW (Germany)
- Iversity (Germany)

In addition to these there are many smaller (so-called little MOOC) that abound on the basis of enthusiasts and individual institutions.

## The Nordic Countries

No independent Nordic MOOC initiative is so far observed, but the Nordic Council, the parliamentary Nordic Cooperation has recommended the Nordic governmental cooperation, the Nordic Council of Ministers, to take up collaboration on MOOC.

<http://www.norden.org/no/nordisk-raad/saker/a-1599-kultur>

The Nordic Council of Ministers prepares a study on international online offerings on higher education level. Its secretariat has, as UNESCO, decided Open Access policy for its own publications.

A Nordic expert network has been established, Nordic OER. The network has given 10 recommendations to develop OER in The Nordic Countries, ref. attachment and

<http://nordicoer.org/>

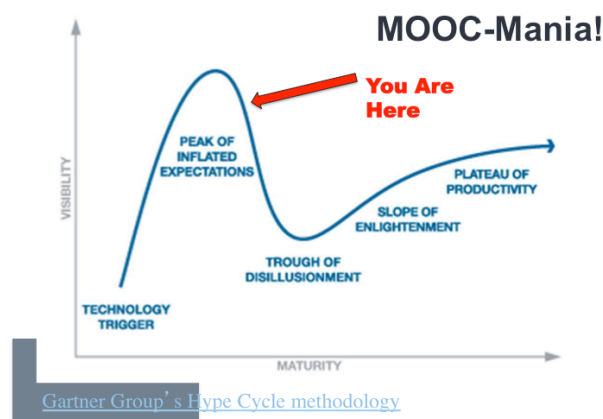
## MOOC: Trends

### Gartner hype cycle

Gartner hype cycle has been used to describe new technologies / technology-based initiatives since the millennium.

The idea is based on an observation that suggests that new initiatives undergo five phases: "a) the Technology Trigger, b) the Peak of Inflated Expectations, c) the Trough of Disillusionment, d) the Slope of Enlightenment", and finally "e) the Plateau of Productivity".

The think tank "Mind to MOOC" organized by ICDE and Open University China in Beijing October 20 this year, the hype cycle used by Marci Powell to illustrate how MOOC now reside in the U.S., see below. Marci Powell is Global Director for Education, Polycom, USDL Chair Emerita and Past President. She based the preparation of a consultation by members of the United States Distance Learning Association. <http://www.usdla.org/>

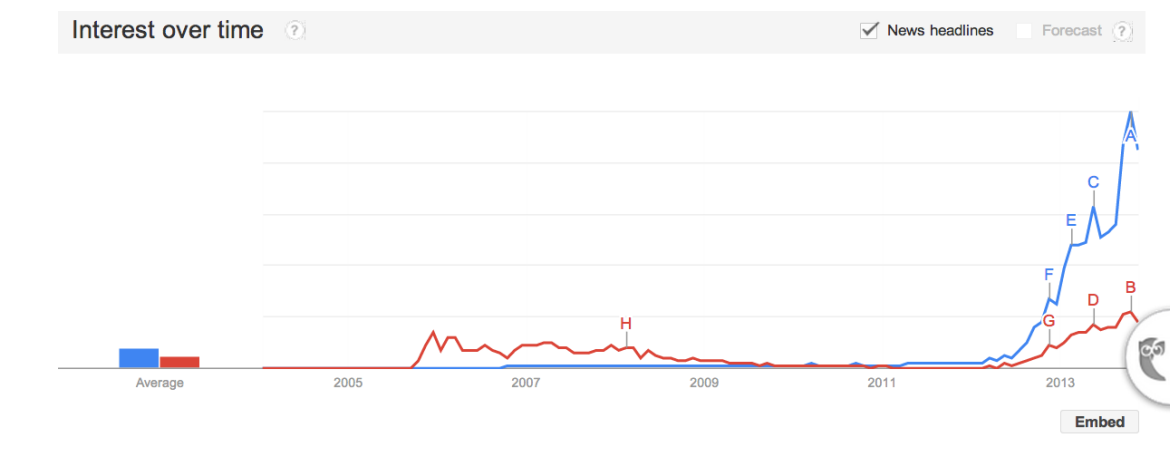


### Google's trend overview

Google has a service, Trends, which provides an indication of the popularity of given keywords. A simple trend analysis of MOOC (blue) and MOOC (red) shows significant / high attention in North America, India, Vietnam, Japan, Australia, England Finland,

France, the Netherlands and Spain, and the growing interest in China, Brazil, Colombia, Germany and Sweden. (NOTE: The map shows only MOOC, while Japan beats strongly on MOOC. Curves show both search terms).

The curve indicates no decline in attention, on the contrary, attention to continue to increase. It fits well with the picture described above with respect to that indicated varying awareness and uptake rate in different parts of the world. My observation indicates that attention will continue to grow in Asia, Africa and South America. And Europe? By all appearances there too, including because the European Commission's initiative Opening up education is in its early stages.



## Online education and MOOC

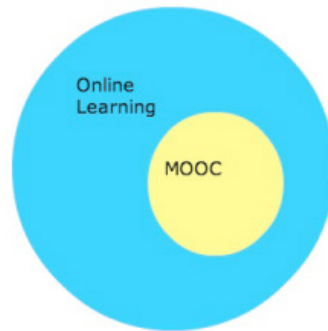
Is MOOC part of online education, or something special and new? Institutions and groups who have been long in the field is rarely in doubt, any example of SLOAN-C's blog reads:

”IS IT JUST US, OR ARE WE ALREADY SUFFERING FROM “MOOC FATIGUE”?

September 4, 2013 Thomas B. Cavanagh and Charles Dziuban

Those of us who have been quietly (and successfully) building, delivering, and evaluating online learning for almost two decades seem to have been overlooked amid the MOOC sound and fury. But we as a community know a few things about online learning and what makes it work and the main thing we know is that a

MOOC does not define online learning. It is simply a particular type of online learning, a subset of the larger whole. Online learning contains many different types of delivery strategies and the MOOC is but one flower in the garden.”



<http://blog.sloanconsortium.org/category/featured/>

### Online university versus MOOC

Universitat Oberta de Catalunya, UOC, Spain, was the first online university in Europe and one of the first in the world. After almost 20 years the university has established itself as a best practice university in their area, known for the quality of teaching. Rector of the UOC has previously stated that the services through the university's online, invested in academic quality for students, including through Counsellors and Tutors. Below is a list of what UOC offers and illustrating the differences from MOOC concepts.

**UOC** Universitat Oberta de Catalunya

## How to study at the UOC

Students are provided with a range of resources to help study each subject with the highest standards of quality:

- **Counsellors** provide students with personalized guidance.
- **Tutors** ensure they make progress in each of the subjects.
- The multimedia **learning materials** support the specific materials for each subject.
- The **learning plan** of each subject sets the working methods and criteria for assessment.
- **Continuous assessment** ensures academic progress and making the most of the course.
- The **Virtual Campus** lets students interact with the whole of the university community.
- The **Virtual Library** offers access to a wide range of information resources.
- The university **community services** offer benefits and activities.
- The regional **centres** provide a personalized service and resources for studying.

Ref: Pere Fabra, former Vice-Rector for faculty and academic affairs at Universitat Oberta de Catalunya, OUC, at the EADTU-EU special Summit on Open and Flexible Higher Education, 1 October 2013.



## Different types of MOOC

Initially cMOOC, Coursera, Udacity and edX launched with xMOOC.

The report "The Maturing of the MOOC"(September 2013) notes:

"Two classes of MOOC exist side by side for the time being, in a distinction observed by all participants and commentators: the cMOOC and the xMOOC.

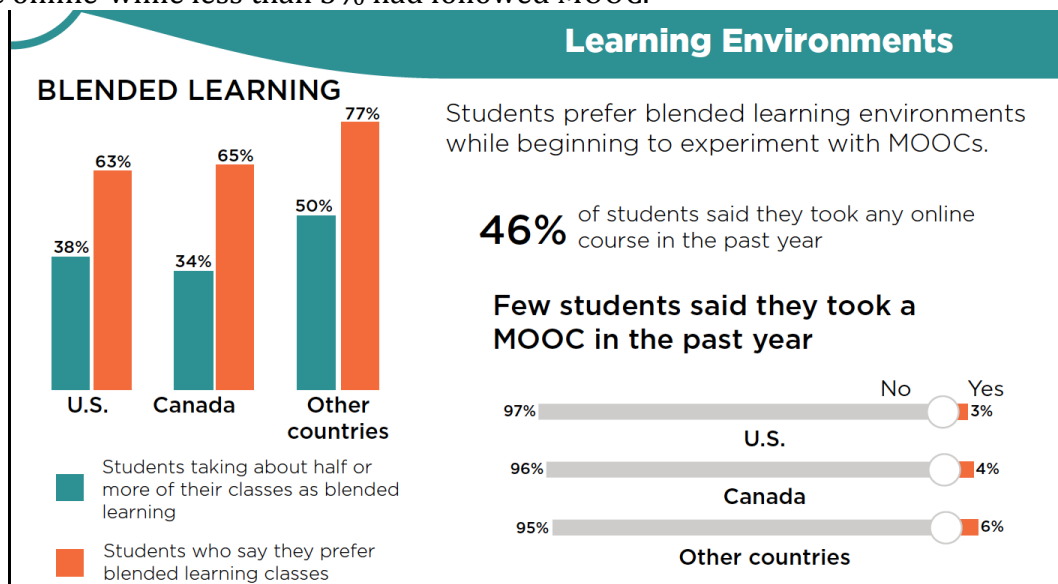
cMOOCs (C for "connectivist", the educational theory that inspired them<sup>1</sup>) run on open source learning platforms and are led by academics as part of their university activity. Their pedagogical model is peer learning. These are associated particularly with their founding institutions Athabasca and Manitoba Universities in Canada.

xMOOCs are online versions of traditional learning formats (lecture, instruction, discussion etc.) on proprietary specialist software platforms owned by private enterprises. They feature contractual and commercial relationships between Universities who create content, and technology providers. These are associated mostly with the three largest platform providers edX, Udacity and Coursera. The UK's FutureLearn, scheduled to launch autumn 2013, will be in this group."

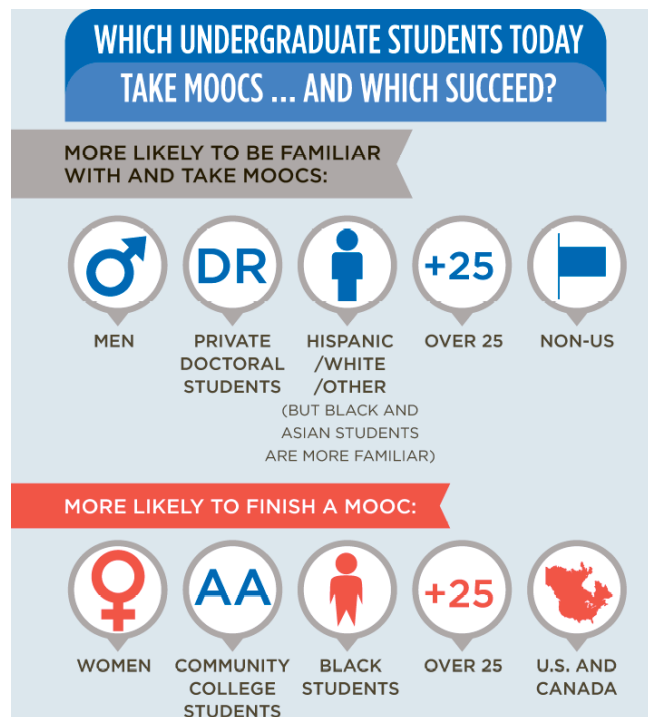
The Maturing of the MOOC, Research Paper published by the UK Government, Department for Business, Innovation and Skills  
<https://www.gov.uk/government/publications/massive-open-online-courses-and-online-distance-learning-review>

## Students and MOOC

While the typical student prefers "blended learning"(Online + Campus), while only a small portion followed MOOC. Startling 46% of the students had taken at least one course online-while less than 5% had followed MOOC.



Ref: Ref. ECAR STUDY OF UNDERGRADUATE STUDENTS AND INFORMATION TECHNOLOGY, 2013, <http://www.educause.edu/library/resources/ecar-study-undergraduate-students-and-information-technology-2013>



ECAR data from the same study shown to illustrate the typical image of the students taking MOOC (< 5 % of students currently use MOOC) .

A study in 2013 by users of MOOC with Canvas Network (found that just over 15 % had less than a 2-year college degree, 7% 1:02 year college degree, 30% a four year college degree, 34% a Master, 10% doctoral and 3% professional level, for example a physician.

44 % of users completed no course, and that reasons were given for 38%, the yield did not meet expectations 19%, lost interest 11%, lack of incentives (credits or certification) to 11%, forgot the 6% would not complete the 3% and another 13%.

Data from Coursera shows that the average age of the youngest of typical science-oriented courses are approx . 30 years and the oldest, the typical humanities oriented course is about . 45 years.

Ref: The Wall Street Journal 8 October 2013: An Early Report Card on Massive Open Online Courses

MOOC promise two change the face of higher education, one giant classroom at a time .

Here 's what they're doing well-and how they can do better .

<http://online.wsj.com/news/articles/SB10001424052702303759604579093400834738972>

Student profile for MOOC is consistently found reversal of the classic on-campus student profile, but this may of course change.

### Teachers, senior management-and MOOC

In August this year, Inside Higher Ed published a study conducted by Gallup . The study represents the teaching staff (faculty) attitude to technology.

Some key findings:

- On the scale 1-5 (1 strongly disagree-5 strongly agree) indicates the vast majority of respondents 3 +2 +1 on the question of MOOC from elite universities are better than other forms of net-based education. Only 4 % strongly agree .
- Half completely agree that institutions should not provide MOOC that they do not give credit for .
- Most people are sympathetic to the MOOC can help relieve space problems on campus .
- More than 80 % believe MOOC only be offered with the approval of the faculty .
- Most people think MOOC can help to reduce costs for students and their families.
- Most people are sceptical about online education can provide similar benefit as a physical presence on the course . Those who have experience in online teaching is more positive .

Ref: Survey of Faculty Attitudes on Technology, august 2013:

<http://www.insidehighered.com/news/survey/survey-faculty-attitudes-technology>

Similar findings have been made by other studies conducted in North America, see for example the studies done by the Babson Survey .

The Chronicle of Higher Education published recently (autumn 2013) study Attitudes on Innovation, how leaders (presidents) and faculty (faculty) are key issues for higher education.

One of the findings where there is a strong correlation between the responses is that teaching and learning are (too) little attention in terms of cost and technology.

There is also considerable agreement that hybrid / blended course is what will have the most positive effect on American higher education (managers more positive) .

One is also very positive adaptive learning technology that increases the interrelation between students (managers most positive) .

Both groups are predominantly positive for OER, but here's teaching staff most positive . A substantial majority of both groups are negative for MOOC . (65 % and 59 %, managers least negative) .

It is worth noting the respondents is that almost none of them (both groups) had taught one MOOC (2% or less), and few had followed a MOOC (6-16 %). All were negative to give credit to students who have taken MOOC at other institutions, but a significant proportion (minority) felt the institution offering MOOC should give credits.

Although a smaller number of respondents had followed the hybrid / blended teaching (9-22 %) then had a few more taught in hybrid / blended (21-38 %-managers at least), and more numbers of all belonged to institutions that offered hybrid / blended teaching (66-94 %-most managers) .

Both groups are largely agreed that hybrid / blended several advantages a pure online teaching ((33-50 %) and that teaching staff receive far too little support to rethink how teaching should be incorporated into the hybrid / blended format.

Some general observations:

- While many politicians and business leaders in the U.S. believe there is a need for massive changes in higher education, I mean teachers and administrators in higher education that need an evolutionary approach.
- It is unexpected (?) Strong correlation between teachers and managers perception, but the managers have a big challenge in engaging teachers in critical areas such as the tellers are agreed about.
- Teaching staff have a less optimistic view of the future than the leaders .

The study included 1,200 teachers (faculty) and 80 leaders (presidents) .

Ref: <http://www.cnm.edu/depts/marketing/academe/attitudes-on-innovation>

In a closed meeting with principals from the MENA region (Middle East and North Africa) under the Higher Education Leadership Forum Dubai, 13 November 2013, entered the vast majority for discussions about the future development, the future is blended learning. MOOC was little on the lips of participants, although one was aware of the phenomenon.

### Cost-MOOC

The cost for a MOOC can vary greatly-from American experience, from U.S. \$ 10,000-U.S. \$ 300,000.

Berkeley Resource Center for Online Education (BRCOE) has provided a decent overview of how the cost is to produce "their" Mooc:

“The main cost is instructor time. You can review a more detailed MOOC preparation checklist, but very roughly:

- Instructor's time to prepare lectures in suitable format (this is usually necessary even if starting from mature and well-organized lecture material)
- Instructor's and/or TA's time to create self-check questions to accompany video “lecturelets”
- Lecture capture:
- Instructor's time to record all lectures, if recording standalone lectures in an office/studio (there is a minimal investment in hardware and software, and we are working to create pay-as-you-go shared facilities for this purpose as well)
- Minimal hardware/software costs and paying a student to record live lectures, if doing live capture (typical scenario is to capture both computer screen and live video, then have a student “cut together” the pieces into live video, about an hour of work per hour of lecture; more details)
- (Optional) Paying ETS to record live lectures, if doing live capture; this is much more expensive, but less work for you and your TA's since
- Instructor's/TA's time to create auto-gradable assessments (homework, exams, etc.) and author them in EdX Studio software
- During course: 20-30 hours/week of TA time (OK to hire strong undergrads who know the material) to monitor Q&A forums. After the first MOOC offering, you can usually recruit volunteers from the MOOC cohort to help out

with subsequent iterations, reducing the amount of Berkeley student TA time you must pay for.

- During course: 4-6 hours/week of instructor time to fix bugs in lectures/assessments, ideally record short weekly “greeting to students”, etc.”

Ref: <http://online.berkeley.edu/faq/financial-issues/what-does-it-cost-prepare-and-run-mooc>

Buck Goldstein, University Entrepreneur in Residence, University of North Carolina stated that “his” Mooc cost approx . 150,000 U.S. \$, before Coursera was paid.

Ref: As MOOC Move Mainstream Universities Must Pay to Play, October 28, 2013:  
[http://www.huffingtonpost.com/buck-goldstein/as-moocs-move-mainstream-\\_b\\_4170524.html](http://www.huffingtonpost.com/buck-goldstein/as-moocs-move-mainstream-_b_4170524.html)

Marilyn M. Lombardi, Associate Professor & Director of Duke University 's Center of Nursing Collaboration, Entrepreneurship & Technology, said that “her” MOOC 50000 U.S. \$ before the cost of teaching staff were recognized.

Ref: The Globe and Mail, How much are you spending on that MOOC? Is it worth it? 2 October 2013 .

Ray Schroeder, associate vice chancellor for online learning and director of the Center for Online Learning, Research, and Service at the University of Illinois-Springfield, said that the average cost is 50.000-100.000 U.S. \$.

University of Washington who has been offering online education since 2002 reformatted one of their courses to satisfy the requirements of Coursera . Cost: 25,000 U.S. \$.

DIY and low-cost method is illustrated in this example:

The College of St. Scholastica (CSS), based in Duluth, Minnesota, realized it had a “MOOCster” on campus when popular anatomy professor Gerald Cizadlo posted his audio lectures on iTunes for student access, and the files became consistently ranked in the top 10 iTunes educational offerings, says Patrick Flattery, vice president of finance. “We decided to create our own low-budget MOOC with our own superstar professor,” he says. “Since the lectures were already out there, the work we did to MOOC-ify it took about a month of labour, maybe about \$10,000.”

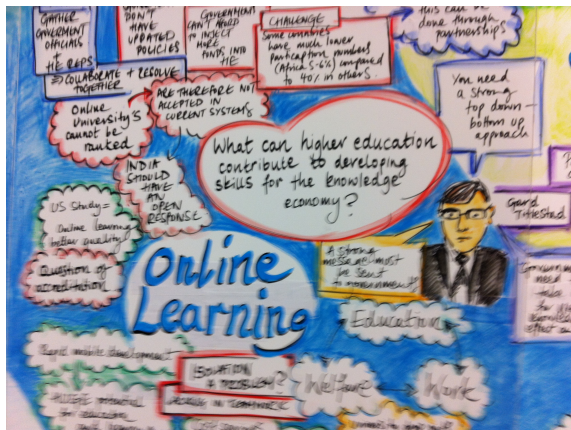
Ref: The National Association of College and University Business Officers (NACUBO), Mind the MOOCs, august 2013.

[http://www.nacubo.org/Business\\_Officer\\_Magazine/Magazine\\_Archives/JulyAugust\\_2013/Stretching\\_Campus\\_Boundaries/Mind\\_the\\_MOOCs.html](http://www.nacubo.org/Business_Officer_Magazine/Magazine_Archives/JulyAugust_2013/Stretching_Campus_Boundaries/Mind_the_MOOCs.html)

### Quality-education online and MOOC

While it has been questioned whether education online can keep the same quality as campus-based education, the meta-studies that this scepticism does not hold, see for example, “Evaluation of Evidence-Based Practices in Online Learning . A Meta-Analysis and Review of Online Learning Studies,” U.S. Department of Education.

<http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>



The assumption of course is that the players are serious . Frivolous actors and actors who cut corners on quality, will deliver inferior either in campus or online.

The OECD's two-yearly conference Institutional Management in Higher Education (IMHE) in September 2012, it was unlike previous years, a number of presentations that took up education online . Something could probably be attributed theme of the conference:

"Attaining and Sustaining Mass Higher Education"

<http://www.oecd.org/site/eduimhe12/>

But the increasing representation of online education was also an expression of the general trend in all parts of the world.

It caused quite a stir that the principal of one of the prestigious universities, John Saxton, President of New York University, argued that online universities as a norm would be a shame.



That "much-touted online university, where a student can get a degree without ever encountering another student except online, is fine within the portfolio of higher education," Sexton said. But for it to be "the norm" he said, would be "disgraceful."

John Saxton, President, New York University

Inside Higher Ed

A paradox is that when prestige universities have plunged into online education at MOOC, do not have quality question has been raised to any appreciable extent from the traditional academia. This implied that the quality is ok by MOOC come from highly-ranked university . Now it may be said of the ranking that it has not received prestigious universities because of the quality of their teaching, but due . research efforts . Criticism of the lack of quality in MOOC has primarily come from experts in open and distance education.

UNESCO has decided to start work on a global convention for the recognition of higher education. Such a convention would create standardizing tools that will make it easier for students and researchers to study and work abroad and get their education approved. Some of the motivation to start work on new developments with MOOC, see Annex I to document proposes Convention:

“11. Internationalization – defined as the variety of policies and programmes that universities and governments implement to respond to globalization, such as sending students to study abroad, setting up branch campuses overseas, and engaging in inter-institutional partnerships – is very prominent at the regional and international levels. The last decade has also seen an explosion in numbers of programmes and institutions that are operating internationally. Cross-border higher education has shown a steady increase in its different forms, which range from branch campuses and universities offering franchised courses abroad to eLearning across borders. Open and distance and eLearning is also diversifying; the Open Educational Resources movement has recently spawned the phenomenon of Mass Open Online Courses (MOOCs). Some consider that MOOCs are a powerful symbol of the new dynamics in higher education. “

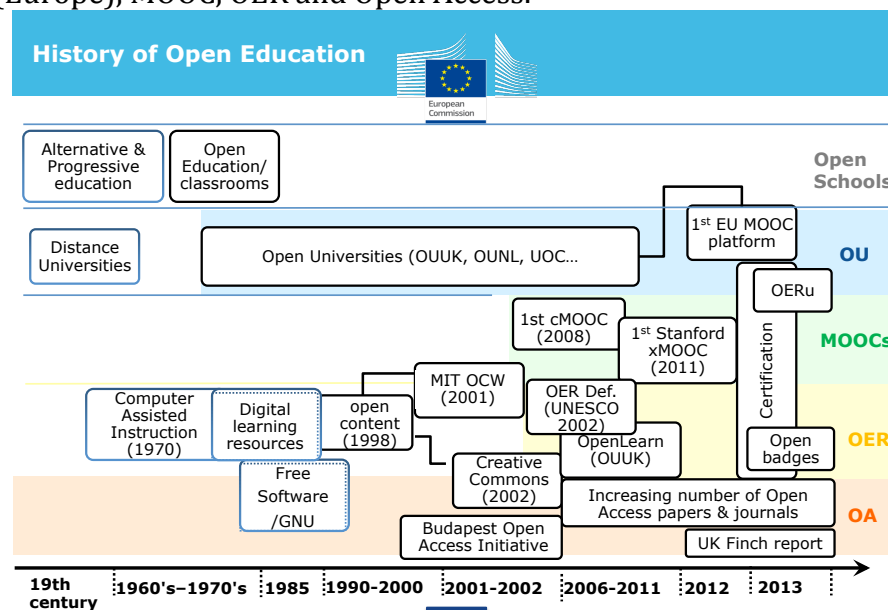
<http://unesdoc.unesco.org/images/0022/002226/222664e.pdf>

UNESCO initiative could provide a good platform for establishing a global recognized framework for quality in higher education.

## Open education and MOOC

### Emergence of Open Education, open education

The growth is illustrated in the figure below shows the rise of open education at open universities (Europe), MOOC, OER and Open Access.



EADTU Keynote, "The Open and Flexible Higher Education Conference 2013", Paris, 23-24 October 2013, Yves Punie, Christine Redecker, Riina Vuorikari and Jonatan Castaño Muño. IPTS, EU Commission

Ref:

[http://www.eadtu.eu/images/stories/Docs/Conference\\_2013/eadtu%20annual%20conference%202013%20-%20proceedings.pdf](http://www.eadtu.eu/images/stories/Docs/Conference_2013/eadtu%20annual%20conference%202013%20-%20proceedings.pdf)

### Open educational resources, OER

UNESCO launched the concept of OER in 2002, the year after the Massachusetts Institute of Technology (MIT USA) had released substantial resources open courses (courseware)

OER describes in its simplest form any educational, learning or research materials that are freely available for use by teachers and students without a need to pay royalties or licenses . OER can be freely reused, adapted and distributed. (Open Courseware Consortium and UNESCO) .

Rights for OER controlled through open licensing, most commonly through Creative Commons: <http://creativecommons.org>

OER should not be confused with digital learning materials provided free of charge, but such as may be constrained by rigid rules for reuse or distribution . There is also no requirement that the material will be digitally available, although in our part of the world will be the general rule .

It is not necessarily OER used in MOOC, it may be, but the material used might as well be subject to restrictions such as preventing modification and further development.

OER should not be confused with open access that is access to peer-reviewed scientific articles, and how it is given open access online. Open Access can be a subset of OER, depending on the rights attached to each article and may play a significant role in strengthening research-based education using OER .

20th-22 June 2012 UNESCO organized the first World Congress of OER in collaboration with Commonwealth of Learning, COL, and partnerships including with ICDE and many others. The goal was to win the governments of OER, and declaration (non-binding) was adopted last day.

The core of the declaration is to promote OER in that governments set requirements that educational materials funded from the public licensed as OER .

About UNESCO Declaration states that:

"The Declaration marks a historic moment in the growing movement for Open Educational Resources and calls on Governments worldwide to openly license publicly funded educational materials for public use . "

The aim is thus not that all educational resources should be OER, but that education resources financed through taxes should be freely available as OER .

Ref: UNESCO website on OER: <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/>

### **Open Courseware-OCW**

What is OCW?

Open Courseware Consortium, who in his time was established with support from MIT OCW defines as follows:

"An Open Courseware (OCW) is a free and open digital publication of high quality college and university-level educational materials . These materials are organized as courses, and often include course planning materials and evaluation tools as well as



thematic content .

Open Courseware are free and openly licensed, accessible to anyone, anytime via the Internet . "

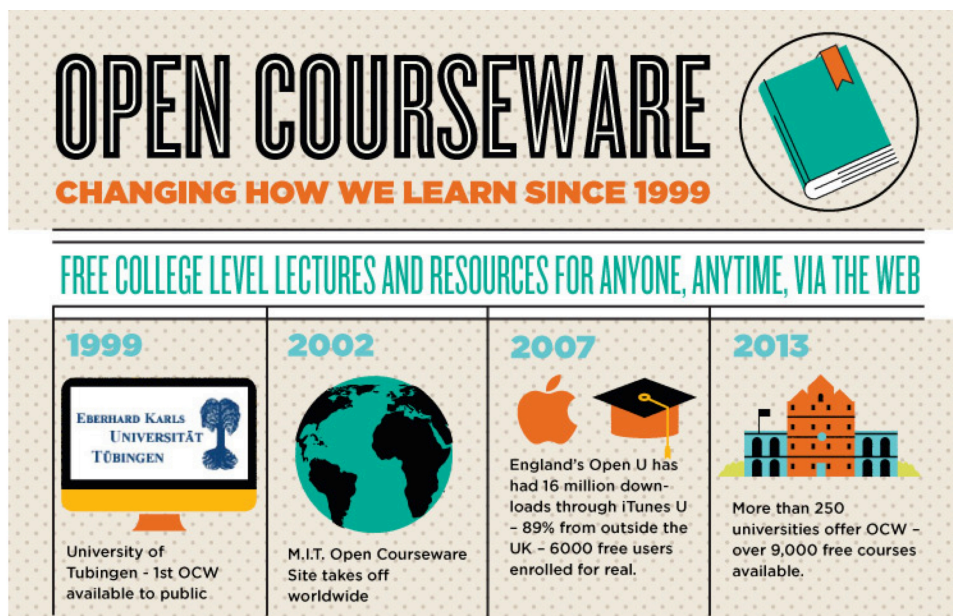
<http://www.ocwconsortium.org/aboutus/whatisocw>

OCW is thus more structured where OER may be part of OCW . A course based on OCW want:

- Common start and end
- Interactive user forum
- Testing and (informal) certification

### OCW-development and dissemination

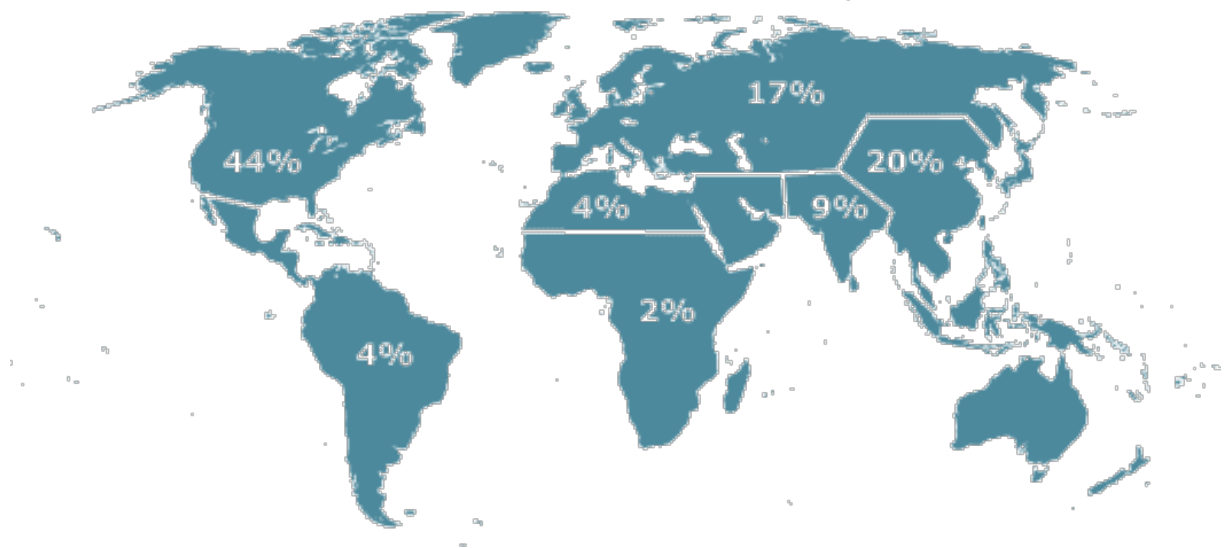
The figure below shows how OCW has evolved over the last 14 years, from the University of Tübingen published the first in 1999, the MIT epochal publication of their courses to development today whose use has spread beyond the early pioneers and is playing an increasingly role bl.ai developing economies.



Ref: [www.onlinecollegecourses.net](http://www.onlinecollegecourses.net), a Directory of Free Online College Courses and Classes.

MIT Open Courseware has an average of 1 million visits each month, translations have 500,000 more.

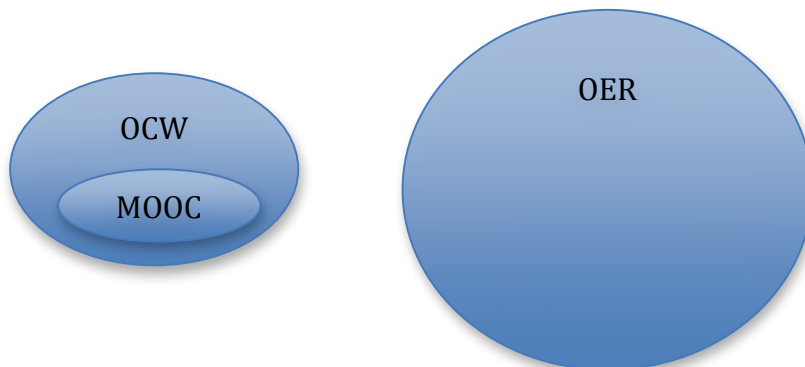
Such benefits to users worldwide in the use of Open Courseware:



<http://ocw.mit.edu/about/site-statistics/>

### OER, OCW and MOOC

If it all sewn together and one assumes that MOOC is based on OER, it may look like



this:

### Is MOOC open – or MOC?

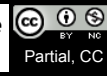
According to Paul Stacey, Associate Director of Global Learning, Creative Commons, see below, this is the situation as regards MOOC and transparency. Here we see that none of the most famous American initiatives, (neither EDX!) Satisfies the requirement of transparency.

Of the major initiatives is the only OpenupEd, EADTU / Europe, which meets the requirement of transparency and partly Future Learn (Open University).

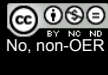
## Are MOOCs Really Open? MOOC or MOC?



No, all rights reserved.



Partial, CC BY-NC on some



No, non-OER license.



Yes, CC BY or CC BY-SA



No, all rights reserved.  
Note: some institutions using CC anyway.

**Most MOOCs are open only in the sense of free enrollment.**

Ref. Paul Stacey (17. October 2013).

If one considers the two main types xMOOC and cMOOC and compared to conventional higher education institutions and open universities, so it may look like this:

|                            | xMOOC   | cMOOC | normal higher education institution                                       | Open University   |
|----------------------------|---|-------|---|---|
| Open access                | ✓   | ✓     | ✗   | ✓   |
| Open as regards pace       | ✗   | ✗     | ✗   | ✓   |
| Open as regards location   | ✓   | ✓     | ✗   | ✓   |
| Open as regards time       | ✗   | ✗     | ✗   | ✓   |
| Open as regards programme  | ✓ Yes as regards the range of courses but not within the course | ✓     | ✗ Choices within the programme but students must take the whole programme | ✓ Yes as regards the range of courses but not within the course |
| Openly available           | ✓   | ✓     | ✗ Partly (if OER or OCW are offered)                                      | ✗ Partly  |
| Open as regards alteration | ✗ EdX is planning this  | ✓     | ✗ Partly (if OER or OCW are offered)                                      | ✗ Partly  |

Trend Report: Open Educational Resources 2013

[www.surf.nl/trendreportOER2013](http://www.surf.nl/trendreportOER2013)

### Costs and OER, such as textbooks

Textbooks, (textbooks) is often cited as an example of how OER provides significant savings for students. Below is given an example of an American publisher funded by philanthropic funding and where the student can choose to buy a print (OER) textbook for one-fifth of the cost of a comparable "normal" textbook from commercial providers. It could have been selected as good examples from other parts of the world (like Africa where OER big strong), but the example is so good that I choose to render it quite rich.

Each book is produced by conventional academic requirements.

"OpenStax books are produced on a relatively Conventional academic and editorial model, Incorporating extensive artwork and three levels of peer review . That means they cost from about \$ 500 000 \$ 750 000 two create, with funding from the William and Flora Hewlett Foundation, the Bill & Melinda Gates Foundation and other philanthropic groups . "

Student savings is \$ 200 for one book . More, if the student chooses e-book.

"This year OpenStax published two biology books (one for majors and one for non-majors), along with Anatomy and Physiology . Next up are Chemistry, Introductory Statistics, Pre-Calculus, U.S. History, Principles of Economics, Principles of Macroeconomics, Principles of Microeconomics, and Psychology . The books can be Viewed online, downloaded in PDF form, or purchased in print, essentially for the cost of paper and ink . OpenStax Physics, for example, is a 1,200-page book in print and costs about \$ 48, Compared to \$ 248 for the commercial equivalent, According To Baraniuk, and inexpensive ebooks are also available . "

7 out of 10 students have stopped buying textbooks ....

"Students could use some financial relief. According To An American Enterprise Institute analysis, the cost of textbooks has rise 812 % since 1978, Compared with a 250% Increase in the consumer price index . As a point of reference, medical costs (often described as "spiralling out of control ") are up 575 % in the same period, According To AEI . The burden is significant enough that 7 in 10 students say they have skipped buying a textbook for a course, Trying to make do without it Because of the cost. "

The textbooks are also real OER

"OpenStax Adopted a Conventional editorial process Because that was required to win acceptance in academia, Baraniuk said, but the books are still published in the same modular fashion . That means instructors have the option of creating their own versions, perhaps introducing their own edits or swapping in content from a different source, and assigning that remix . At last count, there were 41 altered versions of OpenStax Physics available in the Connexions repository . "

Ref: [http://www.informationweek.com/education/leadership/in-shadow-of-moocs-open-education-makes/240159865?itc=edit\\_in\\_body\\_cross](http://www.informationweek.com/education/leadership/in-shadow-of-moocs-open-education-makes/240159865?itc=edit_in_body_cross)

### **Sustainable models for OER, as NDLA**

A challenge for OER is to find sustainable business models and good eco-models. An example of a sustainable eco-system for OER is NDLA from Norway .

What is NDLA?

"National digital learning arena (NDLA) is a county partnership that aims to provide quality assured, freely available, web-based learning materials in all subjects in secondary schools."Ref . Wikipedia .

See also <http://ndla.no/>

Most of what NDLA manages the OER and licensed under Creative Commons .

NDLA can provide similar examples OpenStax, upon request, I got sent to the following

example:

"A textbook in a large common core costs in bookshops from £ 400 upwards.

NN . is a teacher in communication and culture this subject and wanted to use NDLAs content in teaching. He felt, however, that the paper was better suited as a display medium . He looked at NDLAs pages that we have a function to download the technical material as PDF or ePub . He also saw that the contents were divided CC license that enabled further customization and sharing.

Here is the link that shows how to download separate PDF / Epub on NDLA:  
<http://www.youtube.com/watch?v=zLtgf9LW2gY>

He even found out that he could press the PDF as a paper book at an online print shop . He wrote a new preface, and pointed licenses and sources. Students contributed photos to cover and class picture .

Finished the book when the pressure comes on about 65 € depending on the euro exchange rate . The book can be ordered here:  
<http://www.blurb.com/b/3861564-kompendium-kk1-utskrift-av-teksten-fra-ndlas-netts>

NN has no connection with NDLA and did so on their own initiative.

NDLA has received questions from publishers about NDLA now must also produce books. Our answer has been that NDLA only delivers digital . If users want to print and bind-this is up to them . ' Bring your own device ' also applies to paper. "

NDLA education resources is based on financing through taxes by the government subsidizes educational materials (and counties network), has developed a market-oriented model for the idea, specification, procurement through public procurement, quality assurance, production, storage, access, use and reuse, updating and new cycle. This is a model that can be considered a sustainable eco-model for OER to inspire others. The description is attached to this note .

NDLA was of EIPA (European Institute of Public Administration stated at EPSA 2011 (European Public Sector Award)  
[http://www.epsa2011.eu/files/site/EPSA\\_ProjectCatalogue\\_web.pdf](http://www.epsa2011.eu/files/site/EPSA_ProjectCatalogue_web.pdf)

### **Why spend so much space on OER in a note on MOOC?**

It stems from three factors:

- Firstly MOOC concept basically based on the OER and OCW and central to the understanding of the development and diffusion .
- Second, this note written to the Government and a key decision point for the public authority is the (future) production of educational resources funded by the public should be licensed as OER .
- Thirdly, a national bank of quality OER make it infinitely easier and cheaper to develop various forms of online education, including MOOC in various forms
- Fourth, the EU initiative Opening up Education based on two main initiatives that plays

together, technology and OER, including MOOC-as part of the OER initiative .

Also, I will add that a thorough treatment of OER as part of MOOC analysis corrects one in my view important bias in the existing literature in this area, since several of the reports recently published by MOOC that theme does not handle OER .

It should only be mentioned an example: "The Maturing of the MOOC ", Research Paper published by the UK Government, Department for Business, Innovation and Skills

The publisher says:

"This survey of MOOC and ODL literature Aims to capture the state of knowledge and opinion about MOOC and ODL, how they are evolving, and identify two issues that are IMPORTANT, Whether consensual or controversial . "

Published September 2013.

Report is 122 pages, otherwise interesting and very good at many points, but treating hardly OER despite ambition mentioned above.

At best this is a weakness of the report, at worst, it reveals a lack of understanding of the foundations and development potential of open education and in their recommendations mislead rather than guide .

That said it is not the author's intention to promote that all MOOC shall be based on the OER . On the contrary, it will in the foreseeable future be a natural and harmonious co-existence between different types of online education, various types MOOC, to varying degrees based on the OER or other content and how it is or will develop various sustainable business models. However, it is a point that is crucial to the continued innovation in education and quality education for all will be realized that a vital and significant component of this OER, whether financed through taxes, through donations or otherwise .

## **Mind to MOOCs, Beijing**

20th October ICDE organized in collaboration with the Open University China, OUC, a think tank with close to 20 international experts from all parts of the world (not Australia) and the corresponding number of Chinese experts, ref ICDE

[http://icde.org/en/.b7C\\_wRfWY8.ips](http://icde.org/en/.b7C_wRfWY8.ips)

and UOC <http://en.crtvu.edu.cn/news/events/1030--think-tank-and-seminar-mind-to-moocs-held-at-the-ouc>

and the Commonwealth of Learning, COL:

<http://www.col.org/resources/speeches/2013presentations/Pages/2010-10-21.aspx>



Pictured: "Buzz Group"-dial group in turn, from left, Yang Zhijian, President ouc, Tian Belawati, rector of Universitas Terbukas, Indonesia and President of ICDE, Gard Titlestad, General ICDE .

Work with a report from the think tank . The report addresses the institutional leadership position and shall be submitted to ICDE Standing Conference of Presidents, SCOP, in Lisbon November 27 to 30, "Leadership for change in a time of openness ".  
<http://scop2013.uab.pt/>

The report is in writing, is still in draft form and the processing / comment among the international experts . Many factors were taken into the think tank working conditions that will affect natural to take up in this paper, so the report is attached to the note when it is ready for forwarding to the ICDE SCOP .

## Some issues

The purpose of this chapter is to provide a brief overview of the issues that have or will have a central role in the development of MOOC .

## Why MOOC

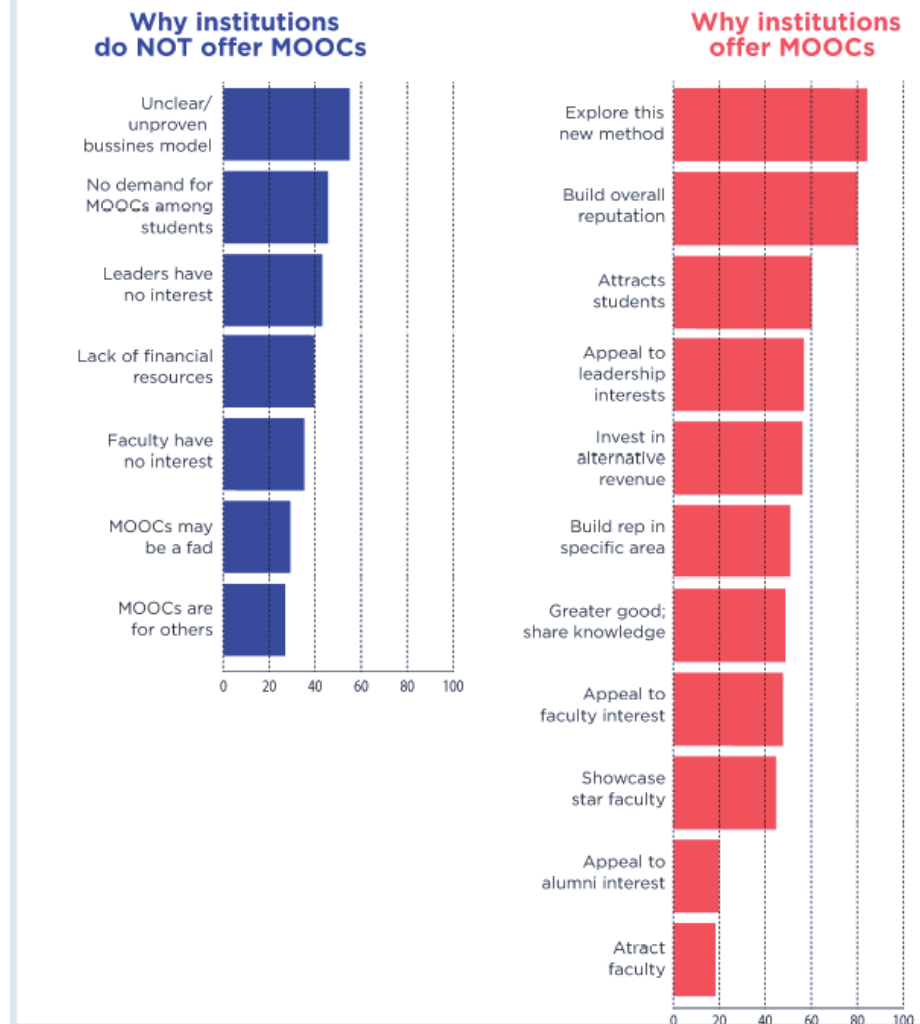
It has been shown that different groups of MOOC providers, various groups of higher education institutions and different regions have different approach and justifications for why MOOC .

The approach in the U.S. is dominated by cost pressures and mass market thinking . Elite Timing initiative justifies also MOOC as a way to recruit talent globally next to strengthen its own brand and recruitment. Others see MOOC as part of its social mission, or want to experiment with new forms of teaching-or want to use methodologies from MOOC the university's own teaching .

The chart below shows why American institutions embrace or avoid MOOC:

# WHY ARE INSTITUTIONS EMBRACING OR AVOIDING MOOCs?

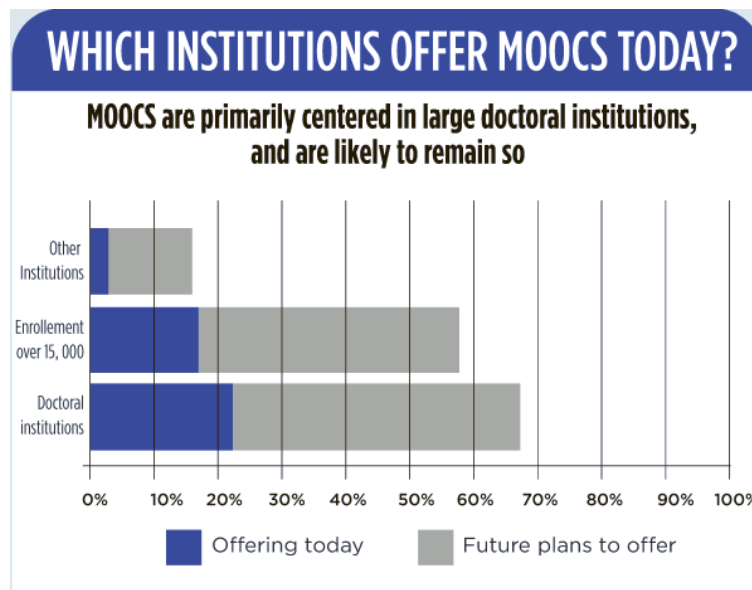
It boils down to strategy, resources, and interest among leadership and the faculty:



Ref: What MOOCs Mean to Today's Students and Institutions, Susan Grajek (EDUCAUSE), Jacqueline Bichsel (EDUCAUSE), Eden Dahlstrom (EDUCAUSE), EDUCAUSE Center for Analysis and Research (ECAR), Research Bulletins. 7. October 2013.  
<http://www.educause.edu/library/resources/what-moocs-mean-today%E2%80%99s-students-and-institutions>

The same survey finds that MOOC gravitates around research intensive of institutions and will probably continue to do so, but also more teaching-oriented institutions are increasingly offering MOOC.





The approach in Europe is more grounded in an untapped potential for the development of quality lifelong learning, innovation and modernization of higher education. Everything is expected to make a significant contribution to European competitiveness. That said, European operators have elements of talent hunt, branding and especially experimentation as part of their motivation.

There is also a significant cultural / national / regional competition factor that is essential for global MOOC initiatives, such as the French government initiative MOOC and the English Future Learn . Strong knowledge nations do not want to leave the arena to the U.S. but will make their influence to preserve their culture (language), competitiveness and influence in various parts of the world.

The corresponding one could observe the Internet's breakthrough followed a strong initiative from the United States (then the Information Superhighway-Gore / Clinton-Now MOOC from elite universities) of a significant response from Europe (then the Information Society-EU Commissioner Martin Bangemann-now retort the European MOOC initiative and the European Commission Opening up Education.) corresponding be expected in relation to other cultures and regions .

#### Is MOOC democratizing

Lawyers for leading MOOC initiatives often claim that MOOC is democratizing and will be a spearhead in education. But it provided good arguments to the contrary, based on the modest use analysis is that MOOC in its consequence lead to stratification and weakens the global democratization .

A good discussion of the topic is recognized in article "Round Table Discussion ", in Journal MOOC Forum, Volume September 1 2013.11.21 Ref:

<http://online.liebertpub.com/loi/MOOC>

#### Mass Education-elite education

From the raison DETR for universities was to foster elite leaders in the public and private sector, higher education gone a long way through mass education and eventually internationalization, globalization and diversification. Through the education of

hundreds of millions have higher education contributed to tremendous growth, to raise ten numbers of millions out of poverty and into more knowledge-intensive society than ever. Higher educational success has also triggered a huge demand for more. One of the effects of MOOC, perhaps the most significant is that MOOC has revealed a huge need for education among the already educated, globally. Moreover MOOC revealed a great joy and enthusiasm to learn . But the world needs talent, need for elite education as well as mass education. And a diverse higher education should attend to both. However, the choice of strategies MOOC, the MOOC could also reflect the different interests in terms of device-mass or elite .

### **MOOC and "learning analytics ", ownership and use of data-Big Data**

This is a major issue that has not been explored . While learning analytics embraced in the same breath for personalized learning and personalization, little attention devoted rights to data, who owns the data, user data, etc. In view of the large data scandals in recent years there is a paradox.

### **Public higher education institutions and commercial firms**

Some would say that it is puzzling that public universities, for example in Denmark, investing taxpayers' money to be visible as part of a commercial actor, for example Coursera . If one then also part of a global commercialization of higher education? Or is this a great way to promote education for all?

Bob Meister, Professor of Political and Social Thought in the Department of the History of Consciousness, UC Santa Cruz and President of the Council of UC Faculty Associations, have raised the issue in an open letter to Daphne Koller, Co-Founder and Co-President of Coursera and Professor of Computer Science at Stanford University.

The letter begins:

"Can Venture Capital Deliver on the Promise of the Public University?

Dear Professor Koller,

Because I share your vision of creating a world in which all have access to an excellent and empowering education, I would like to propose a new online course for you to make freely available through the Coursera platform. Its title is "The Implications of Coursera's For-Profit Business Model for Global Public Education."

Ref: [http://cucfa.org/news/2013\\_may10.php](http://cucfa.org/news/2013_may10.php)

One can see that a debate about the role of different actors and the use of public tax funds-are underway.

### **MOOC and developing countries**

Whether MOOC foundation rooted in the countries education is offered, can become a significant problem . The first phase of OER and online education offered from the North to the South did not end well and expressions to link Africans again to the originator 's (North) ideology and culture and neo-colonialism has been used by representatives of developing countries.

### Is MOOC disruptive? An avalanche? A tsunami? For who?

MOOC disruptive nature and power has been much discussed.

To some powerful expressions have been and are being used with weak empirical support.

The development of MOOC in a mass market show that users are significantly different from those studying at university general, see data from MOOC providers and from ECAR 2013. And ECAR data show that very few "normal" students have used MOOC (< 5%).

Ref. ECAR Study of Undergraduate Students and Information Technology, 2013

Student profile of those using MOOC is reversed compared to students using online education, see the earlier section on students and MOOC .

However, we are early in development and students' usage patterns and demographic changes in the student body can contribute to other patterns .

Several observers see no reason to maintain images with strong expression to (presumably) get higher education in "edit mode ".

Open universities are challenged by MOOC increasingly be used by groups that are partially audiences for these universities . But an innovative and adaptable higher education has primarily opportunities within a paradigm where online education, openness and new forms of learning accelerates . After been wholly or partly protected as a model for hundreds of years, universities have to take his role in "reinventing" itself under a new education agenda and a post- 2015 development of evolutionary character.

### MOOC as a catalyst for innovation in education

A key point that emerged during the think tank "Mind to MOOCs", see previous paragraph about this, emphasizing the opportunities MOOC offers, particularly for innovation in education.

Vijay Kumar expresses this as follows:

"The opportunity is both in the pedagogical dimension (as reflected through potential for more engaged learning, assessment driven guided learning, communities) but also at a macro level to achieve the aspirations of quality-at-scale that the Open Education movement strives to do.

In fact MOOC present a vectorial change (magnitude and direction) extension of OERs potential in realizing educational transformation. In this regard MOOCs present:

- A Spectrum of Formal and Non-Formal Learning Opportunities
- Permeability between hitherto stove-piped Sectors
- Implications for Structural Change (Access – Cost – Quality)
- New interactions between learners, institutions, community and technology
- New opportunity for Life-Long Learning

Another important (relate) aspect to highlight is that as a result of the above opportunities and also extensive data, they represent a powerful Incubator for Educational Research."



Picture: Vijay Kumar.

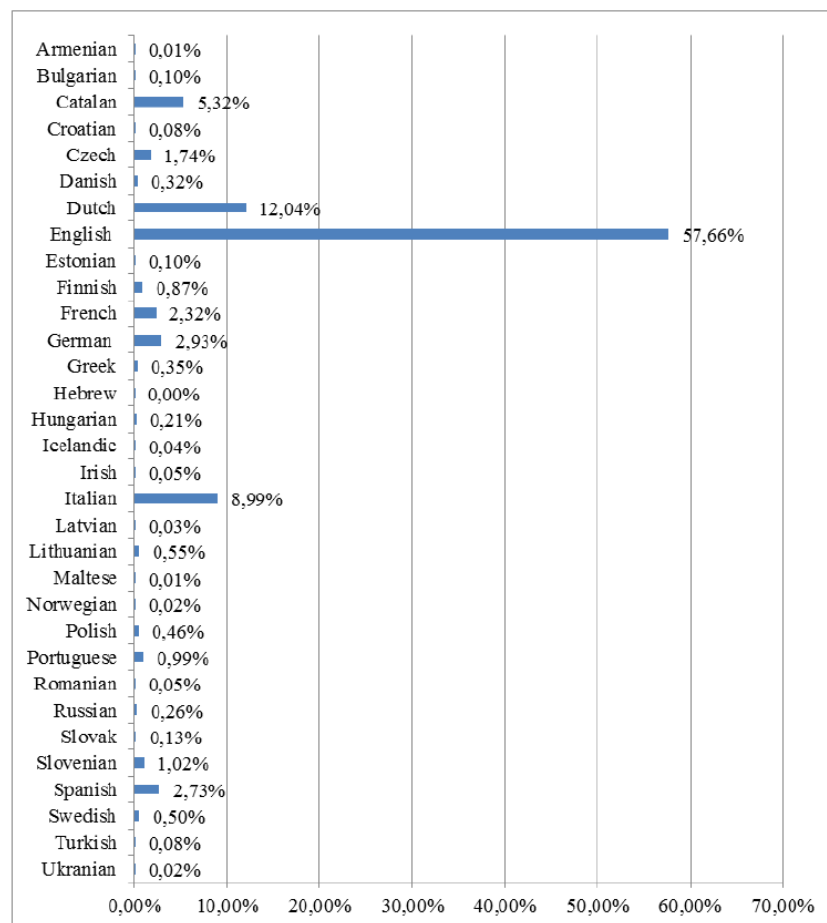
Ref: Dr. Vijay Kumar, Senior Associate Dean and Director, Office of Educational Innovation and Technology, Massachusetts Institute of Technology, U.S.A.

See Mind to MOOCs, Beijing.

### Small countries, cultures and languages

In the overview of European Schoolnet for reuse of OER at European level, one can observe that the ca. 235.000 available resources is more than 57% in English. Expand this picture globally is even worse for minority languages and cultures as the Danish, Finnish, Icelandic, Norwegian, Swedish, Faroese and Greenlandic.

Figure 12: Availability of content in different languages, in %



While this provides an illustration of the challenges faced by small languages and cultures face when one takes into account the fact MOOC that are not open, and where there are no possibilities off adaptation to its context .

ICDE is a partner in a European project "Enhance Teaching and Learning of Less Used Languages through OER / OEP "-Lango project . This project is just on the smaller / lower languages and what developments including with MOOC can mean and to consider policies to meet the challenge .

Conclusions in the light of international trends

The driving forces that promote open education online also helps to a keen competition between national interests, groupings of institutions of higher education, the for profit education providers and commercial education actors on markets . De- coupling of the various components of higher education (content, interaction, testing, examination and certification) as previously gravitated around the classroom enables completely new combinations of services and provide a basis for disruption . At the same time opens the development of a comprehensive national and cross-border cooperation on education agenda as the world has never seen.

The development of a more open and distance higher education coincides with that higher education is becoming more diverse, the importance increases for the clarification of the role and functions of the various players .

UNESCO Deputy Director General for Education, Quin Tang, claimed recently at the 37th session of the UNESCO General Conference (8th November 2013) that it is necessary to repeat the confirmation of fundamental principles:

Education is

- A fundamental human rights
- A public good
- A basis for man's attainment of peace, sustainable development, gender equality and responsible global citizenship
- A key factor in reducing inequality and poverty.

And further: Imperative for Education for post 2015 agenda must be:

- Equitable access to education for all and at all levels
- Quality of education and learning
- Fairness
- Gender equality
- Lifelong learning

Ref. Education Beyond 2015 Qian Tang, Ph.D Assistant Director-General for Education 37th Session of the General Conference, Education Commission, Item 5.12, document 37 C/56, November 2013.

[http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/GBS/37GC/pdf/ED\\_presentation\\_post2015.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/GBS/37GC/pdf/ED_presentation_post2015.pdf)

## **Conclusions**

There are many barriers to overcome, bridges to be crossed, big and small victories along the way in the development of quality education systems that are more and more based on open online learning. Therefore, the first conclusion of this review is that:

1) Governments contribute to a comprehensive framework that promotes open online

education in line with UNESCO 's values and helps to establish incentives for education in dialogue with key stakeholders in the field, primarily higher education institutions, where the specific goals must be set. A clear policy for OER based on the UNESCO declaration must be part of this framework.

### **Leadership**

Leading institutions in the transition to a more open and online existence with success for students, teachers and the economy, and through this process reinforcing the knowledge triangle and its interaction is not part of the routine of higher education institutions, cannot be delegated and was hardly a selection criterion for current leaders in higher education.

2) Leadership in transition to more open and distance higher education must be supported, facilitated and expertise built.

### **Teaching staff**

Teachers are the key to success in a long-term restructuring of higher education. Several studies show resistance and to some extent opposition by substantial sections of the teaching staff as a major obstacle to more open and online education. Many MOOC (USA) initiatives have sidelined teachers at the provider institution, which has triggered considerable criticism. A global trend is that production of OER is discouraged and there are few or no incentives for the development of open and distance education.

3) Incentives and support for teachers retraining, upskilling and improvement of working conditions for more open and online education.

### **Students**

Students are a driving force for more open and distance education, but the conditions for taking part in and making progress under new conditions are different and must have an eye for MOOC development which can develop new, unintended and unfair distinctions. The challenge is MOOC development that puts the learner at the centre. The development of personalized learning placing the student at the centre requires the MOOC concept to be complemented and developed with a mind to pedagogy with professional study support considered where this is necessary. MOOC and similar offerings as part of mass education will also have to include equality of opportunity in order to qualify for and participate in a more open and online education system. The student's rights both in learning, participation in learning and in relation to "Big Data" and Learning analytics should be further investigated.

4) Frameworks and methodologies to put the learner at the centre.

### **Collaboration**

One of the prerequisites for reorganization to have a positive economic effect is that higher education actors, institutions, teachers, researchers, students, build on each other's work and successes. MOOC and similar concepts assume that good solutions can be scaled up and possibly reused.

5) Cooperation across institutional boundaries and possibly borders, on content and platforms for more open and distance education, including MOOC.

## **Open Content**

There is a plethora of technologies, platforms and concepts to deal with when an institution wishes to engage in MOOC. Eventually, the issue of interoperability, i.e. where the provider can freely move content between different platforms and ultimately release it as an OER / OCW, become a key issue.

6) Interoperability between different solutions.

## **Definitions and comparable statistics**

There has long been a lack of common definitions and data sources to monitor the development of distance and open education, for comparisons and policy development. MOOC has intensified this need. Since the development is now global, there must be a global concerted effort to establish common databases and understanding so that data and statistics are comparable across national boundaries and regions.

7) Common global outlook, statistics and understanding of fundamental concepts.

## **Research and innovation**

MOOC has unleashed great potential for innovation, research and development in education. We are in the early stages of development and an early investment in knowledge and innovation can have major long-term gains. It is very important that research and innovation supports and secures the participation of all actors, both in terms of development and human resource development.

8) Specific goals and plans for research and innovation firmly rooted in the stakeholder institutions and communities.

## Appendix: Creative Commons – Licences



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## Appendix: NordicOER

The network Nordisk OER recommends the following:

1. Values. In the Nordic countries, we share values of openness and transparency, access for all to education, and commitment to citizen participation. Open Educational Resources (OER) build on these values. Uptake of OER will improve Nordic education.
2. Innovation. OER raises all sorts of unprecedented questions about education. Thus, OER will play an increasingly important role in innovating global educational practices. There is a need to focus the innovative potential of OER for Nordic knowledge economies.
3. Models of education. OER gives organisations an opportunity to redesign their educational and/or financial models. Promoting OER helps identifying opportunities and dismantling barriers to high quality learning and teaching.
4. Market. Freely shareable OER does not mean the end of commercial markets. Authors, content providers, publishers, school authorities and others should discuss how OER can be integrated into the Nordic educational systems.
5. Awareness. Raising awareness is first priority to promote OER in the Nordic countries. UNESCO's Paris Declaration, and EU's Opening Up Education are international initiatives that offer sound foundation. Inspiration should also be sought from emerging policies in our countries on Open Source, Open Access, Open Data, Open Education, Open Research and Open Innovation, as OER is part of these open practices.
6. Quality. Sharing enhances the quality of education, and OER introduces an aspect of peer review in learning and teaching. Quality should be the focus integrating OER in Nordic education.
7. Language and Culture. The Nordic languages and cultures are small and have to find their own position in a OER community dominated by English language and Anglo-American culture. The Nordic countries will benefit from close co-operation when coming up with their own policies on how to contribute to the local and global OER commons.
8. Global responsibility. OER is a global phenomenon with no limits to who can publish or who can use. Through promoting OER, the Nordic countries can strengthen their contribution to global educational development.
9. Institutions. Educational institutions should have a policy and plans for promoting OER. The Nordic collaboration on OER should help schools, colleges, universities, vocational training institutions, and other educational institutions develop their OER strategy, e.g. through knowledge sharing and exchange
10. Governments. Governments are responsible for providing a favourable framework for OER. Local, regional and national authorities should develop policies and strategies for use of OERs within their remit.

Ref: <http://nordicoer.org/>



# NDLA – a model for Sustainable Public Innovation through Collaboration in Learning

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### **Abstract**

The National Digital Learning Arena (NDLA-//ndla.no) is a Norwegian public initiative for open education resources (OER), and broad participation in upper secondary school. NDLA has a total operating budget of 7,5 mill EUR pr. year. This equals approximately 20% of the total allocation of public funding for all learning resources in upper secondary education in Norway. NDLA is co-owned by 18 county councils in Norway out of 19. The initiative enjoys high and increasing traffic numbers, and schools all over Norway benefits from the rich content in their schoolwork.

### **Project background**

**In the revision of the national budget in May 2006, the Norwegian Ministry of Education and Research put forward a suggested resource allocation of 50 MNOK for digital learning resources in upper secondary education.**

**A second lever for the emergence of NDLA was the suggested change in the legislation, giving the county councils the responsibility for the provision of necessary printed and digital learning resources for upper secondary students free of charge.**

**The change in legislation was accepted by parliament and came into effect in the school year 2007-2008. A third lever for NDLA was the revision of the Norwegian national curriculum for primary and secondary education. The new curriculum, the Knowledge Promotion, came into effect in the schools year 2006-2007.**

### **NDLAs objectives**

The overall goals of the NDLA initiative are to develop open high quality digital learning resources for all, and to involve teachers and students in active and participatory learning processes.

The specific objectives are to develop open digital learning resources in all upper secondary education subjects that can be accessed free of charge for everybody; to facilitate upper secondary education characterized by interaction and sharing; to engage teachers and students in active and participatory learning processes; to use communities and networks from around the country as a driving force in the development of high-quality digital learning resources; and to develop and contribute to a marketplace that delivers content and services attuned to the needs of teachers and learners.

NDLA's long-term goal regarding international work, is to be part of an international network of related initiatives working together-and thereby increasing global learning benefits.

### *Technology used*

Both the content and the technical infrastructure are based on open licensing. That will also mean that NDLA can be a valuable resource and a partner for other initiatives with similar mandate and goals.

The licenses are displayed with the content, and the code is accessible for everyone at [//bak.ndla.no](http://bak.ndla.no)

NDLA has an internal program that gives the participants the necessary skills needed to publish new content. This is only mandatory for editorial staff. Teachers (and everyone) can participate and add recourses without any training.

Necessary support systems for NDLAs staff are available through a county council or via ICT tools such as Skype, Jira and Google Apps.

### *Project development and implementation methodology use*

The further operation and sustainability of operations, development and innovation capacity will be secured through a political process involving all 18 county councils. NDLA is fully owned by the 18 county councils behind the initiatives. All political self-governments on county/regional level have made identical political decisions to anchor this joint ownership. The 18 county councils agree on the level of budget and the level of ambition for the NDLA collaboration. All county councils have an administrative contact point for NDLA and separate bookkeeping measures in house.

As a public entity, NDLA borrows a legal person/entity from one of the county councils (the county of Hordaland). NDLA has no permanent employees; those working for NDLA are hired from their respective employers, normally a county council and typically teachers. NDLA is a virtual organisation without physical headquarters.

NDLA uses agile development and process management as the main methodology for development.

### *Lessons learned and preliminary conclusions*

NDLA is a unique collaboration between a large number of county councils, enabling and empowering the county councils to carry out a task they are obliged to carry out according to the education and training legislation of Norway.

NDLA has evolved as a virtual organization with a small administrative core. The administrative resources are pooled from existing county resources in order to keep the need for investments in administrative software and services to a minimum. Within the current level of expenditure NDLA has increased the volume, diversity, the perceived quality and the awareness among NDLA constituents.

This unique collaboration has managed to balance growth, innovation, participation, complexity and quality. Some the key results achieved by NDLA are that the number of subjects has risen from 3 in 2007, to 42 subjects in 2013. The user statistics show an increase in traffic over the last year in by approximately 65% to 100% per year, with a daily number of visitors reaching approx. 45 000.

Awareness among key NDLA constituents, such as upper secondary teachers, has increased considerably: almost 100% of the teachers are aware of the opportunities NDLA presents, and over 50 % uses NDLA in their work. The number and scope of services have increased considerably, which allows for sharing, co-creation of content, re-use and the phasing in of user-generated content.

Between 60% and 70 % of NDLAs allocated funds is used in the open market, and numerous publishers and commercial partners are involved. The oldest and largest publishers in Norway has voiced their criticism towards the initiative and filed a case against the Norwegian government to the European Free Trade Association Surveillance Authority. In 2011 the Authority ruled against the publishers. An appeal was filed to the EFTA Court; witch decided that the Authority had not applied correct procedure. The case is still open with the Authority.

## **Appendix: Excerpts from ICDE "Mind to MOOCs" report**

To come