



Delft University of Technology

MOOCs as accelerator of change

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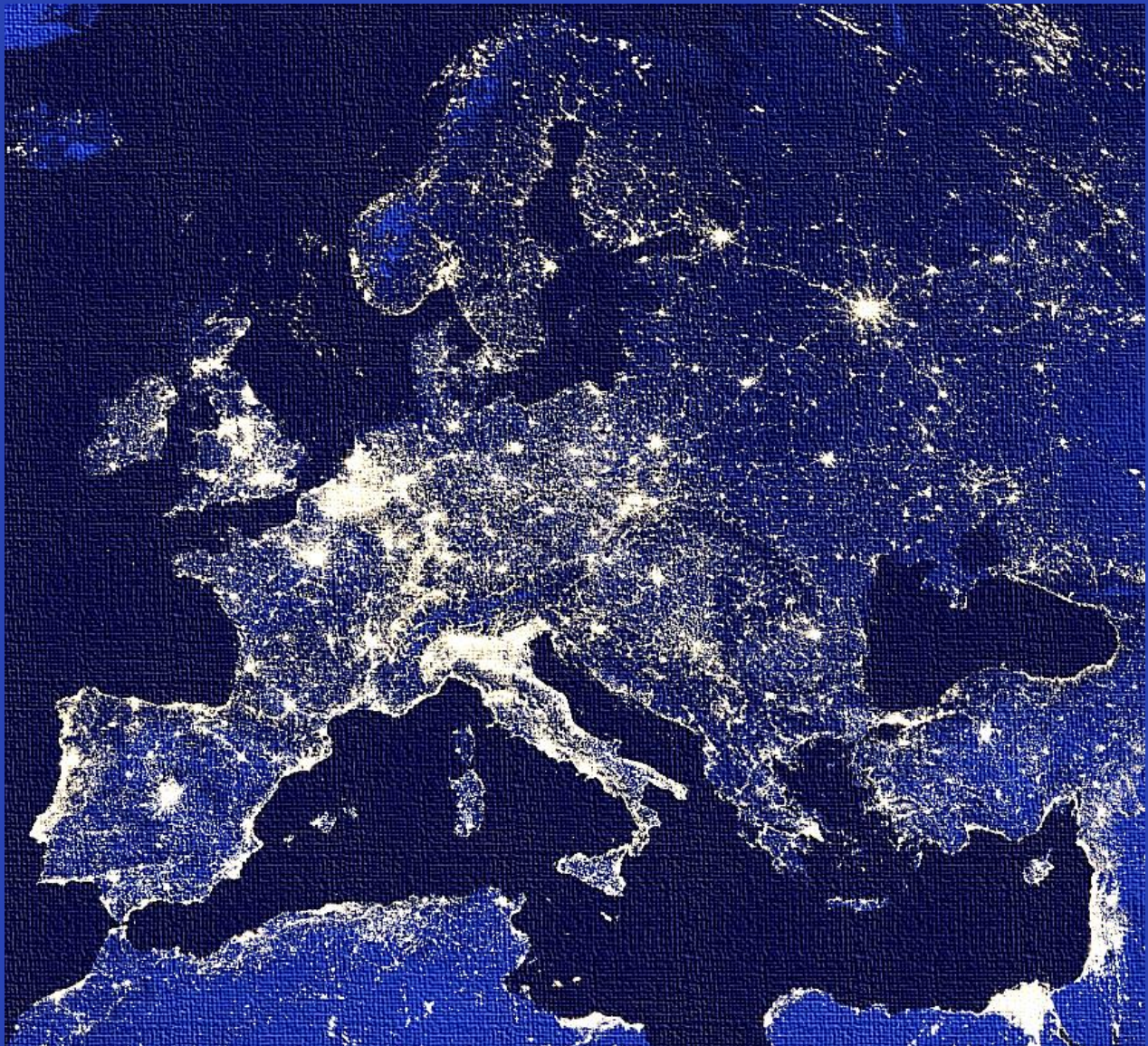
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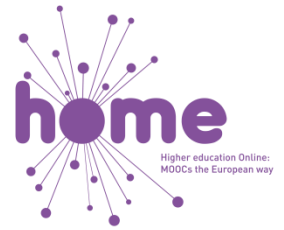
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Position papers for European cooperation on MOOCs.

Overview of position papers on the opportunities and characteristics for European cooperation as presented during the HOME conference in Porto November 2014





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Contents

Acknowledgement / about HOME project.....	3
Foreword.....	4
Part 1: Positioning MOOC movement.....	6
MOOCs in the Era of Higher Education's Digital Transition by Larry Cooperman	6
Making European Education More Agile by Pierre Dillenbourg	9
MOOCs from a university resource management perspective by Frederik Truyen	11
Part 2: Vision papers on the strategic opportunities for MOOC collaboration	19
MOOCs as accelerator of change by Willem van Valkenburg, Timo Kos, Martijn Ouwehand ..	19
The mainstreaming of open, online and flexible learning: how will MOOCs continue to be unique from an institutional perspective by Antonio Teixeira, Airina Volungevičienė, Ildiko Mazar	25
eCompetences and eQuality: from MOOCs to social MOOCs in Europe by Claudine Muhlstein- Joliette.....	30
Part 3: Elements for a European Perspective on MOOCs.....	33
Towards a Crowd-sourced Open Education Strategy for Employment in Europe with Qualification-focused MOOCs by Stylianos Mystakidis & Eleni Berki.....	33
Fostering collaborative investment in Massive Open Online Courses (MOOCs) by Bernard Nkuyubwatsi.....	44
MOOC didactics Matters. A hands-on vision for MOOCs and Connected Learning Practices in Europe by Friederike Siller ⁽¹⁾ & Jöran Muuß-Merholz ⁽²⁾	58
MOOCs, SPOCs, DOCCs and other bugs by Frank Naert	64
Part 4: Why do we need a shared MOOC platform?	75
Our MOOC with Moodle by Mary Cooch ⁽¹⁾ , Helen Foster ⁽¹⁾ and Eamon Costello ⁽²⁾	75
Do we need a shared European MOOC platform by Tiago Santos, Carlos Costa and Manuela Aparício	99
Part 5: European MOOC collaboration	113
MOOCKnowledge: Establishing a large-scale data-collection about participants of European Open Online Courses by Marco Kalz et al.	113
Enhanced MOOCs for the conceptual age: a diversified lens on the MOOCiversity by Dr. Martina Gaisch and Dr. Tanja Jadin	120
MOOCs in Question: Strategic Insights from Two Institutional Experiences by Mark Brown & Eamon Costello	130

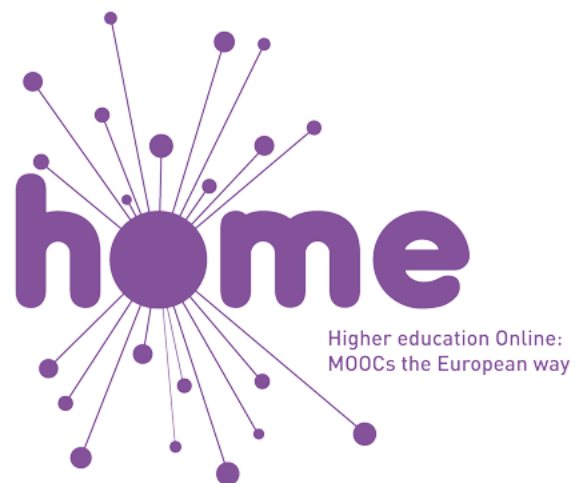
Acknowledgement / about HOME project

This report is published as part of the project HOME - Higher education Online: MOOCs the European way. HOME is partly funded by the European Commission's Lifelong Learning Programme. HOME started in January 2014 and is funded to June 2016.

The aim of the project is to develop and strengthen an open network for European cooperation on open education, in general, and Massive Open Online Courses (MOOCs), in particular. The partners will build an open institutional network on MOOCs based on European values like openness, equity, quality and diversity.

The HOME project invited experts outside the partnership through an [open call for position papers](#). These papers should reflect on the opportunities and characteristics for European cooperation on MOOCs. The HOME partners will continue to include experts during the project life time.

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Foreword

In few years the Massive Open Online Course (MOOC) movement has managed to caught Higher Education by surprise and to put Open and Distance Learning on top of every institution's strategic agenda. In fact, after its big momentum in 2012, appropriately called the year of the MOOCs, this phenomena has continued to grow, attracting much media and political attention. As this movement consolidates it becomes also a real disruptive force and an important driver for change in Higher Education. However, as any such phenomena it has both positive and negative implications for which institutions have to prepare and learn how to master.

In the framework of the HOME - Higher Education Online: MOOCs the European Way project and in preparation for the conference on Mapping The European MOOC Territory, held in Porto on the 27th November, 2014, an open call for position papers was launched. The call invited authors to submit papers on any angle, subject or approach they freely choose, but the position papers were expected to address the key questions of how Europe could collaborate on MOOCs, including the role of Open Education. This implied addressing either one or all of a number of critical topics as institutional policies and strategies, didactical and pedagogical approaches and models, shared services, recognition options and quality assurance, economic sustainability approaches and business models and licensing and other legal aspects.

The position papers selected after a peer review process elaborate on several of these main topics. Looking at the analysis presented, it seems clear Europe must seize this moment to grab the opportunities offered by MOOCs. But, across all the papers there was also an underlying question on how the MOOC phenomena can successfully adjust to the specific European context. In fact, opposite to the US, Europe is characterized by its diversity of languages, cultural environments, educational policies and regulatory frameworks. This specific context can influence the way in which the MOOC movement affect education in the European continent, both reusing MOOCs from other regions as publishing MOOCs for regional or global use, via European or non-European platforms.

MOOCs present therefore a challenge for Europe. The main opportunities being the ECTS system as a sound base for formal recognition of accomplishments in MOOCs, the trend for institutional collaboration, stimulated by EU funded programs and the many innovative pedagogical models used in MOOCs published in Europe. However, as indicated above, some threats can also be identified as a lacking implementation of the ECTS system, hindering bridging non/formal and formal education and too much regulation, hindering experimenting and innovation. Moreover, the scaling up of the players in the field as a result of the MOOC impact has had also a negative effect of letting institutions without a consolidated expertise and experience in open, distance or online learning applying inadequate theoretical frameworks and practices. This can mislead to precocious skepticism and disillusion about the potential of open education.

The Porto Declaration on European MOOCs (EADTU, 2014), which was generated at the above mentioned conference, reflects these same conclusions presented in the position papers. The Declaration emphasizes the importance of taking this opportunity of embracing full openness as a collective European response and strengthening of collaboration of universities across Europe. Yet, in order to support developments, as stated on the Declaration, the strong support of the European Commission and governments is critical and should become a strategic orientation for

the European Higher Education system. This will allow for the alignment of policies, regulatory frameworks, accreditation systems and quality criteria, as well as institutional strategies. Without these elements the innovative practices conducted by the academic communities cannot consolidate successfully.

Nevertheless, good political decision-making should be informed by expertise. The publication of these position papers represent a contribution from the HOME project to scale up the European research and know-how on this field. In fact, it is critical to develop new practice models built upon appropriate foundations which take into account the basic principles of open education and take the most out of the new networked social environments. As it is also clear that European higher education institutions must seize this opportunity to open up their organizational cultures, adjusting their organization, methods and services in order to cope with the challenges of open education.

António Moreira Teixeira
Universidade Aberta

Part 1: Positioning MOOC movement

MOOCs in the Era of Higher Education's Digital Transition by Larry Cooperman

Affiliation: President Open Education Consortium

How should the university respond to the Internet? That was the question asked by MIT president Charles Vest in 2000. As we all know, it led to a faculty committee that proposed the OpenCourseWare project. The advent of MOOCs of various stripes in the past few years has had an unfortunate side effect of focusing on the potential for disruption. If we don't refocus the narrative, we will unfortunately repeat history, albeit in a new way.

By 1997, we already saw the launch of companies who proposed to aggregate star professors to attract dozens of professors and thousands of students using the Internet as both the marketing medium and delivery mechanism. UNEXT, for example, signed agreements with Columbia Business School, the University of Chicago, Stanford, and others. They banded together well-known professors who themselves did not teach the high-production-value online course. UNEXT offered business education, including an online MBA program. It counted on increased scale and a lower price point to attract a broader online audience profitably. (Placeholder1) It was largely a shadow of itself by 2004 and its platform was finally acquired by a for-profit college.

If fear of disruption has driven the conversation in higher education around MOOCs, it is really interfering with a careful examination of MOOCs as a symptom of much broader, ongoing changes in the nature of higher education. At the risk of sounding cavalier, we should disregard the news cycle and seek to apply a variety of lenses for understanding why MOOCs have served as such a flashpoint at this moment in time. In the context of the question for this paper, what question should be asked and what are the implications for Europe?

Defining the question

In 1997, connectivity was rudimentary, authoring tools were primitive, social media was nonexistent, uses of data more limited, and learners and instructors alike inexperienced in the uses of educational technologies. MOOCs are a product of the maturation of the Internet and related software and educational technologies. If we define the central innovation as education-at-scale, we can forgive all of the other sins, which I briefly list below:

- Maintenance of cottage-industry approach to course design
- Failure to produce meaningful learning research
- Weak peer learning capabilities
- Absence of reusability/adaptability options, e.g. weak or nonexistent OER infrastructure

However, if we choose to skip over these limitations, MOOCs have posed the question whether, in the age of digital intermediation of higher education, we can now ask better questions about the nature of learning in the postsecondary sphere and the design of higher education in the digital age. And education-at-scale may allow us to better divide learning venues in higher education to optimize the experience. Which educational interactions should be undertaken in

which venue? The answer to this question is key to higher education reform. We can begin to imagine the typical lecture-and-discussion format of much of higher education disaggregated, even and especially in the residential setting, where smaller project-based groups can meet more frequently and where assignments can be carried out in tandem with larger communities online. The casualty of this increased flexibility will be the lecture and the lecture hall, both products of the massification of higher education and neither of which is optimized for educational purposes.

What's the right research framework for MOOCs?

However, MOOC antecedents – before the term MOOC even existed - indicated that data collection around learning could indeed be very useful. In particular, the Online Learning Initiative at Carnegie-Mellon demonstrated the value of what is now termed learning sciences. Through openly licensed content, it permitted free use of the most common introductory courses by any professor or school, with the proviso that the data resided on OLI servers and could be used for research purposes. In fact, if there is a problem with the application of learning sciences on the major MOOC platforms, it is the lack of control groups, the higher level of educational attainment, and the cottage-industry nature of university course production.

If the MOOCs are to serve as laboratories to support better outcomes in higher education, they have to go beyond A/B testing on admittedly very large numbers of human subjects. Their ability to disaggregate their data in meaningful ways so as to try to examine causality in learning effects is minimal. They can only act with the permission of individual universities and professors, or as supporters of proposed research projects. Some useful research has been done in which control groups at a single university provide some data, but these typically lack scale.

MOOC learners are a self-selected group that have internet access, devices, and the prerequisite knowledge to make sense of the learning resource. Most have college degrees and are viewing courses for personal interest or continuing education. However, from a social perspective, the crisis in higher education is our inability to produce more graduates as a percentage of the population. Much of the focus from a policy perspective and from an institutional perspective is on student success: the ability of young people to not only enter through the gates of the university, but to proceed through to a degree and, presumably, more meaningful opportunities in life.

What's the right social dynamic?

Technologies exist in a social context. In the case of MOOCs and its antecedent OpenCourseWare, there are multiple narratives, including (1) the democratization of higher education through universal access, and (2) the creation of efficiencies that will lower the cost of higher education to students and governments alike. For Europe, both of these narratives disguise the true policy alternatives. For economic and social reasons, all governments tend to project ever-higher participation rates. The prevalent academic framework for understanding these long-term trends and the changes they impose on systems and institutions of higher education was laid out long ago. Martin Trow, a UC Berkeley professor, posited that there was a global tendency to move from elite to mass to universal systems of higher education. In the case of South Korea, for example, we could already say that they have achieved universal higher education and reaped economic rewards from their extraordinarily rapid transition. Across

other regions, particularly Asia and South America, we have seen near-doubling of participation rates in ten years. So, independently of the advent open educational resources and MOOCs, economic progress in these regions has led to an acceleration of enrollment as a percentage of the population.

Europe's opportunity

Successful strategies for open education must be situated within existing goals for higher education at the institutional level and workforce development at the economic level. Europe's opportunity is to reduce time-to-degree, to attain much higher rates of degree completion, and to incorporate education and training as part of a permanent landscape of citizenship. The use of MOOCs as standalone, single, non-reusable courses must give way to freely available sequences in which certification is in transferrable credits and degrees as well as areas of real job opportunities. But the research agenda must be pushed forward so that the design of courses and sequences is based on learning sciences. Instructional design always had the conceit of being about systematic design. But now we have the technical capability to form teachers and professors into communities that actively discuss course design and that work with researchers, designers and engineers to develop learning pathways. If Europe can leverage its existing cross-border capabilities to create these communities, it will not only develop better open courses, but really enable brick-and-mortar universities to focus on the residential experience, so that the benefits of that social learning environment are optimized in ways that are now impossible.

In a report on the implementation of the Bologna Process, there was a reference to the social dimension of education: "the social dimension has been defined as equitable access to and successful completion of higher education by the diversity of populations." (The European Higher Education Area in 2012: Bologna Process Implementation Report, 2012) This is Europe's and the world's great challenge. Even as some countries and even entire regions have close to doubled the participation rate in tertiary education in the past ten years, there has been a stunning failure to make that increase translate into doubled graduation rates. How Europe addresses this issue – whether through improvements at the primary and secondary levels or through accelerated learning paths at the tertiary level – will determine whether increased access leads to increased social and economic opportunity.

Making European Education More Agile by Pierre Dillenbourg

Affiliation: Center for Digital Education, EPFL, Switzerland

The explosion of MOOCs originated in the USA. While Europe is lagging behind, it has opportunities to build something unique thanks to its great assets:

- The first asset is Bologna: ECTS credits constitute the European education currency. While MOOC initiatives are scattered across the continent, Bologna allows the building of curricula across Europe.
- The second asset is public funding. Despite the financial limitations due to national economies, universities that have public funding have more flexibility in launching initiatives that are not immediately profitable.
- The third asset is the multi-cultural diversity of Europe: translating MOOCs is not enough; thinking MOOCs from various cultural backgrounds is critical.
- The fourth asset is the European legacy in digital education: the experience accumulated by open or distance universities, the technologies developed over two decades by EU-funded research programmes and the expertise of learning technology units that exist in many universities.
- In terms of funding, we don't start from scratch. Some of the funding currently devoted to European projects and, locally, to learning management systems could be re-purposed to launch MOOC initiatives.

→ The key to transform these opportunities into actual effects is **to anchor the certification of MOOCs in the ECTS system.**

Certification is the key battle for the future of MOOCs. A significant subset of MOOC participants are motivated by getting a certificate considered as the equivalent to on-campus certificates. One way to provide trustworthy certificates is to enhance on-line proctoring technologies. Private companies are actively working on these solutions. The other way is to verify the acquired competencies in physical testing centres. Even if corporate actors are also active in this area, the 4'000 existing universities in Europe could each become a testing centre (devoting a room where the identity of participants and the conditions of the tests are controlled).

→ European universities would then become the **densest network of testing centres** one could imagine.

→ The goal behind this effort would be to **reduce the gap** between the skills needed by the economy and the skills provided by education systems, which might reduce unemployment and boost our economy.

The gap reduction can be achieved in two steps. First, the online discussions within existing MOOCs constitute a great observatory of skill needs. While it currently takes years for corporate association to identify the skill needs of their members, this identification could be done in a few months. Second, if courses can be taken across Europe, there is a good chance that the curriculum required to fulfil the identified training needs can be elaborated within a few

months. Closing the gap between the training needs and the training available could be achieved in one year while it now takes 5 to 10 years.

The skills I refer in the previous paragraph are not general professional profiles such as “chemist” or “architect”, but more narrow profiles such as expertise on “medical databases” or “new insulation techniques”.

→ By aggregating MOOC content across Europe, one could build “**spitz**” **certificates**, i.e. curricula with only a dozen credits on a specific topic, but that can rapidly be created, modified and abandoned. This could thereby make the **European education system more agile**.

Since the 2012 MOOC hype, several aspects of MOOCs have been highlighted in both the media and the scholarly debate: the business model issues, the dropout question, the pedagogy, its relation to on-campus learning, the IPR ...

For one thing it is easy to find a consensus: the observation that MOOCs in 2013 attracted a multitude of criticisms, filling up education topic space in reputed newspapers as well as in dedicated educational blogs and journals, in a clear counterbalance to the 2012 hype. The backlash is understandable for a new technology (or new bundling of older technologies), but the speed with which the debate evolves seems to set new standards: it took a real crash before the right questions were asked in the dotcom bubble, in this case a thorough debate takes place quite early on. That doesn't mean however that all criticisms have equal merit: many have to do with the typical [inflated expectations in the hype cycle](#).

Let's look into some of the misconceptions about MOOCs that have been overemphasized and have tainted the discussion somewhat in one direction or another. We will, however, also point to some real outstanding issues. Most observers understood that MOOCs had possible implications for a very wide range of topics such as educational business models, for educational practices, for academic publishing, for teaching, recruitment etc.

The business model

MOOCs didn't start with a clear business model. While some of the more famous MOOC providers started with venture capital, there is reasonable suspicion this was not on the basis of a credible business case but rather on the idea that there might be something going on that shouldn't be missed. The 160.000 enrolments for the Stanford AI course in 2011 was justification enough to explore whether markets would exist and to study what services could be offered by whom. Since none of the big players (Microsoft, Google, ...) has committed themselves yet, it is arguably the case that a clear business model is still elusive: how can supply be secured? Who will pay for the services? Are the MOOC providers sustainable? Will there be a return of investment?

These issues are clearly on the table for anyone who wants to invest in MOOCs, or more concretely in MOOC providers, whether it are for-profit companies like Coursera or Udacity, or non-for-profit initiatives such as edX. There is no point in disputing this, but ... is it a showstopper?

It definitely didn't - and doesn't stop many universities to join the effort, at a rate relatively unabated by the discussions. The misconception is the assumption that these questions need to be answered by your university board before entering the MOOC game. They don't. The functionality of MOOCs is rather well defined, and their difference with legacy ELearning platforms is sufficiently clear; except for some extreme examples where universities decided to try out the launch of complete master programmes in MOOCs, the required investment remains relatively small, the risks very measurable and the possible gain still something to discover. So, for a marginal risk, there is a possible interesting gain. But even if you do not agree with this analysis, there is the simple fact that legacy LMS providers such as Blackboard, Canvas and

Moodle have embraced the MOOC format and offer the opportunity to universities to experiment with MOOC technology extensions without all the business model issues.

What about the business model of the universities themselves? Are the MOOCs heralding the demise of the traditional university, forcing an "unbundling" of university activities? There is evidence that the advent of MOOCs triggered a rethink of business models at the Open Universities: where part of their income resides in the sale of course packages, the availability of free MOOCs leads to the question whether they should still invest in developing those materials, and how they could compensate this lost income stream (see e.g. [this chapter by Ben Jansen, Robert Schuwer and Fred Mulder](#)). There were also some clear examples in the US about university college funding coupled to introduction of MOOCs, but in Europe this seems less of a reality. Of course, in the long run online learning will eventually get a larger share of higher education, so you might as well prepare for it.

Anyway, for a traditional university with a stable market share, there is already a valid business model: theirs. From a very safe position, it is possible to assess how MOOCs and other online learning technologies can fit in to the generic university business model, and open up new markets or at least explore how some existing gaps in coverage can be filled. In particular, we as KU Leuven are looking into transition scenarios from high school to higher education, and to preparatory programmes facilitating mobility and access to specific MA programmes.

Read more:

- [A Financially Viable MOOC Business Model](#)
- [The Opportunities—and Risks—in the MOOC Business Model](#)
- [The MOOC business plan](#)
- [Money Models for MOOCs](#)

The drop-outs

Given the fact that the interest in MOOCs was triggered in the first place by the huge reported subscribers for the early MOOCs, it is of course quite normal that questions are being asked what happened with all those "students". Soon, it emerged that dropout rates were as staggering as subscription numbers: only a fraction of the MOOC subscribers proved to be real students in a meaningful sense of the word.

Again, no need to dispute these simple facts: of 40.000 subscribers you often end up with a few thousand that actually are active in the course, to end up with a couple of hundreds that could apply reasonably for certificates or credits.

Is this a problem? Whose problem is it? When is it a problem? And is it a new problem? It all depends on what the goals are: of the student taking part, of the institution or teacher offering the course, of the MOOC provider.

It didn't take long for the blogosphere to discover that the realm of MOOC students is segmented in identifiable groups, and that not all those groups share the same motives to subscribe to a MOOC. Many of the first-generation MOOC subscribers are actually colleagues, education experts, e-learning professionals or just people driven by curiosity. For them, dropping out isn't the same as failure, because they never had the shared ambition to complete the course goals.

Then there are those that are interested in *part* of the course, and just take what they want and then leave. For them, it could be that their visit was a true success: they found what they were looking for. Yet for the organizer of the course, they failed to meet the set goals.

For the institution or teacher, it is not always the case that they actually have the ambition to learn skills to 40.000 people at once. They just might want to reach **more** people than they normally reach while teaching class. (The world might turn scary with an extra 160.000 skilled Artificial Intelligence professionals a year, honestly). It really doesn't make sense, so a lot of participating institutions take the 40.000 or more subscriptions as sheer visibility (and thus marketing), but focus on seriously smaller numbers for their educational or business goals.

For the MOOC providers however this is somewhat different, since their marketing centers on these numbers. They badly need to convince investors that there actually are tens of thousands of "students" out there to be marketed. Still, in marketing terms, it is quite targeted: even if you deduce random subscribers and eLearning professionals from the numbers, you still get at least "expressions of interest" which can have definite marketing value.

So again, dropouts are a very legitimate concern, but it depends on the goals set. It is perfectly understandable that you are extremely worried that 40 out of 280 real participants at an identifiable moment in the latter part of the course drop out, even while the course started with a few thousand subscriptions, and that you didn't even care that the vast majority dropped out in the first few weeks. You might feel it is necessary that you do a research into how you can retain more of these original subscribers longer (e.g. by giving better information during the course marketing). The good thing is that in a MOOC, you have tools to research all this.

Because of course, honestly, dropouts are not only a MOOC issue. In the first year of any higher education there is an issue of high dropout rates. Again, the misunderstanding is that you shouldn't do MOOCs because there are dropouts. It is rather the case that if you do MOOCs, you might want to look carefully into dropouts, as you do in your regular education.

Read more:

- Ho, A. D., Reich, J., Nesterko, S., Seaton, D. T., Mullaney, T., Waldo, J., & Chuang, I. (2014). *HarvardX and MITx: The first year of open online courses (HarvardX and MITx Working Paper No. 1)*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2381263%20
- Weller, M. (2013). Completion Data For MOOCs, Retrieved from http://nogoodreason.typepad.co.uk/no_good_reason/2013/12/completion-data-for-moocs.html

The innovation value

Many long-time education evangelists cried foul over MOOCs as being a non-innovation, in the sense that web lectures were supposed to record a contested part of current Higher Education, the prominence of lectures. In a way, this is a somewhat dishonest criticism, because it doesn't stop many universities to have an overwhelmingly large proportion of lecture classes. But on the other hand, there is some truth to it, and for a good reason. It is commonly known that new media technologies first have to mimic the older ways of doing things to be recognizable, before the true potential of the new medium is effectively exploited. This is the main reason why e-

books try to resemble books as much as possible, even while the electronic environment holds the promise of entirely new possibilities.

So, it is important to look at the *innovation potential* of MOOCs rather than focusing on old style teaching in current MOOCs. Whether or not MOOCs bring educational innovation really depends on what we do with MOOCs.

Just like the implementation of University-specific ERP systems and the deployment of VLE's allowed universities and HE institutions to pool together and co-develop support infrastructures for their core business processes, MOOC development allows for collaborative co-development of pedagogical strategies and new business models. The real innovation is that this new software layer offers a common language, a common basis to frame the questions and lead the discussion.

The diversity

MOOCs were romanticized for offering education to the many in developing countries that do not have access to higher education, and so a natural deduction was the expectation that you could diversify your audience with a more international composition. This is not necessarily the case however, as some critics pointed out: in some cases there is actually more diversity in your classroom than in your MOOC.

Statistics tend to show a preponderance of US and Western European, relatively well trained students amongst MOOC participants.

Again, it is valuable to discern myth from reality in MOOCs, but there is no reason why this insight should stop universities to field MOOCs. If diversity is an institutional goal for a MOOC project, than one is well advised not to take for granted that the MOOC format in itself will bring about more diversity.

Some real issues

While the previous points will continue to be hotly debated while we just move on with MOOCs, there are unfortunately also some real issues that need to be tackled by universities and teachers that want to do MOOCs. It's about sustainability, integration, calibration and multilingual support.

Sustainability

A much more concrete worry than the sustainability of the business model is the sustainability of your MOOC course offerings. When you do a serious investment to build a high-quality MOOC, how long will you be able to iterate it and how frequently will you update it? Cost control of MOOC production should involve a **lifecycle planning**. A good practice would be to plan beforehand the required content updates. This also means update requirements should be taken into account in the course design. Making expensive interactive knowledge clips that include content that is very subject to change, could expose the makers to increasing maintenance costs. A scalable MOOC project therefore should start from such a planning and make sure there is a quality control cycle that monitors whether given benchmarks are reached.

It might be necessary to produce a mix of course standards: very high profile courses where you actually want to incur the risk of high update costs, and “bread and butter” courses that you might want to produce at lower costs. You will soon discover why so many universities still have so many lectures in their portfolio.

In a standard university lecture, it is quite easy to mention a new paper or a new insight, infographic etc. when you teach the class the next year. But what if you have recorded your MOOC lessons using a written-out script and an autocue? When you have inserted quiz elements into the video stream and provided linked transcripts to the video?

Universities thinking about MOOCs should have a serious planning and budget on what in aviation is called "MRO": Maintenance, Repair and Overhaul. A good MRO plan is essential for sustainable MOOC operations.

Updating 10 courses a year can be manageable, but once you will have a couple of hundred courses online (KU Leuven has about 8000 courses in its VLE portfolio, “MOOCifying” a sizable portion of them is not unrealistic), this becomes quite a challenge.

Integration

One of the tougher issues to be addressed is how universities will manage to integrate their MOOC production with their legacy e-learning systems. Are they going to double up their effort and have to production chains, one for blended learning in the VLE and one on the MOOC platform? This seems unsustainable. While some VLE vendors such as Blackboard and Canvas are scrambling to adapt to the MOOC game, their offerings do not seem as yet to rely on an integrated strategy.

Making sure that the same professors and teaching assistants can produce both for the blended, classroom environment and for the MOOCs requires not only more integrated software solutions, but also revised workflows. Do universities have a plan to setup a support network for this?

Are there possibilities to “upgrade” online blended learning support courses to MOOCs? Is it possible to make a quantitative assessment how many of a university’s VLE courses are eligible for such a conversion? Without setting clear targets and a comprehensive strategy, universities risk to work in different directions at the same time and end up with very expensive legacy systems running side-by-side with more modern MOOC production environments.

Resource Management

Many words have been devoted already to the supposed “disruptive innovation” MOOCs represent. As we have discussed above, before the true potential of a new medium is effectively exploited, it will need to mimic the older ways of doing things to be recognizable.

We would like to argue however, that the key to this “disruptive innovation” lies in the application of ICT to manage more aspects of the educational processes than what was possible with legacy Learning Management Systems. ICT, as always, offers a layer of control and parameterizations that allows for optimization of business processes, whether those are distribution, production, sales, human resources, accountancy. In all those cases, robust Enterprise Resource Planning systems have proven to drive down costs and improve on quality. Can we repeat the trick on educational processes? This aspect has been scarcely touched upon

in the ongoing debates. It yields many questions that need a comprehensive, coherent answer. While traditional LMS's allow us to manage the learning content delivery, MOOC environments also allow the monitoring and management of the learning process itself. Embedded *Learning Analytics* make it possible to actually monitor individual and cohort progress, and helps to identify stumbling blocks, inefficient learning modules, insufficiently discriminatory tests and unproductive exercises. A comprehensive strategy to apply learning analytics to improve the course learning process could bring steady benefits and are essential to be able to produce competitive results.

The calibration issue

Many university courses are not on the introductory level, but are follow-up courses that are targeted at students in a specific phase in their curriculum, e.g. in a third BA. Curricula have been designed with a sequential consistency in mind so that enrolled students are ideally prepared for the contents of a specific follow-up course, such as, e.g. "Spanish Grammar II" or "Multivariate Analysis part B".

It is typical for current MOOCs that they address broader topics, incorporating the introductory level. This means you might not be able to simply map your existing curriculum onto a MOOC offering. Some re-grouping needs to be done. MOOC providers from their side are setting up mini-curricula, where a student can combine several courses into one package, stemming from different universities.

Here, there is distinct opportunity for universities to work together and offer joint curricula, linked to their international research network. This has been done with some success in the LACE project, which produced a highly specialized MOOC on Literature and Change, with a network of 7 universities that do research together.

Thinking about these curricula brings home the point that the "general public" does not exist and that even as MOOCs are accessible to all, they cannot target all people in the same way. It is very important to make sure to group cohorts of people with generally the same skill and interest level, and also with at least a similar learning outcome goal.

For MOOCs, this means that each MOOC should give very precise background information on the requirements and the expected outcomes. Technically, MOOCs should provide in flexible possibilities to group the subscribers in sensible cohorts. Generally, a MOOC will drive on substantially more detailed metadata than an average university course (see e.g. the limited info you find in standard European ECTS descriptions). Developing MOOC thus means development of more refined metadata. One of the ways to achieve this is to capture this information from the use through Learning Analytics.

Read more:

- May, G.S. (2012). *Essay on what MOOCs are missing to truly transform higher education*. Retrieved from <http://www.insidehighered.com/views/2012/09/11/essay-what-moocs-are-missing-truly-transform-higher-education>
- Li Yuan, Stephen Powell and Bill Olivier (2014). *Beyond MOOCs: Sustainable Online Learning in Institutions*. CETIS Publication. Retrieved from <http://publications.cetis.ac.uk/2014/898>

Multilingual support

One of the added values of registered lecture recordings is the possibility to add translations or to swap the audio track altogether to yield truly multilingual learning materials. The question is the cost. Translation, even when computer aided, is still expensive. Certainly for learning materials, adequate quality levels need to be implemented, to avoid that the learning materials produce confusion rather than advanced understanding. Whether crowdsourcing is a viable cost-effective solution in this domain remains to be seen.

Specially, but not only, for European universities the added value of translations could be that it allows to reach both international as well as local student communities at the same time. The fact that many university courses are currently taught in a local language rather than English is holding up the promise to rapidly increase the number of MOOC offerings. Adding translation budgets to the MOOC cost structure however will not be very appealing to already cash-strapped higher education institutions. Professional translations would easily add a few thousand euros on top of the 30.000 – 50.000 euros per course that you should take into account. Here, there is an opportunity for European policy makers to add some stimuli in the game.

@ KU Leuven

We had ongoing discussions on Open Education for some years at KU Leuven. The university is a member of the Open Courseware initiative and has a sample of open courses online: <http://ocw.kuleuven.be>. Currently the KU Leuven is taking its first steps into the world of MOOCs. A MOOC Pilot, LACE (Literature and Change in Europe - <https://learn.canvas.net/courses/148>) was run together with 6 other universities and is now in its second year. The success of this MOOC convinced the University's Educational Board to take action. By means of 4 pilot projects the university is looking into the possibilities open courses hold in the specific context of a traditional Western European university. These pilot projects have been carefully selected taking the above described "real" issues regarding sustainability, integration and calibration into account. In first instance the KU Leuven has therefore chosen to invest in the development of SPOC's (Small Private Online Courses), see https://www.kuleuven.be/onderwijs/nieuwsbrief/projecten_realisaties/spocs. "Small" and "private" means here that the target groups for these courses are well-defined and rather small-scaled. It certainly doesn't mean "for pay". With private, we mean that the privacy of participating students should be maximally protected.

1. *Blended Learning in the preparatory course "admission exam physician/ dentist"*

The number of final-year high school students who want to participate in the preparatory course linked to admission exam physician/dentist grows every year. The aim is to increase the efficiency of this preparatory course by introducing blended learning. SPOC's will be used in this context to equalize the level of prior knowledge between participants.

2. *E-governance and public sector innovation*

The KU Leuven Public Governance Institute is an internationally oriented and interdisciplinary institute focusing on different aspects of governance. By introducing SPOCs the institute wants

to contribute more to certain goals of KU Leuven's educational policy. These goals entail working towards more accessible information and promoting lifelong learning. In function of these goals an interactive eLearning environment (SPOC) will be created, aimed specifically at public servants.

3. *GRAPH: The Great War and Modern Philosophy*

This project of the Institute of Philosophy wants to understand the influence of the Great War on modern philosophy. A diverse group of thinkers from different philosophical movements want to approach the relation between war and philosophy in a comparative and critical way. The use of a MOOC can contribute to international publicity and student recruitment for this course. Participants will be strongly involved and interaction will be strongly stimulated.

4. *LIPS: Lectures in Psychology Series*

LIPS is an already existing course within the faculty of Psychology, in which researchers present current themes from the viewpoint of their own research field and at the same time explain and stimulate implications for psychology practice. This course is obligatory for all master students in psychology, but there is also a wide interest from students with a different background, inside and outside of the university. Also for alumni and working practitioners this course offers the opportunity to stay up to date with recent research in psychology. The use of SPOCs will open up access to this course, inside and outside of the university.

Read more:

- Truyen, F., Baetens, J., Verbeken, S. (2014). *LACE - a MOOC on Literature and Change in Europe: MOOCs at the MA level in a cross-over with Campus Teaching*. In Gómez Chova, L. (Ed.), López Martínez, A. (Ed.), Candel Torres, I. (Ed.), Edulearn14 Proceedings. Edulearn. Barcelona, 7-9 July 2014 (art.nr. 177) (pp. 3217-3226). Spain: IATED Academy.

A comprehensive study was made to select a platform provider, taking into account the business model, setup, navigation, learning materials, video support, assessment tools, interactivity, group management, language support and internationalization, peer review options. Besides that support for mobile computing and ease-of-use were important criteria. It was also important that the platform would support SPOCs.

On the basis of this study a proposal was sent to the university management. Of course the technical selection criteria as such are only part of the evaluation process, since, as mentioned above, development and sustainability of MOOCs depend more and more on the possibility of cooperation between higher education institutions. So, we were also looking into a strong network of partners with which we could develop MOOCs/SPOCs together, both from the technical point of view as well as concerning the pedagogy and business models.

And maybe, to conclude, this is the real innovation value of MOOCs: that finally we do have a platform where universities can actually develop their core business architecture together, and this way help define learning in the 21st century.

Part 2: Vision papers on the strategic opportunities for MOOC collaboration

MOOCs as accelerator of change by Willem van Valkenburg, Timo Kos, Martijn Ouwehand

Affiliation: Delft University of Technology, The Netherlands

Introduction

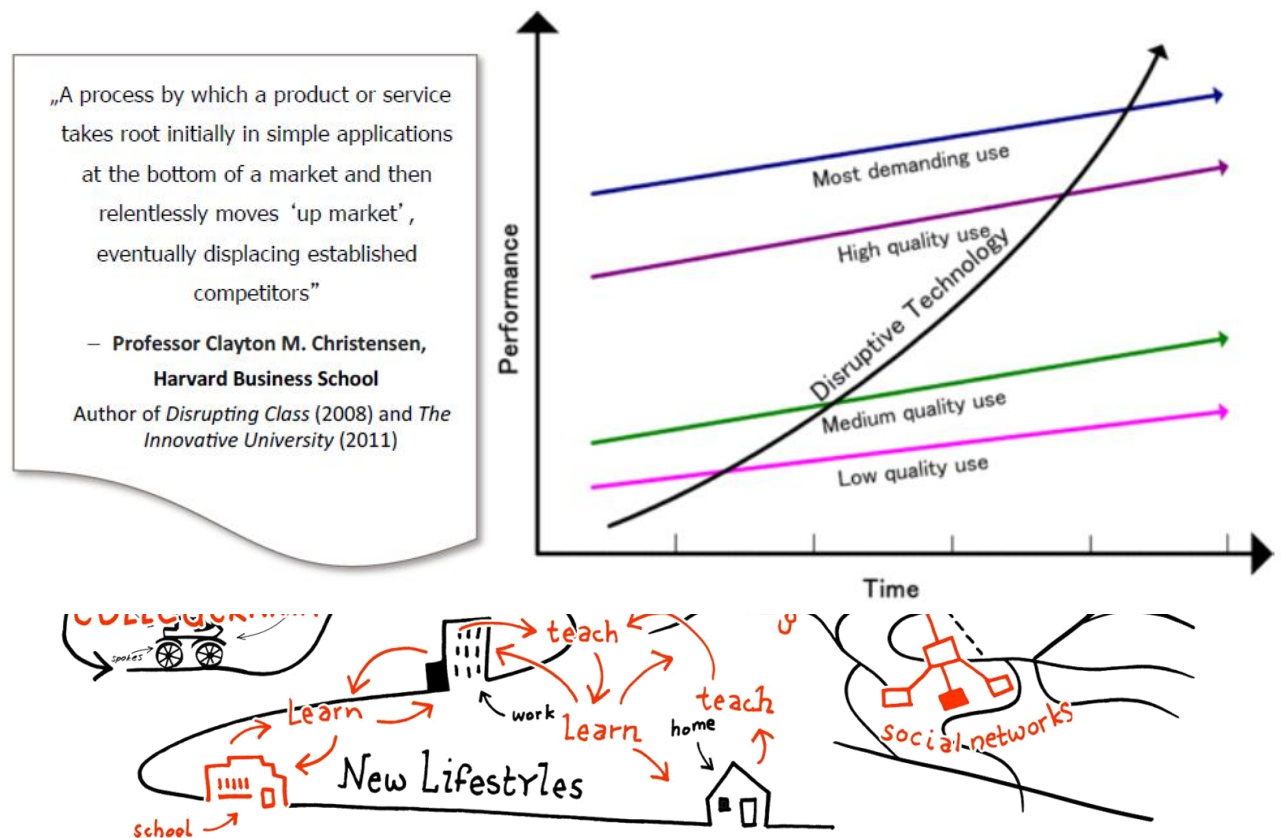
Delft University of Technology (TU Delft) is a traditional brick-and-mortar university in the Netherlands. Our research is inspired by the desire to increase fundamental understanding, as well as by societal challenges. We encourage our students to be independent thinkers so they will become engineers capable of solving complex problems. Our education focuses on education in engineering, science and design. The university hosts 20,000 students (Bachelor and Master) and 2,400 PhDs.

Since 2006 TU Delft has invested substantially in the development of open and online education. This includes OpenCourseWare, MOOCs, Online Education, Professional Education and Blended Education.

Higher education bubble and disruptive innovation

There are two dominant views on the nature of the recent developments. The first view is that MOOCs are a media hype that will pass and result in widespread disillusionment. The media attention for MOOCs certainly does show some characteristics of a media hype. In the USA this is caused by deep concerns about the continuously rising costs & high inflation rates for college tuition fees and the resulting high debts for individual students. Because of growing unemployment rates amongst higher educated professionals, there is an increasing tension between the cost of a university degree & the socio-economic value of it. Parallel to this runs the debate about the effects of the financial and economic crisis on state budgets and the sharp increase in the number of states that have trouble collecting outstanding student loans (Peter Thiels 'higher education bubble' thesis).

Others analyze these developments from a business perspective and view it as a disruptive innovation that will create a new market and value proposition, that could even develop into a competitive offering for parts of the current campus education by elite universities. The main proponent of this view is Clayton Christensen. He views online education as a classic example of disruptive innovation and the recent developments as the acceleration phase in a long term development of more than 2 decades.



To visualize the potential impact and future scenarios of the current online (r)evolution in higher education we developed the following analogy with the evolution of the automobile industry. It illustrates what the future of online education might bring for universities, the partners they collaborate with, and future student behavior and expectations:

From this perspective MOOCs signal the beginning of the transition to mass production and globalization of higher education (with an analogy to the impact of the first mass produced Ford), and the beginning of a surge in new educational models, networks for delivering these new educational models, and new types of behavior amongst global populations of learners. MIT has written a study on the future of MIT education in which it expects education to become ‘unbundled’ as in other industries that have witnessed the impact of digitalization (see <http://future.mit.edu>). Currently it is hard to predict if this will happen and what models will become successful, and what role universities will play in delivering these models. What we do see is that it is important to gain broad and hands-on knowledge of which models work and which don’t, to be able to adapt to these new developments when needed.

TU Delft Extension School

TU Delft has chosen an early adopter strategy. This ambitious strategy offers most opportunities to establish a top-tier online reputation as an innovative teaching and research university, to leverage excellent starting position the TU Delft has in the domain of open & online education, improve the quality and effectiveness of both online & on-campus education, and is in line with the ambitions of the Roadmap 2020 of the TU Delft to stay a leading academic research university in the fields of science, engineering & design.

Part of this strategy is the set-up of the TU Delft Extension School. This school bundles all our activities in open and online education. To position this within the university the school has appointed a Dean and a Director of Open & Online Education to lead this initiative.

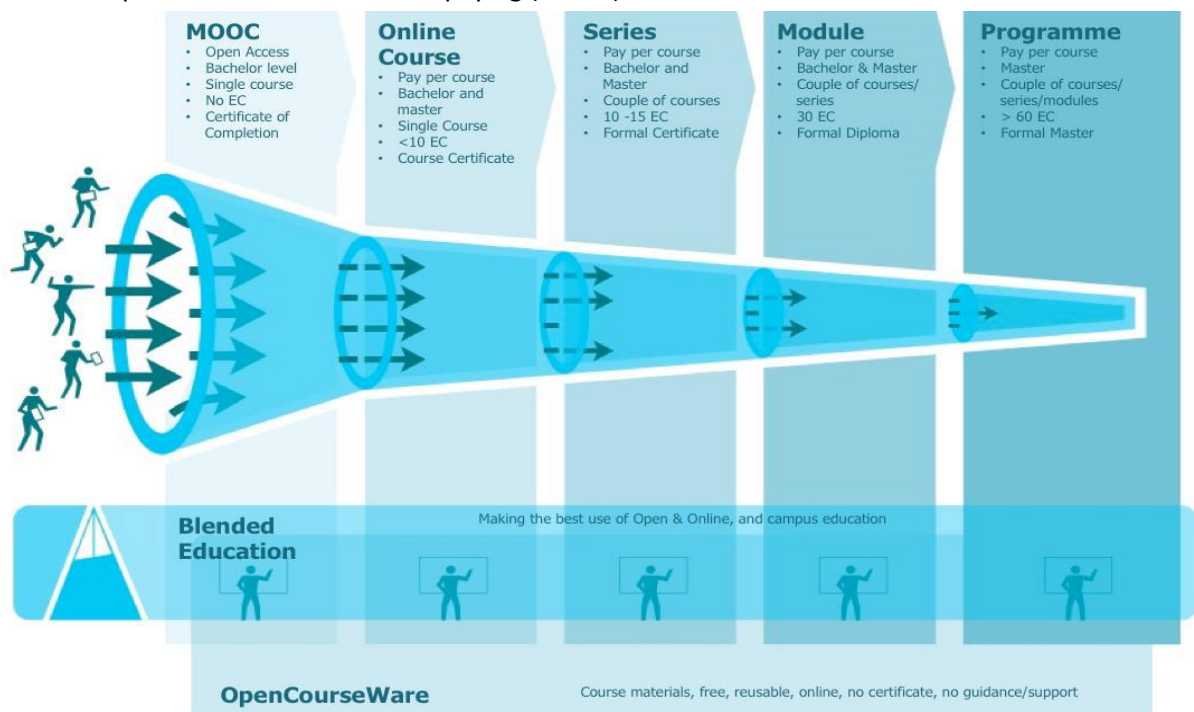
The innovation programme to realize an Extension School for Open & Online Learning has 4 main programme lines:

- Research & Innovation
- Faculty & Student Services
- Production & Delivery
- Business Development

Together with all the faculty involved in open and online education we have set ambitious goals for the next two years.

Business Model

Early on we have recognised that if you only consider MOOCs there is no sustainable business model for a university. This is why we broadened our scope and consider our open education activities as part of our funnel towards paying (online) students.



From the production side, we will develop the content once and reuse the content in different courses for different target groups, such as a MOOC, online course, blended course on campus and publish the content on OpenCourseWare.

The first signals we have indicate that this model is working. For example 0,1% of our MOOC students applies for a master programme on campus.

We are also investigating new business models, such as sublicensing of MOOCs to other universities and platforms.

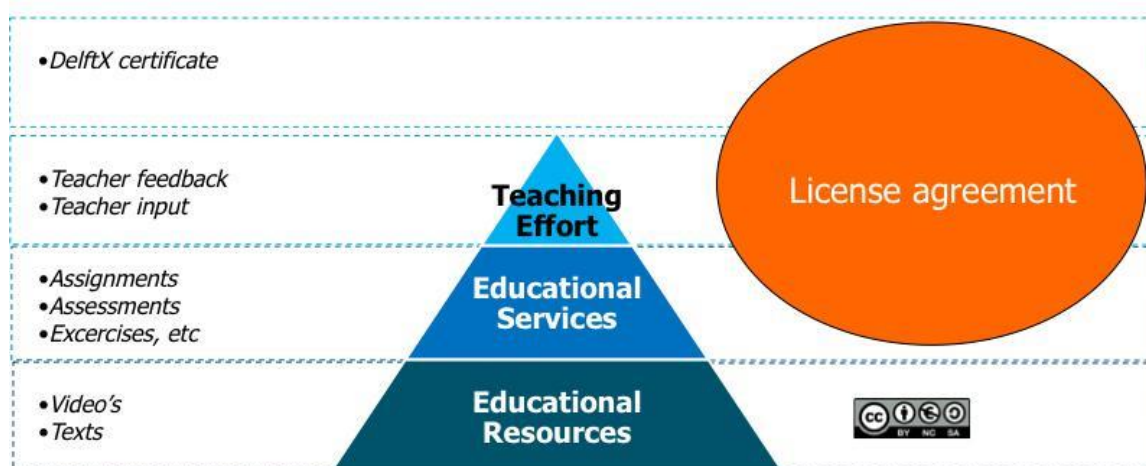
Open Licensing

One of the pillars of our long-term strategy is that we have a strong commitment to 'open'. This entails that we license our course materials with an open license (CC- BY-SA-NC) to enable reuse of TU Delft course materials by others and thus increasing accessibility to Higher Education, answering the worldwide demand for education. This is also the default license for the course content of our MOOCs. We publish the videos and other learning materials under the same open license (CC-BY-SA-NC) to make it available to learners all over the world. Of course there can be exceptions due to copyright and privacy restrictions for some course materials.

Because we also have to come to a financially sustainable business model for our open & online education (we have to cover our costs), we use the Non-commercial clause. We do not uphold this condition to prevent re-use. We do this to make sure we can protect the quality and prevent (intended) misuse of our content.

This means that institutions that want to charge money to their students for the access to our course materials have to ask TU Delft for permission and get a license agreement.

The NC-license gives us the opportunity to also sublicense our MOOCs to third parties, such as the Arabic platform EdRaak and Chinese platform XuatangX. Both organisations are aiming for increasing the reach/accessibility of Higher Education to regions with little access to high quality university education. Central to our licensing policy is that the course materials such as videos & texts remain freely accessible to all, while additional services for education, teaching efforts and certification can be licensed for a fee.



Model derived from: Mulder, F. & Janssen, B. (2013). *Opening up Education*, in *Trend Report: Open Educational Resources 2013*. Published by the Open Educational Resources Special Interest Group. pp. 36 -42

International Cooperation

Education is more and more becoming a global market. International cooperation is essential for all universities that want to be global leaders.

TU Delft is cooperating with many other universities to advance in open and online education. These are the most important partnerships with regards to open and online education:

Global

- TU Delft is member of the EdX Consortium. Anka Mulder, Vice President of Education & Operations of the TU Delft, is on the University Advisory Board of the Consortium. EdX consists of 55 universities and organisation offering MOOCs on the edx platform.
- TU Delft is sustainable member of the Open Education Consortium (formerly known as the OpenCourseWare Consortium). The Open Education Consortium is a worldwide community of hundreds of higher education institutions and associated organizations committed to advancing open education and its impact on global education.

Willem van Valkenburg is member of the Board of Directors. Anka Mulder is the former president of the Consortium (2011-2013).

European

- TU Delft is member of Conference of European Schools for Advanced Engineering Education and Research (CESAER). Currently Karel Luyben, Rector Magnificus of TU Delft, is the president of CESAER.
- TU Delft is member of the IDEA League. The IDEA League is a network of four leading universities of technology and science: ETH Zurich, RWTH Aachen, TU Delft, Chalmers University.

National/Regional

- TU Delft is participating in the SURF Special Interest Group (SIG) Open Education. SURF is the cooperation of all Dutch universities in the field of ICT and Education. The SIG facilitates the community of people involved in open education. Martijn Ouwehand is member of the coordinating core team.
- TU Delft is cooperation with Leiden University and Erasmus University Rotterdam in the joint multidisciplinary Centre of Education and Learning (CEL). It aims to develop knowledge that contributes to the ongoing improvement of university teaching and learning.
- TU Delft is participating in the Centre for Engineering Education, a joint research initiative by TU Delft, University of Twente and Technical University Eindhoven.

Certification and accreditation of MOOCs

From the beginning of the MOOC movement there has been a strong quest for certification of MOOCs in Europe. The TU Delft thinks that it is too early to start such a formalisation of this new development. Institutions need time to experiment without new rules and regulations of governments.

It is already possible for universities to formally recognise the certificates of MOOC. Most universities have processes in place via de exam committees of the regular degree programs to assess prior acquired knowledge and skills.

We noticed the biggest challenge for exam committees when assessing MOOC certificates is the lack of information to be able to assess the request. We propose to add a supplement to an ID-validated certificate with information about the course and university, such as course level, workload, instructors, assessment method, learning objectives and activities, and ID verification. This would help the exam committees to assess the accomplishments of the student in a specific MOOC.

Recommendation for the European Commission

We have two recommendations for the European Commission:

1. Don't try to regulate the MOOC development

The MOOC development is still in an infant stage. Every university is currently looking at what it will mean for them and what consequences it will have. At this moment it is too early to regulate the MOOC world. This is all about innovation! Governments should be de-regulating the education world, so there is more space for innovation and step into the open and online world.

2. Think global, act local

Education is becoming a globalized market. Focusing too much on the European situation will mean that you lose the connection with the rest of the world. So be aware of the global developments and help universities to position themselves in it. So think global, but act local!

The authors

Willem van Valkenburg

Willem is manager Production & Delivery of TU Delft Open and Online Education. This includes OpenCourseWare, MOOCs, Online and Blende Courses. He is also board member of the Open Education Consortium.

Timo Kos

Timo is the Director of Education of TU Delft. He is responsible for all educational policy of the university, teacher and student services, including the open and online education. In the past he was president of the Dutch branch of the Khan Academy.

Martijn Ouwehand

Martijn Ouwehand is currently an e-learning developer for the TU Delft Extension School. In the past he was part of the TU Delft Open Education Team. He is member of the core team of the SURF SIG Open Education.

The mainstreaming of open, online and flexible learning: how will MOOCs continue to be unique from an institutional perspective by Antonio Teixeira, Airina Volungevičienė, Ildiko Mazar

Affiliation: European Distance and E-Learning Network, United Kingdom

1. A Changing Landscape: The immediate uptake of massive open digital learning

In just six years Massive Open Online Courses (MOOCs) have become a viral phenomenon in higher education all over the world. Their very rapid success and impact in the media has drawn the attention of institutional leadership which led to mainstreaming online learning provision. Many high ranked institutions started to produce and deliver open online courses for the first time, some even started to consider using online courses as part of their formal curricula, and most looked at online education as a valid form of quality learning especially relevant in a time of globalization of the higher education market. ***As a result of this, online forms of education provision are no longer being seen as a curiosity or a niche market, but a central part of any higher education institutional offer.*** MOOCs' direct impact to this phenomenon must be acknowledged.

This phenomenon coincided with ***the consolidation of a network society*** which is becoming ever more digital, global and mobile. In a word, ubiquitous. In this new societal paradigm open forms of education in a close relation with open access to knowledge sources, open software and licensing, are changing our perception and also expectation of what education should be all about: an ever more personalized and flexible learning process. Massive open learning emerged and resulted in disruption and transformation of education. Higher education meets not only the challenges of industrialization, demography and globalization, but also the direct impact of lifelong learning service provision needs. Diversification of target groups in higher education makes considerable impact upon institution sustainability models.

Resulting from this ***increased personalization and flexibility, higher education provision is becoming also more differentiated.*** However, ***in order for this to be sustainable, providing institutions have to make sure it will be scalable.*** It is this scalability element that assures the lowering down of costs and can assure an even more disseminated and wider access to high quality higher education provision. However, this is the biggest challenge and most important factor for successful integration of innovations and sustainability.

2. MOOCs as a Disruptor or a Continuation of the Open and Online Learning Legacy?

The tremendous growth in the number of actors in the field that is resulting from the MOOC impact has had negative side effects which had been discussed recently in European events. In fact, most of the courses developed lacked consolidated expertise and experience in open, distance or online learning or have applied ***inadequate theoretical frameworks and established practices.*** This has misled many to precocious skepticism and disillusion about the potential of open education.

Probably the most important criticism is related to the very low completion rates compared with traditional standards. This proves exactly how a wrong perception is produced out of an

inadequate conceptual analysis. In fact, completion rates cannot be taken as a sole measure of learning success in an open online course. Many participants have successful learning experiences without actually completing the course assessment. This is due to the differentiated granularity of the learning experiences.

In a similar situation to what happened with the initial phase of eLearning after the .com bubble phenomenon, ***there's a need for solid research to develop new practice models*** built upon appropriate foundations which take into account ***the basic principles of open education and take the most out of the new networked social environments***. In its long experience of supporting the open and digital learning community of researchers and practitioners, ***EDEN has followed how this development was critical for the consolidation of quality online learning practices in the past decade***. The dissemination of open educational practices (OEP) in higher education institutions implies the ***adjustment or change of their organizational cultures towards an open framework***. Higher education institutions need to open up their organization, methods and services in order to be able to cope with the challenges of an open educational culture.

However, it must be recognized that establishing innovative OEP (including MOOCs) in higher education ***is often introduced episodically***. Moreover, having analyzed the horizon of different OEP in Europe, one can notice that ***great confusion exists in terms of concepts*** (MOOCs, OER, Open Access, Open Science, Open Society, Open Education) and phenomena. ***Sudden and disruptive development***, as well as ***segmented integration of innovation in an organization*** often ***lose the desired effect*** and ***anticipated impact***. Such instances could demonstrate ***irresponsible decisions, bring negative effect to strategic planning*** and may ***generate wrong feedback to European discussions on best practices***.

On the other hand, ***best practice examples exist and are openly shared within the EDEN network*** revealing the need to prepare consistently all areas of organization activities to meet the integration of open education and open education service development: strategy and management, infrastructure, curriculum programs, staff continuous professional development, support system, quality assurance procedures, marketing and public communication.

EDEN has been involved in several research and development initiatives, to promote uptake and disseminate OEP. ***EDEN is supporting the mainstreaming of open, online and flexible learning in many shapes and forms***, including:

- the collection and analysis of national open educational policies and practices, and related recommendation formulation (POERUP project – www.poerup.info/),
- the development of specific stakeholder communities and further training teachers and decision makers to improve their ICT skills and teaching practices (ODS project – <http://opendiscoveryspace.eu>) and
- the actual creation of open educational resources and curricula aiming at the training of teachers, trainers and adult educators (OpenPROF project).
- EDEN is also formally involved in an Erasmus+ strategic partnership that aims to modernise Europe's higher education systems (D-TRANSFORM project), and
- another that promotes the idea of "Open Badges for all!" in Europe (Badge Europe project).

These initiatives address and explore OEP and the recognition of skills and competencies in theoretical as well as practical ways, applying top-down and bottom-up directions in parallel, by this serving a wide range of educational stakeholders in all sectors and levels of education.

The impact of openness upon educational organization was discussed during the 8th EDEN Research Workshop (**EDENRW8**). The discussions, as well as case studies from member institutions show that ***OEP exist in a variety of scenarios and institutional practices***: MOOCs, open learning, integration of Open Educational Resources (OER) in technology enhanced learning (TEL) curriculum, virtual mobility, Open access initiatives, and other models.

Having analyzed varieties of case studies, having discussed MOOCs lessons learnt and criticism, ***EDEN members also draft first suggestions for integration of the innovation of open education in organizations***. Despite of a rich diversity of approaches, it is possible to trace common aspects amongst EDEN members attitudes towards open education and MOOCs. It can be claimed responsibly and responsively that ***MOOCs have not invented online learning but the other way around***. So ***new providers of TEL should try to base their approaches on the legacy of already existing research and best practices in order to keep the current high quality standards of practice***.

It should be noted first that the ***TEL concept has significantly changed existing dominant practices***, introduced innovations and continues to change the landscape of learning services at education institutions. Thus today the TEL concept carries a broader focus than the previous ones, which would concentrate on online, distance or e-learning, and it should be re-considered in the light of common practices.

Summing up the novelty of TEL services offered by educational organizations one could say that a ***broader concept of TEL has emerged out of e-learning, on-line learning and distance education***. The new TEL concept implies the ***value of judgment of improved learning services for students and new, innovative scenarios in learning and teaching***. Though new forms of TEL emerge, like OEP, blended learning forms remain to be the safest for organizations.

Thus EDEN member institutions suggest ***integration of open education through TEL curriculum*** in an organization following these principles (see Fig. 1):

- ***responsiveness*** (responding to the needs of all stakeholders of education services), and
- ***reliability*** (based on the quality assurance framework and identifying and forecasting concrete positive impact indicators upon education institution activities),
- the ***integration should be prepared on all seven areas of organizational activities*** (strategy and management, IT infrastructure, TEL curriculum programs, staff continuous professional development, support systems, quality assurance procedures, marketing and business),
- identifying ***pre-conditions*** existing on the national and regional levels of the organization,

- establishing **a case study** to identify strategic actions necessary for the integration of innovation,
- identification and measuring **TEL impact upon the areas of organizational activities**.

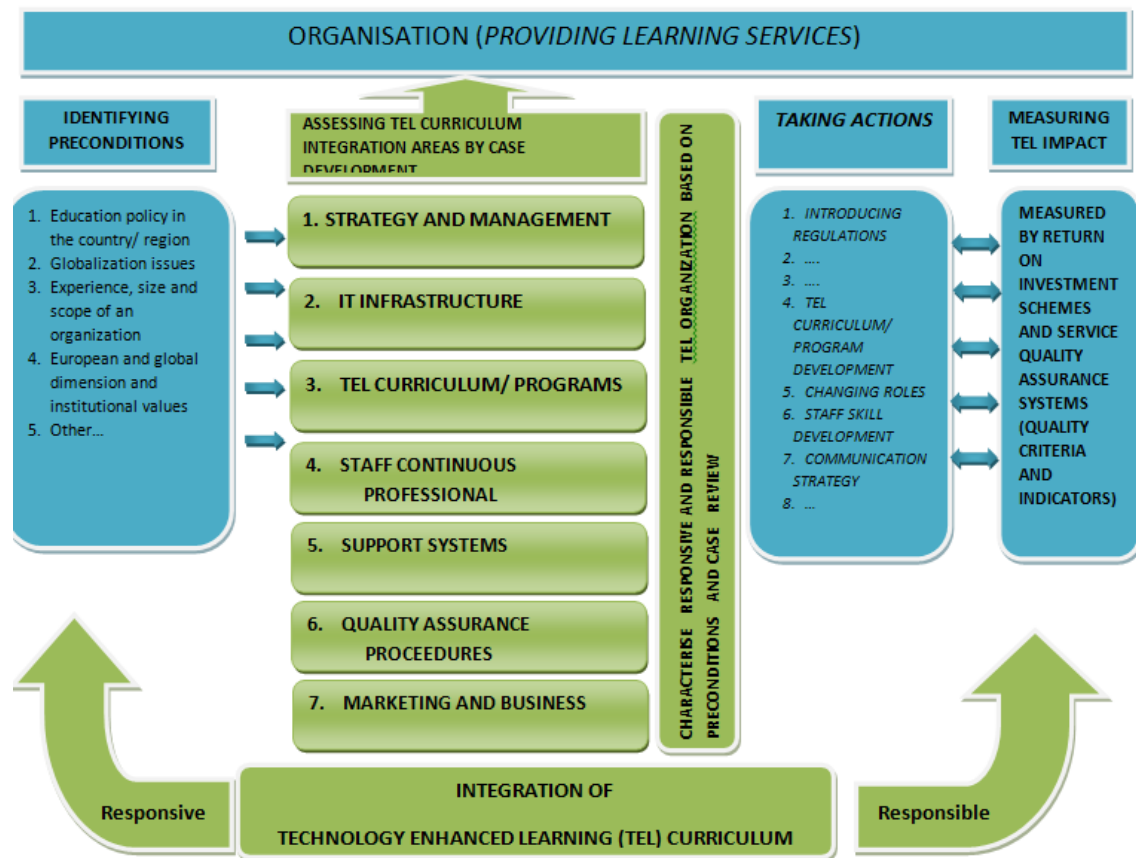


Fig. 1. Airina Volungeviciene, Margarita Tereseviciene Alan Tait (2014, in press)

Integration of open education would mean the impact upon all the areas identified in the model. OER would impact existing infrastructure and would have direct impact to TEL curriculum design, as well as marketing and business models. Opening education to diverse target groups would influence absolutely all the areas (as MOOCs development would do). However, in either case, institutional self-assessment and case study would allow to identify the action plan to reach preparedness and to plan the indicators of the impact upon the quality of organizational activities.

The institutional decision for the scenario of integration of open education would be unique, thus responsive to its local needs and pre-conditions, and responsible as pre-assessing potential impact to organizational activities.

EDEN position is that mainstreaming of open education implies necessarily some sort of regulation of the field (potentially not absolutely new, but most probably ongoing in the field of TEL, online and open education) to which ***experts and dedicated organizations should be invited to contribute***.

3. The Uniqueness of MOOCs: What can institutions expect from the mainstreaming and scaling up of open education?

The European Commission has been insisting on the idea that the European open, distance and digital education community, based on its long and rich experience, is capable of developing an alternative, more collaborative approach to MOOC design. A new European model which may represent a more qualitative alternative to the xMOOC type of models being currently used. In fact, European formal higher education standards call for more and better learner support and enriched pedagogical approaches. A number of projects have been funded by the EC for this purpose, many of which was either participated by or observed indirectly by EDEN.

At the latest **EDENRW8**, it appears that the results of this effort are starting to show. As Tony Bates reported, «From the papers, it seems that a **'European' style of MOOC is slowly evolving**, somewhere between xMOOCs and cMOOCs». But, in the same report, published in the EDEN President's Blog, he asks a set of important questions:

- *can MOOCs be designed to go beyond comprehension or networking to develop other critical 21st century skills such as critical thinking, analysis and evaluation?*
- *are there better design models for open courses than MOOCs as currently structured? If so what would they look like?*

4. Opening Up Higher Education: A new social contract for open education in Europe?

Two institutional case studies:

- 1) *A traditional university of Artes Liberales is opening up through content, open access, TEL curriculum, open lectures, to diverse target groups, through the diverse spectre and forms of curriculum and learning resources, researching and responding to the needs of the learners. Open educational content is openly accessible with no limitations on the internet. The content is linked with the curriculum through metadata and curriculum learning outcomes, so that lifelong learners might find the track and information how to seek for recognition of prior learning and competences if they enrol for a degree or a certificate in a course or a program.*
- 2) *A traditional university is designing a MOOC for registered users on a specific topic. The course is strictly designed on learning outcomes, is enriched with different forms of content and learning resources, open for discussions and exchange. It is a course out of a curriculum program. A certificate is issued to all learners upon completion.*

May we decide which case is potentially a better case for institution development?

1 Opportunities

We are now in the right period for recommendations and coordinated actions: Europe as done a lot to impulse MOOCs, European structured policies become clearer but not efficient yet. They are scattered on different programs, portals, and more often coexist with national initiatives slowed down by remaining administrative resistance (like paradox of FUN and the decret of 2008 in France preventing retired teacher from working in their own universities).

The general economical context may be considered as a chance to change, for building a coherent new ecosystem for scalable, durable ecology for MOOCs required by EU, institutions, the general public (need for badges and certifications) and corporates.

The experts are organized through historical networks now ready to join and work together: Open U, UNED, AUF (declarations at EDEN Research in Oxford, October 2014), EADTU...

The European position is unique as it is multicultural and multilingual. Coherent European programs organize and federate the research and development by European funding which give the impulse which is not always present in Open Universities or through national policies.

This tends to become visible from this year through MOOCs initiatives like ECO and EMMA.

We can distinguish two European coexisting cultures: Great Britain pragmatism (like North America and Nordic countries) with a focus on active pedagogy (bottom up, brain storming) and southern countries (top down, centralized, Jesuit, rhetorical...): they are most of the time reproduced in the first MOOCs.

Europe is extremely creative pedagogically as it benefits from two traditions: more student and game-centered in Great Britain, very up-to-date on Northern countries and structured, centralized and top-down in Southern. France seems in between with a leading position for serious games, national coordinate initiative with FUN created in 2013 and a *niche* market (3rd world host in Roubaix). Europe is building a position between the American MOOC “model” and the Chinese needs and formats, including experience in elearning, videoconferencing, ePortfolio and MOOCs in varied languages and cultures.

eQuality groups have already produced coordinate benchmarking, recommendations and tools at a European and national level EADTU, EFQUEL, FIED (including Laval, Switzerland and Francophonie). The research on ePortfolio is now converted to research, action and development on open badges and certification.

The conjunction of the two aspects of European initiatives make appear the necessity to increase cooperation, coherence and visibility, taking advantage of its specificities. The MOOC offer is quite rich but the portals and descriptors are not yet unified, transferable, reusable and scalable innovative initiatives.

Assets of France:

In 2014, French is now the 5th most spoken language in the world (+ 40 % in China and Japan). Benchmarking will be done in January 2015 for Francophone MOOCs (through AUF and FUN portals). The FIED, the French federation for distance education, like similar national federations, may have a role to play as it's now opened to *Grandes Ecoles*, building a national portal of MOOCs and certifying eQuality. Research on innovation with ICT's is conducted from the 50's on distance learning, multimedia with various successful initiatives. It's also a window for Francophonie, important for African and Maghreb market.

The administration, regulations and laws encourage Life Long Learning (5 days per year paid through DIF, individual right for training, eLearning now admitted). National policies, incentives and initiatives for Public Private partnerships are improving allowing them to work together with adapted status (auto-entrepreneurship) and taxes.

2 Characteristics

There is now important formal literature on the subject (books, thesis, white papers...), network of experts and different stakeholders from PP sectors, associations, international institutions like UNESCO and OGN: the converging interests are strong enough to convince the MOOCs are a solution to decreasing investments (money and time). All European experts from EADTU have an important potential to identify private and public national main actors: consortia of Universities, Grandes Ecoles, OGN, UNESCO chairs, Associations...

Europe can't miss the boat: a business model is clarifying so that MOOCs must not be the new gadget to acquire visibility but an alternative solution for Life Long Learning, compatible with the **individual private and corporate constraints**. The **legislation** must follow the stream and the needs for change: we must work on representations for **the recognition of eCompetences** in all sectors of the economy and encourage **teleworking**, especially for young women to increase employment. How to develop new durable and secure forms of employability in universities and corporates through ICT and MOOCs? By social networking, teleworking, prefiguring future organization of work relationship.

Innovate and be more efficient through MOOCs and crucial subjects: animating teams, being happier at work (from abroad, internal and external resources); how to accompany the change, how to succeed the transition in organisations, training managers and employees, how to pilot one's career inside and outside corporates with these new tools in a systemic view.

European awareness and identity is a factor for motivation and a potential for business that can be exploited more practically through MOOCs, especially through declining the offer in different cultures and languages, and contextualization including **intercomprehension**.

eQuality is also linked to the degree of personal investment of the user more motivated by social and collaborative activities: we should evaluate **from MOOCs to sMOOCs**: social MOOCs should be encouraged from the conception to the certification. ECO France is working on that.

3 Actions to perform

It is time for useful and concrete proactive proposals.

The most urgent action seems to be to build a **European official service and platform for accreditation and certification for MOOCs** and a network to propose **guaranteed places to get certified all over the world** through Open Universities (UK, UNED) and the agency of Francophonie and national networks like FIED.

The co-construction of a **European multilingual Portal** including all national initiatives should be built with common indicators, descriptors and standards, **eQuality labels for MOOCs** according to the different types and we have to agree on with a **common glossary**.

Benchmarking EU MOOCs and creating a **cartography** for all European countries is the first step. To complete the catalog of national resources, we have to develop **intercomprehension, contextualization**: money should be given not only to create new contents but for contextualizing the best MOOCs. Eco will begin through *The MOOC from A to Z* experiment.

A performing **common Business Model** (for instance through Emma and ECO project) should be clarified to avoid public or private mistakes. The business offer and the flexibility should be diversified and extended: accreditation through integration to courses, inscription of private groups through corporates and university groups...

We are ready to create a federating European proposal for a program on **roadmap and actions** with experimented teams (from universities, Grandes écoles, corporates, experts, associations...) We can work on federating big agents of innovation: AUF, UNED, Open U through EADTU

Working on open badges recognition, including Corporates takes time and we must make the **legislation evolve** in all European countries.

We must go on organizing conferences and MOOCamps to convince and federate the efforts, leading to European projects and common actions towards the co-construction of the Humanism of the XXIst century through sMOOCs.

Part 3: Elements for a European Perspective on MOOCs

Towards a Crowd-sourced Open Education Strategy for Employment in Europe with Qualification-focused MOOCs by Stylianos Mystakidis & Eleni Berki

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Keywords: Massive Open Online Courses (MOOCs), Open Education, Strategy, Higher Education, Crowdsourcing, Deep Learning, Problem-Based Learning (PBL), Problem-Focused Education, 3d Virtual Immersive Environments, Skills, Webliteracy

Abstract

Europe has the opportunity to utilize Open Education to train specialized workforce and boost employment by increasing MOOC quantity, speeding-up MOOC delivery and improving MOOC quality. Authors propose a crowd-sourced open mechanism called MOOCagora for the innovative design and agile development of qMOOCs. MOOCagora is the heart of an 8-stage business circle that impacts the job market. An identified local, national or European skills shortage is addressed in MOOCagora through massive certified delivery of skills and competences in qMOOCs. qMOOCs are a newly proposed quality-centered format of MOOCs that focuses on skills and qualifications construction. qMOOCs can use a modified version of the MOOC canvas framework for qualifications and competences that can be achieved through three educational components/paradigms: deep learning experiences, problem-focused education and 3d virtual immersive environments.

1. Introduction: the Scope of MOOCs

In 2012, a world-wide audience discovered open and distance learning (ODL) in the form of Massive Open Online Courses (MOOCs) offered mainly by top-tier US universities. 2012 was hailed by mass media as the year of the MOOC. This development was consistent with the trend to open the access to university course content (Open Educational Resources – OER movement) to the public as demonstrated by MIT's Open Courseware and the subsequent Open Education Consortium. As different business and monetization models appear around MOOC coalitions, it has been reported [1] that among the main drivers behind this launch were the ever-accelerating demand for higher education services, institutional branding, as well as innovation in talent management [1], [2].

At the same time, while the University of Tübingen in Germany was the first to offer OER online, Europe was lagging behind in the use of digital technologies, open education and MOOCs in education and training in comparison to USA and other parts of the world. Today currently several national and European initiatives are under way, independent from each other [3].

2. Innovation through Online Engagement

European Commission's Digital Agenda Assembly 2012 [4] featured a new element of organizational innovation: the active involvement of stakeholders in national and European

level for the participatory agenda and policy recommendation construction through a coordinated online engagement action. The online engagement reached a wide audience of millions, produced an open, blended, high quality discussion in identified topic areas and engaged European citizens and entities in a transparent crowdsourcing process of policy making.

The online discussion in the pillar “Jobs and Skills” formulated, among other, the policy recommendation to address the e-skills shortage challenge amidst of record-high European youth unemployment through open education for flexible mass scale upskilling. This recommendation was aligned with the creation of a Grand Coalition for Jobs and Skills [5].



Figure 1: Grand Coalition map

This recommendation is an evidence that disruptive policy making can emerge through crowdsourcing. However was this recommendation realistic?

3. Three Challenges for Mass Open Education Pedagogy and Employment

Metakides [6] proposed that the future of education in the 21st century will be both massive and personalized completing a cyclic move that started with the origins of education in ancient Greece (Figure 2). Indeed, tens of thousands people enroll in a typical MOOC. However, only a small fraction actually completes the course. Consequently, it was not long before the following critical questions emerged: i) do MOOC participants really learn? ii) what is the quality of the learning, the acquired knowledge and skills? There is valid criticism that many MOOCs provide rather poor learning experiences [7]. This is attributed to the absence of social constructivist and connectivist pedagogical principles underlying the first, informal MOOCs organized since 2008. Hence, the initial distinction between two branches of MOOCs: connectivist cMOOCs and institution-lead xMOOCs.

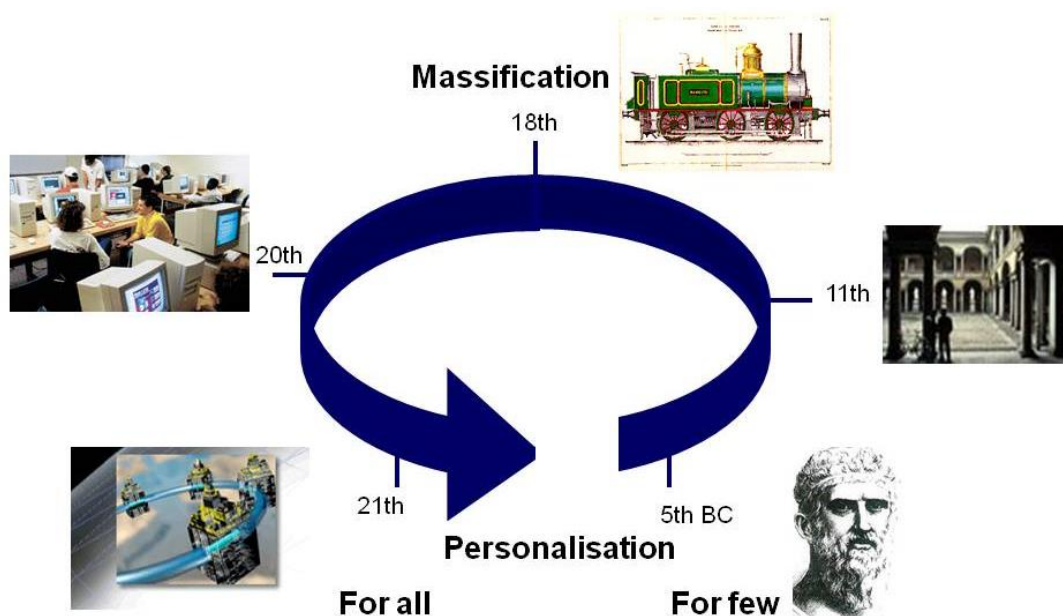


Figure 2: From massive to personalized learning for all

Current xMOOCs provide a learning experience within a learning management system organized around “video lectures, automated assessment and supporting message boards and resources” [8] without advanced pedagogical methodologies [7]. Some xMOOCs instructors tried to address these issues by adding peer activities and an active presence in social networks and, thus, shaping a third emerging category of MOOCs, the hybrid MOOC [9]. Bayne and Ross [10] present an overview of MOOC pedagogies and limitations in current UK xMOOCs and hybrid MOOCs. In any case, the absence of effective pedagogy that leads to Higher Order Thinking Skills is critical and an obstacle in delivering MOOCs with reliable mainstream learning methods.

Analyzing the data from studies on European MOOCs on web-related skills [11] and two research studies on MOOCs for employment purposes [12] and professionals' participation in MOOCs [13] we deduce that there is a need for policies and initiatives to

- a) design and offer more MOOCs in more EU countries [11],
- b) create new models to accelerate MOOC production to address e-skills needs, and finally
- c) facilitate the design of different and/or better MOOCs especially designed for webskills.

In the following sections we will offer recommendations to address these three challenges.

4. Crowd-sourced MOOCs for Employment Provision Architecture

In order to address the first two challenges, we proposed an eight-stage MOOCs production model for employment in Europe (figure 3) [14]. The circle features the following stages:

1. Job Market Monitoring
2. Skills Shortage Identification
3. Set Qualification Aims (also linked with stage 7)
4. Action Decision
5. qMOOC Design
6. qMOOC Provision
7. Qualifications Certification
8. Job Market Impact

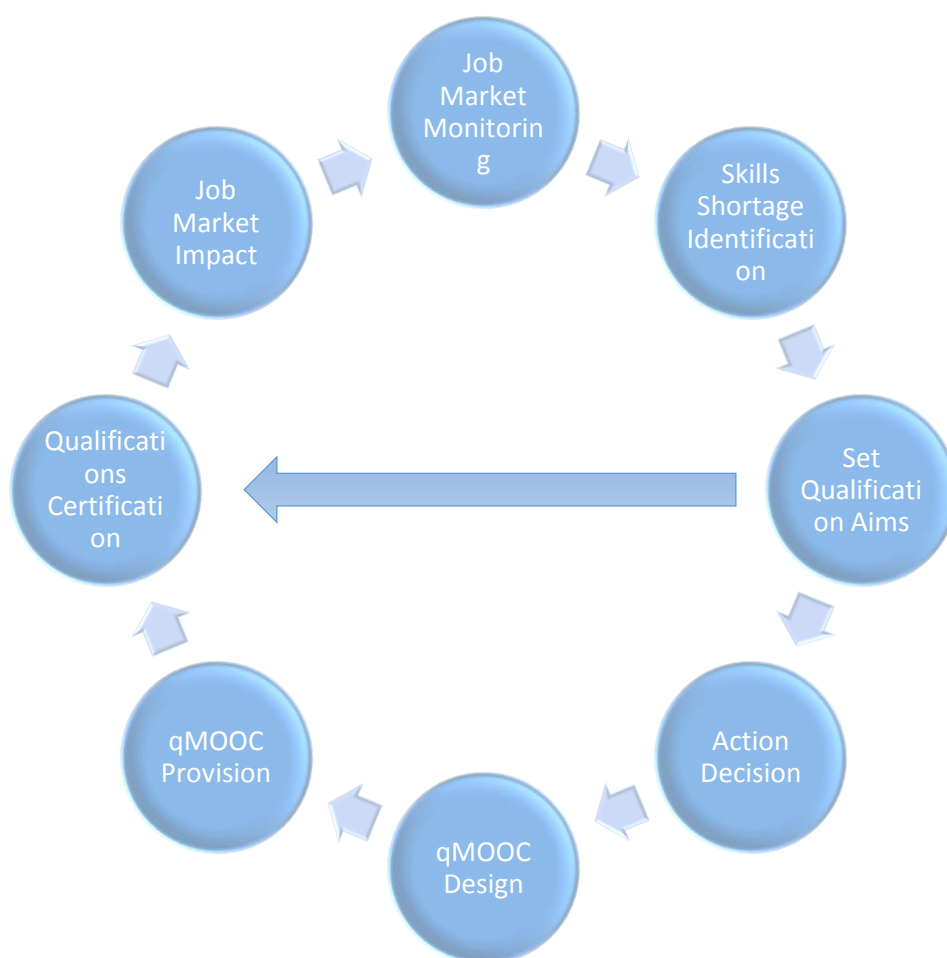


Figure 3: 8-stage MOOCs production model for employment in Europe [14]

Like ancient Athens' Agora (marketplace) of people, philosophers, learners, decision makers, MOOCAgora is conceived as an open, democratic, participative education virtual meeting place and market space with a mechanism for regulated offer and demand of MOOCs for employment. This modern, educational space version of Agora is fueled by open innovation and online Communities of Practice (CoPs), where interested partners meet and forge coalitions so as to develop rapidly MOOCs to address verified local and European qualification and expertise needs.

MOOCAgora is a virtual platform where governments, industries, professional associations, educational institutions and certification providers meet in the frame of the mentioned 8-stage MOOCs production model. MOOCAgora draws inspiration from the already established Grand Coalition Digital Agenda action [5] and the active role of the Government of Catalonia to encourage MOOCs creation as described in a report of Spanish MOOCs [16].

5. qMOOCs: Qualification and Quality-focused MOOCs

MOOCAgora's instrument to achieve its goal and main output are flexible, employment-driven MOOCs with a specific pedagogical focus. The European education paradigm for the 21st century is based heavily on the notion of qualification as it is demonstrated in the European Qualifications

Framework. Accordingly, the cornerstone of MOOCAgora is the qMOOC, the qualifications-focused MOOC.

As MOOC participants are not primarily interested in formal, academic degrees, qMOOCs focus on orchestrating the acquisition and empirical construction of specific qualifications and skills, achieving learning visible and verified outcomes. Especially in the realm of technology, qMOOCs will rely on the ICT profiles and proficiency levels of the European e-Competence Framework [17].

Q in qMOOC stands also for quality. Learning quality of qMOOCs can be assured by factors such as

- Multi-partner-coalition structure featuring 360-degree qMOOC design & development;
- Meaningful, strong learning outcomes (e.g. certifications, e-portfolios etc.);
- Emphasis on active instructional design guidelines.

The composition of the MOOC development coalition defines the quality of the data and components of MOOCs and their links with real work situations and competences. For instance, appropriate partnerships among academic institutions and businesses have been proved quite successful for learning [18].

Subsequently, qMOOCs can act as active recruitment tools and virtual showcases for emerging web talents. Among the expected, final outcomes of qMOOCs is a pool of employable 'graduates', fully qualified, manifold thinkers.

6. Envisioned Operation of MOOCAgora in the 8-stage MOOCs Production Model for Employment (a practical example)

First, verified qualification gaps and job vacancies initiate the MOOCAgora operation for the demand of qMOOCs:

UK Commission for Employment and Skills reports that according to a recent study of the Centre for Economics and Business Research (1. Job Market Monitoring) they foresee 10,000 job vacancies in the tech sector in the London area in 2015 due to inadequate webskills (2. Skills Shortage Identification)¹. United Kingdom Accreditation Service confirms the qualifications, proficiency levels and ICT profiles behind the job shortages according to the European e-Competence Framework (3. Set Qualification Aims). The Greater London Authority along with the UK Department for Business, Innovation & Skills post an open request for qMOOCs in MOOCAgora (4. Action Decision) in accordance to guidelines, provisions and allocated funds of European Commission DG Communications Networks, Content and Technology that oversees MOOCAgora. Requests with similar characteristics can be grouped together.

Second, MOOCAgora allows the development of 360-degree multi-partner partnerships for qMOOC design:

Higher education institutes, research institutes, educational technology providers and start-ups, associations, companies, non-governmental organizations and personnel certification bodies form

¹ The role of open data from local and national governments is essential so as to accelerate these stages.

flexible, international partnerships and propose solutions to address the qualification gaps (5. qMOOC Design).

For an effective qMOOC design each partnership is suggested to include six essential partner roles:

1. Coordinator / Manager
2. Instructional Designer
3. Technology Provider
4. Content Provider
5. Problems Provider
6. Certification Provider

The Coordinator leads and manages the consortium and oversees the project. The Instructional Designer is responsible for the pedagogical aspect of the qMOOC. The Technology Provider contributes infrastructure and platforms for qMOOC delivery. Content Providers develop and offer educational material to be used in the qMOOC. Problems providers are either active organization in the field in question or directly linked to it, and can therefore supply experienced subject-matter experts with knowledge of realistic situations, ill-defined problems and contexts that will be crucial for qMOOC design. Finally, the Certification Provider is the body that will compose and award certifications to participants through its reliable mechanism.

As the contract is awarded, the winning partnership develops and implements the requested qMOOC (6. qMOOC Provision). Interested associations of businesses are also invited to be involved in the process in an efficient way as learners' achievement and progress is documented openly through badges, e-portfolios and eventually certifications (7. Qualifications Certification). Finally, certified qMOOCs graduates can apply and fill the available job vacancies (8. Job Market Impact). MOOCAgora features a mechanism that assures the quality of produced and delivered qMOOCs.

7. Elements for Effective qMOOCs Design

As illustrated above, qMOOCs feature some novel pedagogical characteristics. The authors advocate for a learner-centered instructional approach orbiting around realistic problems for deep learning and the use of 3d Virtual Immersive Environments.

7.1. Problem-Based Learning for Deep Learning in qMOOCs

The third identified challenge for MOOCs in Europe addresses the instructional learning quality of qMOOCs. qMOOCs focus on core, extended, adjacent web skills and non-technical skills that correspond also to the three strands of Mozilla Webliteracy framework, Exploring, Building and Connecting [19].

Building on top of the MOOC Canvas design framework [20], we propose an additional element called "Motivational Design" for qMOOCs in the design decisions category. This proposal recognizes the importance of motivation enhancement strategies [21] to engage participants in active learning experiences.

Following the Competence-Based Design Approach suggested by Guàrdia et al [22], and also taking into account the distributed nature of intelligence in MOOCs and the evidence-based improvement element in the MOOC design & evaluation framework [23], we support that qMOOCs should emphasize social learning with socio-constructivist deep learning strategies.

Deep learning [24] or significant learning [25] promotes the development of conditionalized knowledge and metacognition through Communities of Practice and continuous inquiry. Deep learning occurs when students are actively involved in the learning process and are given opportunities to construct meaning. In so doing, they should be able to transform the courses' concepts to personal (learning) experiences, utilize problem-solving skills [26] and enhance manifold (creative, critical, caring and reflective) thinking skills [21].

We argue that distributed Problem-Based Learning (PBL) and more specific its variation Problem-Focused Education (PFE) [27] is an effective instructional strategy to achieve deep learning experiences in open and distance learning [28] and especially core and extended web skills as well as the Exploring and Building strands of the Mozilla Webliteracy framework. PFE i) begins with a problem, ii) presents the problem as a real-life situation, iii) supports students' manifold thinking and working in a group, iv) encourages students to identify their own learning needs and take responsibility of their own learning processes, and v) encourages assessment and evaluation of the learning process and its learning outcomes.

In particular, we support that PBL can be most effective when combined with instructional design approaches such as:

- Storytelling - MOOC as unfolding story in episodes [29]
- Quest-based Learning - MOOC as the structured completion of learning quests of various nature
- Gamification – MOOC structured as a game where the learner “levels up” as s/he completes learning activities
- Evidence-Centered Design (e.g. for simulations)

7.2. 3d Virtual Immersive Environments (3d VIEs)

Finally, we add a recommendation to address the emergent need for the development of non-technical and transferable skills (such as virtual collaboration and project management), adjacent web skills [11] as well as qualifications of the ‘Connecting’ Mozilla Webliteracy strand [19].

So far, MOOC providers have not deployed systematically 3d VIEs. However, 3d VIEs have been utilized in two ways in relation to MOOCs. First, mainstream xMOOCs participants familiar with 3d VIEs used them to host public events and to coordinate teamwork. The first author has initiated and participated in such events and virtual meetups in 3d VIEs platform Second Life for Coursera's Gamification MOOC², Stanford's Creativity MOOC³ and Futurelearn's Exploring Play MOOC⁴.

² <https://www.coursera.org/course/gamification>

³ <http://venture-lab.org/creativity>

⁴ <https://www.futurelearn.com/courses/play>

Secondly, since 2013 3d VIEs were used to organize informal MOOCs primarily for educators such as VWBPE 2013 MOOC⁵, Game Based Learning MOOC⁶ and SLMOOC¹⁴⁷.

Based on a preliminary literature review and findings from the 1st Greek informal Big Open Online Course (BOOC) in 3d VIEs [30], the authors hereby argue that deep problem-focused learning in virtual reality platforms can deliver many other, vital and currently missing, ingredients for quality mass open education. More specifically, formal and informal learning experiences that take into account online identity and avatar psychology in 3d VIEs [31] could address the aforementioned deficiencies in MOOCs.

Mature instructional design methodologies for 3d VIEs based on Kant's socio-constructivism, and Vygotsky's social constructivist learning approach and Anderson's cognitivist principles were developed taking into consideration that took into account their innovative technological and psychological affordances [32]. These pedagogical methodologies have not, unfortunately, been employed in scale for mass open education. This and other limitations and weaknesses of MOOCs clearly been stated and critically reviewed in the most recent and relevant published documents [33], [34]. These bring severe controversies over e.g. unsupervised learning, the validity of knowledge or of the way a skill is acquired and other. For a detailed and informative session the reader may refer to various sources of reference [33], [34].

3d VIEs main attributes are the enabling of enhanced, immediate synchronous e-learning interactions and the formation of virtual learning communities. Leveraging the psychology of the avatar, the 'digital self' of the participant in the virtual world, we can deliver rich and effective behavior-changing learning experiences.

In the light of the above and other socio-economical needs, VIEs offer the opportunity to introduce experiential and social learning in open and distance education and MOOCs, in particular. Through immersive simulations learners are increasingly able to overcome barriers of scale, time and cost to experience learning contexts that can be inaccessible in the real world; applying also suitable advanced pedagogical methodologies can turn these immersive learning experiences into invaluable subject knowledge and skills acquisition, i.e. problem-solving, and critical, creative, reflective thinking skills.

8. Conclusion

European Union and European higher education institutes face the challenge to formulate a coherent strategy around MOOCs and link it to Europe's strategic priorities and actions. We argue that MOOCs delivery isn't a goal in itself and that MOOCs can be used more effectively and creatively than merely institutional promotion and faculty engagement. Open Education and MOOCs are valuable tools to address pressing European-wide economic and societal needs connected to the mission of higher education. More specific, Europe can utilize Open Education's attributes to pursue strategic goals formulated in the Digital Agenda and increase employment, specialized workforce and economic growth. Authors propose a crowd-sourced mechanism called MOOCagora. MOOCagora is a virtual place where Universities, MOOC providers, professional bodies, certification entities and businesses

⁵ <http://vwbpe.kamedia-interactive.com/course/view.php?id=139>

⁶ <http://gamesmooc.shivtr.com/>

⁷ <https://www.wiziq.com/course/39928-second-life-mooc>

form coalitions to develop rapidly a new type of MOOC to address verified, projected local and European qualification needs. This new type of MOOC is called qMOOC as it features advanced pedagogies focused on skills and qualifications construction by applying problem-based learning for deep learning.

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Fostering collaborative investment in Massive Open Online Courses (MOOCs) by Bernard Nkuyubwatsi

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Summary

MOOCs have developed spectacularly in the last three years. These courses have attracted interest of various stakeholders, especially in higher education. Despite the MOOCs' rapid development, their widespread adoption is being restricted by doubts about the quality of these courses, the lack of a sustainable business model, and the lack of a pathway to assess and accredit learning accomplishment. In this paper, I discuss five types of resources that can be collaboratively invested for successful MOOC practices: political resources, financial resources, technological resources, pedagogical resources and heutagogical resources. These different resources are mapped across different stakeholders who manage and control them and a framework for collaborative investment of these resources is provided. I discuss quality in MOOCs as an outcome of collaborative effort and investment of all stakeholders. Within this perspective, I argue that quality in MOOCs would be catalysed by collaborative investment of the five types of resources. I also argue that collaborative investment in MOOCs will thrive when all stakeholders involved share benefits from MOOC practices. Towards the end, I note the European terrain and legal framework for fostering collaborative investment in MOOCs across the continent. This paper may benefit stakeholders in higher education who are engaged or are planning to engage in MOOC practices and open education, especially those involved in the *OpenupEd* and the *Higher Education Online: MOOCs the European Way* (HOME) partnership.

Key words: MOOCs, collaborative investment, collaborative quality enhancement, shared benefit, Europe

Introduction

Various stakeholders in education and industry have been on a quest for strategies to seize opportunities offered by MOOCs. Pre-university learners have been taking university-level MOOCs to have a taste of higher education. On-campus students have been taking MOOCs to supplement their courses. Employees and professionals have been taking MOOCs for their professional development. Many higher education institutions have been using MOOCs to attract students to their paid campus-based courses. Others have been exploring possibilities to cut down expenses using MOOCs through a quality ensured and economically sustainable strategy. Academics have used MOOCs to experiment with online teaching. Financial investors have contributed significant amounts of capital in the development of MOOC platforms. The Norwegian Government appointed a commission to examine opportunities and challenges of MOOCs (Kjeldstad et al., 2014). In France, the Ministry of Education supported the launch of *France Université Numérique (FUN)*: the French MOOC platform (Uvalić-Trumbić, 2014). Many other governments have not explicitly been involved in MOOCs, but they have been watching the MOOC development closely.

Despite this mobilisation, a widespread adoption of MOOCs in higher education is delayed by many challenges. Those challenges include doubts about the quality of MOOCs, the high cost of production of these courses which still lack a sustainable revenue stream, and the lack of credible assessment

that would lead to formal recognition and accreditation of learners' accomplishment. All these issues are addressed in this paper within a framework for collaborative investment for the benefit of all stakeholders involved.

Five types of resources needed for MOOC and open education success

This section discusses five types of resources needed for successful MOOC and open education practices: political resources, financial resources, technological resources, pedagogical resources and heutagogical resources.

Political resources

Political resources consist of powers vested in people, boards, commissions and institutions that shape the national politics of education, national and institutional visions, institutional missions, national and institutional policies and strategies to reach those visions and missions. Governments are often the supreme suppliers of these resources. Barber et al. (2013, p. 54) note that "the power to award a degree is conferred by state or national governments and the restrictions on access to this power have enabled universities to protect their positions". Kopp et al. (2014) observe different hindrances to MOOC practices including legal tensions. The investment of political resources can result in policies, regulations and legal frameworks that could enable MOOC practices in many countries.

Financial resources

Financial resources include funds invested in education and fees paid for educational services as well as expertise related to managing those funds. These resources often come from governments, the private sector, funding organisations and students. They include, but are not limited to, governments' contributions to public education, and tuition fees in countries where education is not provided free of charge. In the MOOC context, Kopp et al. (2014) highlight two ways students can contribute financial resources. They can pay invigilation and examination processing fees, the mode adopted by Iversity (2013). Students can also pay the cost of additional tutorial support if they need it and it is available.

Technological resources

Technological resources needed in education can be classified into four clusters. The first cluster includes *information and communication technology (ICT) physical infrastructures* that exist in specific settings. The second cluster, *hardware and software*, includes ICT devices such as computers and mobile devices as well as software and applications that make the devices work. The third cluster embodies *skills and expertise* that make technologies function as intended: these are provided by technological helpdesks, support teams and others. The fourth cluster, *consumables*, consists of a diversity of resources consumed by technological equipment, such as electricity, etc. Kopp et al. (2014) note that the technological infrastructure available in many universities was not built to host MOOCs. This implies that institutions may need to invest in technological infrastructure for a successful implementation of MOOCs.

Pedagogical resources

Pedagogical resources encompass expertise that enables a constructive alignment between learning outcomes, learning content, learning activities, learning assessment and learning technologies. These

resources also include a diversity of content used for learning as well as expertise and attributes such as empathy. MOOCs have often been criticized for their limited pedagogical resources, especially tutorial support. However, MOOC tutors can reach a higher proportion of students if they take advantage of technological and heutagogical resources around them. The course team in *eLearning and Digital Culture* MOOC offered by the University of Edinburgh on the Coursera platform, for instance, was highly responsive to students' queries via social media. In this MOOC, weekly hangouts were organised and coupled with Twitter live chats. This enabled the course team to respond to microblogs of many participants. A similar combination of pedagogical, heutagogical and technological resources was made in *Learning to Teach Online*, another MOOC on the Coursera platform offered by the University of New South Wales. Not only were the course team members responsive to students' posts and queries via social media and course forum, but they also opened a *questions and answers* room in the discussion forum every week. Then they invited students to start threads on questions they wanted the course team to answer and to vote on their peers' questions. Clarifications were provided to the five questions with most votes in videos released at the start of the following week. Pedagogical resources can also be contributed by other educators who take MOOCs for their lifelong learning, which enables the decentralization and delegation of some teachers' power (Nkuyubwatsi, 2014a). However, such decentralisation and delegation does not guarantee effective support to all MOOC students.

Heutagogical resources

Heutagogical resources consist of students' practices and attitudes that trigger their engagement with learning as well as time and effort spent on learning. Heutagogical practices may include students making decisions about own learning, setting learning goals, planning their own learning process, focusing, managing and controlling their own learning using a diversity of tools and prioritising. Heutagogical attitudes include passion, dedication, perseverance and the refusal to accept failure as a long term doom. Heutagogues transform failures into powerful heutagogical resources when lessons to improve are learned. Unfortunately, heutagogical resources and their contribution to educational accomplishment have not been given enough attention for many reasons including the reluctance to give away some power to students (Blaschke, 2012). Wright (2014) argues that education has often been treated as a commercial commodity that has to be sold to learners who are considered as consumers. Such commodification of education may lead to the waste and misuse of heutagogical resources. Robinson (2010) observes that human talents are used poorly and this often occurs in education, and he calls for the creation of opportunities that activate talents. In the current MOOC and open education era, the transfer of some powers from instructors to learners seems to be inevitable. Stewart (2013, p. 235) argues that the central position and power of the teacher disappears as the number of students grows. Similarly, the monopoly of academics and institutions over educational resources has decreased thanks to increased availability of open content, MOOCs and technological innovations (Barber et al. 2013; Nkuyubwatsi, 2014a). Therefore, openness has made heutagogical resources critical in education.

Mapping the five types of resources across key stakeholders

Different stakeholders manage and control different resources needed for success in open education and MOOCs. Governments, institutions and policy makers manage and control political resources reflected in policies, standards and legal frameworks that underpin financial investment, the construction of technological infrastructure as well as educational practices; both pedagogical and heutagogical. At the same time, governments, along with funding agencies, manage and control the

flow of financial resources which are crucial to establishment of technological infrastructure as well as development of pedagogical expertise essential for the success of technology-enhanced learning, online education and MOOCs. On their part, experts and investors in ICTs and Instructional Technologies (IT) manage and control the technological resources. They mobilise these resources through the development of learning management systems as well as technological support needed during courses and programmes. Academics manage and control, to a significant extent, course content and expertise that enables a constructive alignment of learning outcomes, content, learning activities, assessment and learning technologies. As for learners, they manage and control heutagogical resources such as time and effort invested in learning, passion, dedication, perseverance and confrontation of failure, to turn it into a learning resource.

A framework for collaborative design and investment in MOOCs and open education

Effective design of courses and programmes aligns the content, activities, assessment and technologies to learning outcomes. The design is flexible enough to enable learners to reorganise course components in a way that make sense to learn and address problems that matter to them, in case this is needed. A flexible design can also enable a learner to find an alternative way for learning when the original tutorial design does not work at the specific learner's end. The reorganisation of course components and planning alternative learning way by learners themselves to meet their own goals or overcome unexpected challenges at their own end can be referred to as a heutagogical design. Such a design helps learners adapt the MOOC content to their own setting, the practice often referred to as *cultural translation* (Nkuyubwatsi, 2014b, p. 23). Hence, a flexible design empowers learners as decision makers and problem solvers who contribute to shaping their own development.

Technological resources contribute to enabling technology-enhanced learning, open education and MOOCs. Technologies allow the production of educational resources in electronic format, which make them *non-rivalrous* (Weller, 2011, p. 85). The *non-rivalrous* aspect of learning materials is a critical condition for the massiveness of MOOCs. Weller (2011) argues that taking a copy of an electronic learning material does not prevent others from accessing them. Moreover, the quality of the digital contents shared online is not affected by their massive accessibility and use. This is what enables MOOC providers to simultaneously reach tens or hundreds of thousands of students in a single course, a practice that cannot be accomplished via campus-based education. When financial resources are limited, the MOOC model can help maintain the values of equity, equality and diversity at a minimal cost. This would, especially be the case when financial resources are invested with other types of resources discussed earlier.

The rivalrous/non-rivalrous nature is not necessarily limited to the content. Some resources in the five categories discussed earlier are inherently non-rivalrous while others are rivalrous. Some of the rivalrous resources can be transformed into non rivalrous ones or can contribute to non-rivalrous education depending on how they are invested. Heutagogical resources are non-rivalrous in that a dedicated learner who invests effort and time and perseveres to succeed does not prevent others from learning or investing in a similar way or otherwise. Some pedagogical resources such as tutorial support are rivalrous. Learning content in digital format can still be relatively rivalrous when it is not openly licensed due to financial resource attached to it. The price of digital content that is not openly licensed often varies depending on the number of users. If financial resources are limited, the number of users has to be limited as well. When the content is openly licensed, however, the rivalrous aspect disappears and the content can be adapted and redistributed to make it widely accessible and usable without any restriction related to the number of users. Value can be created

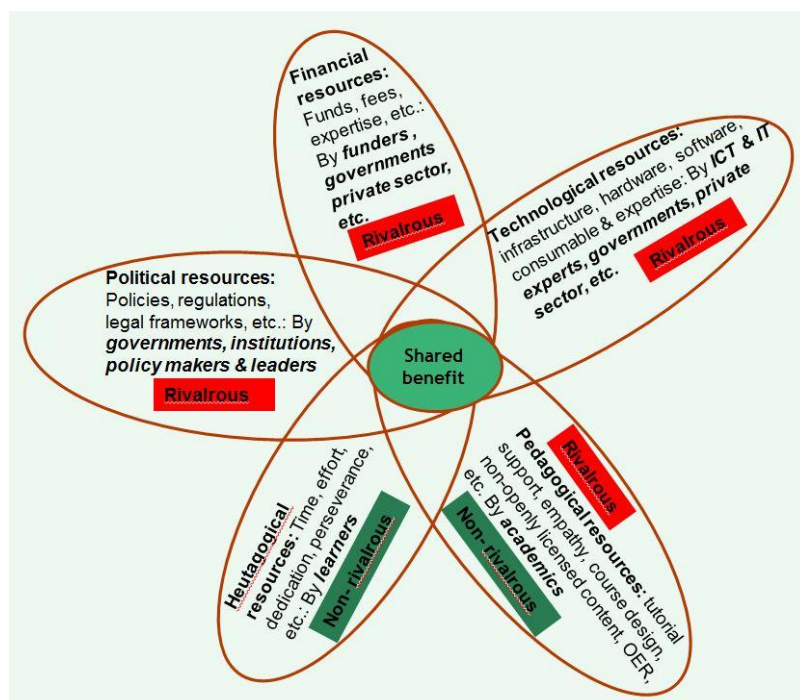
for a huge number of learners who pay low fee to cover the production cost as opposed to creating value for a few learners who pay a high price. Technological resources are rivalrous. Internet bandwidths serve specific numbers of users and once these numbers are exceeded, the quality of connectivity gets poor or the connectivity collapses. Most technological resources are also attached to financial resources. Financial resources are rivalrous in that once there is a specific budget and these resources are not equitably distributed, those who take more do so at the expense of others who will only have less or none. Political resources are similarly rivalrous in that they are restricted to a limited number of people and organisations in the societies. However, these resources can enable non-rivalrous or rivalrous education, depending on how they are invested. Open education policies that acknowledge, validate and accredit measurable competencies developed through heutagogical investment on openly licensed resources and open courses contribute to non-rivalrous education. On the contrary, policies that promote education as a commodity to be purchase for consumption make education highly rivalrous. Hence, a thoughtful investment of different types of resources can make education less rivalrous.

Collaborative investment in MOOCs and open education can build on lessons learned from initiatives on accreditation of learning accomplished via MOOCs. In countries where students financially contribute to education, a small fraction of the cost of campus-based education would be enough to defray the cost of MOOC and open course production if learners were to receive credit for success in these courses. For instance, students in the Georgia Institute of Technology MOOC-based Master's Degree in Computer Science only pay about \$6,600 (Lewin, 2013; Kahn, 2013) as opposed to \$25,000 (in-state tuition fee) or \$60,000 (out-of-state tuition fee) paid by campus-based students for the same degree (Dodson, 2013). In other words, these MOOC students can earn the same degree but pay only 26.4 percent or less of the tuition fee paid by on-campus students. Arguably, such a practice was enabled at Georgia Institute of Technology because MOOCs were integrated in the institutional policy and legal framework that underpins accreditation and certification. In this way, political resources were synergistically invested with other resources. Therefore, collaborative investment of pedagogical, heutagogical, financial, technological and political resources creates value for all stakeholders.

In the light of Owens' (2012, p. 223) framework for leading innovation strategies and Weller's (2011) concept of non-rivalrous resources, a framework for collaborative investment of the five types of resources is laid out (Figure 1). This framework delineates the resources, the managers/controllers of the resources and the rivalrousness of the resources. The framework is relevant for collaborative investment in both MOOCs and open education.

It is worth noting that not everyone is necessarily a heutagogue. Some learners may prefer on-campus education or conventional online and distance education with more tutorial support. Others may benefit from the flexible environment offered by the MOOC model. To accommodate a diversity of learners, MOOCs and open courses can be used with other modes of education as complements. Nkuyubwatsi (2014a) argues that MOOCs and other modes of education delivery can be used together to achieve social inclusion and equity. For this to happen, education needs to be diversified to ensure value is create not only for learners who are able to invest in it financially, but also for those who cannot afford it, but are eager to invest heutagogically. A combination of conventional and open modes of education, MOOCs included, may help maintain the values of equity, equality and diversity in a cost-effective way.

Figure 1 A framework for collaborative investment in MOOCs and open education



Adopted from Owens (2012, p. 223) and Weller (2011, p. 85)

Addressing the quality concerns within the collaborative investment framework

MOOCs have triggered concerns due to low completion rates, the lack of appropriate identity checks during assessment (Cisel, n.d.) and the limited tutorial support. The completion rate is less than 10 percent in most MOOCs (Kizilcek et al., 2013). However, counting the MOOC completion rate using the campus-based yardstick may be misleading. Anderson et al. (2014, pp. 688-690) identify six types of MOOC learners: *viewers*, *solvers*, *all-rounders*, *collectors*, *bystanders* and *archaeologists*. Viewers watch videos and submit a few or no assignments. Solvers submit assignments and watch a few or no videos. All-rounders watch videos and submit assignments with a good balance between the two types of activities. Collectors download MOOC materials and submit a few or no assignments. Bystanders enrol in MOOCs, but their participation remains minimal, if any. As for archaeologists, they start their first action after the course has been completed.

Educational quality needs to be redefined as an outcome of collaborative investment and management of different types of resources. This requires integrating learners among other stakeholders in quality enhancement rather than treating them as consumers of “high quality” commodified education. Treating learners as consumers of commodified education steers their interest away from skills, expertise and competencies toward grades and diplomas (Wright, 2014, para. 8). There is need for shared benefit for all stakeholders in education to catalyse collaborative investment of political, financial, technological, pedagogical and heutagogical resources. Such a collaborative investment can contribute to addressing the challenges of access to and quality of higher education. Opening access of high quality education helps bring about social empowerment (Mulder, 2007; Lane, 2009; Lane & Van-Dorp, 2011). More specific to MOOCs, learners who make enough heutagogical investment to get the most from these courses for their own self-empowerment benefit as they would do in on-campus courses, or even more thanks to the flexibility

offered by MOOCs and online education. Unfortunately, the majority of MOOC students do not make such an investment, probably because they do not see enough value or benefit from their effort. The involvement of all stakeholders as collaborative contributors to quality enhancement and co-beneficiaries in MOOCs would empower them as collaborative solvers of current problems.

One of the problems these collaborators can address is accreditation of learning accomplished via MOOCs. According to Wordsworth (2014, p. 209), motivated learners engage deeply with their learning and “are committed to learning and push hard to complete assignments at the highest possible level of quality”. Accrediting learning accomplishment in MOOCs would boost students’ engagement. Lane & Van-Dorp (2011) highlight that adult learners want to have their informal learning converted into formal credits, certificates and qualifications. For that to happen, achievement of learning outcomes in MOOCs would have to be assessed through an invigilated examination. If MOOC students meet the same learning outcomes and high standards as campus-based students, their learning could be accredited as campus-based students’ learning is. An invigilated examination for assessing learning from MOOCs has been widely recommended as a precondition for awarding the European Credit Transfer and Accumulation System (ECTS) credit (Cisel, n.d.; Kopp et al., 2014; Verstelle, Schreuder & Jelgerhuis, 2014; Iversity, 2013). To acknowledge MOOC students’ heutagogical investment, these students would only pay a fraction of the tuition fee in conventional higher education in their respective jurisdictions if examination processing fee is needed.

Economic viability and sustainability within a collaborative investment business model

For MOOCs, there are different ways of designing economic sustainability and business model. Decisions and choices between the *pedagogy of scarcity* (Weller, 2011, P. 88) and the *pedagogy of abundance* (p. 85) need to be made. While digital materials available online are *non-rivalrous* (Weller, 2011, p. 85) as discussed earlier, MOOC instructors tend to be perceived as rivalrous resources by learners who do not make enough heutagogical investment and inexperienced ones. According to Canning & Callan (2010), inexperienced learners may need pedagogical support to develop their heutagogical investment capacity. Campus-based education is inherently rivalrous because building physical campuses and classrooms requires enormous rivalrous resources: financial resources. This is what makes campus-based education quite difficult to sustain economically and in many countries such sustainability is achieved only by excluding a huge proportion of the population from higher education.

MOOCs, online education and open education can, however, be made non-rivalrous if the collaborative investment framework is adopted. In MOOCs, online education and open education, teachers who transfer some powers of control to students are more likely to meet the students’ needs (Nkuyubwatsi, 2014a, Barber et al., 2013). According to Boven (2013), students in MOOCs have freedom, power and control over what they learn and how much they engage in the course. In these courses, heutagogical investment can be maximised thanks to this power being transferred to learners. In many MOOCs, teachers’ responsibilities are delegated to students (Nkuyubwatsi, 2014a) and teachers’ and students’ roles are often switched. This happens particularly in MOOC peer assessment when students provide peers with constructive feedback, and thereby learn one of the professional skills needed in the 21st century. MOOC students also have a chance to provide peer mentorship by helping their colleagues who may have difficulties in various aspects of the courses. MOOC instructors’ attempts to monopolise the power and control of the learning process can

becomes inhibitive to many students who would use alternative ways when circumstances in their settings make it difficult to learn the course in its original format.

Within the collaborative investment model, it is possible to adopt the pedagogy of abundance and reap benefits from economies of scale. MOOCs can be opened to thousands of students who invest their heutagogical resources and pay a fraction of what they would pay without heutagogical investment. This action would also contribute to economic sustainability and viability of the providing institutions and other stakeholders involved since the investment in physical infrastructure and the teaching time on the part of academics would decrease. For MOOC students to make maximal heutagogical investment and contribute to this economic sustainability, value needs to be created for them, as earlier discussed. While MOOCs students have a diversity of needs, many of them may be looking for an accredited academic qualification which they can present when seeking professional and further educational opportunities (Nkuyubwatsi, 2014a). According to Kopp et al. (2014), the lack of credit for students who successfully complete MOOCs turns many away from these courses. The authors recommend credit for successful completion of MOOCs in Austria (p. 49). There are still concerns that hinder accreditation of learning from MOOCs such as the possibility to cheat due to the lack of a human invigilator in MOOC exams (Kesselman, 2013). However, many of these concerns can be addressed if a collaborative investment capitalises on economies of scale and creates value for each stakeholder. If MOOCs are made open to a massive number of students who pay a low fee per individual, the fees collected from the entire MOOC cohort can add up to many times the fees collected in a campus-based class. However, this would require designing MOOCs for those in need for education, with their needs in mind, so that they invest in learning. So far, MOOCs have been beneficial to those who already have academic qualifications (Grainger, 2013; Alcorn, Christensen & Emanuel, 2014). Most of such learners are not interested in paying any fee, probably because what they would get is less important than what they already have. Therefore, those who need education still need to be reached and find value in MOOCs for their investment.

Surveying the European terrain for collaborative investment in MOOCs

Thanks to its values of openness, equity, quality and diversity, Europe is well positioned for enabling a collaborative investment in MOOCs. This continent has an unparalleled record in provision of high quality education to EU citizens free of charge. Higher education is free in Norway, Sweden and Finland (Heller & Rogers, 2006) as well as Austria (Kopp et al., 2014), Denmark and Germany (Andrei, 2014). Norway has extended free education to international students from non-EU countries, a tradition that contributes to equity and expansion of high quality education globally. Such practices position Europe in the vanguard in terms of establishment and protection of access to education as a fundamental right (United Nation, 1948). In some other European countries, the price for students is quite low and affordable. In France, for instance, tuition fees may be €650 or below (Spinu, 2013) and this also applies to non-EU students (Weingarten, 2013). In Germany, the initial tuition fee was set at €500 per semester in many universities (Heller & Roger, 2006, p. 98, Weingarten, 2013) but some universities had not charged tuition fees (Weingarten, 2013) till the recent abolition of tuition fee across the country. Andrei (2014, para. 7) argues that Germany benefit more by keeping higher education free of charge than charging tuition fee.

Many European countries also lead in best practices in terms of recognition of prior learning (RPL). The European Commission/EACEA/Eurydice (2014, p. 23) produced a map of such practices across Europe: it indicates that RPL is possible in all higher education institutions and programmes in

Portugal, Belgium, Denmark, Sweden, Finland, Norway and Scotland. RPL is also possible in some higher education programmes in Spain, France, Italy, England, Wales and Ireland as indicated on the map. Portugal has also reviewed teaching, learning and research practices to enable independent learning for the purpose of increasing inclusion (Tomás, 2014). In Norway, a commission appointed by the Government to investigate opportunities and challenges from the development of MOOCs recommended accrediting learning accomplished via MOOCs through the existing RPL system (Kjeldstad et al., 2014). According to the commission, the Norwegian RPL system constitutes a framework through which MOOC students would be assessed and awarded credit. CEDEFOP (2007) points out that RPL could contribute up to 80 percent of ECTS credit in some programmes of study in Slovakia, but there was scepticism because many stakeholders thought non-formal learners cannot develop competences that are comparable to those developed by formal students. These cases are simply a few examples of best practices of RPL across Europe.

The ECTS may be a powerful enabler of accreditation of European MOOCs on a large scale. Some European universities have already started to offer ECTS credit for learning accomplishments based on MOOCs. The Università Telematica Internazionale UNINETTUNO offers ECTS credit on its MOOCs offered on the OpenupEd portal as published on the university's website (<http://www.uninettunouniversity.net/en/MOOC.aspx>). To get ECTS credit, MOOC students have to enrol in a corresponding on-campus course and pay full tuition fee as on-campus students. In Germany, the University of Osnabrück and the Lübeck University of Applied Sciences have also agreed to offer ECTS credit to Iversity MOOCs students who take and pass an on-campus exam (Parr, 2013). Gaebel (2013) notes that MOOCs may be approached differently across Europe and these courses may be used for different purposes depending on issues that each country and institution is attempting to address. This observation is reflected in how the Italian university and the German ones offer ECTS credit differently. Unlike Università Telematica Internazionale UNINETTUNO which requires MOOC student to pay the same full tuition fee as on-campus students for being offering ECTS credit, the two German universities will require students to pay only examination processing fee (Iversity, 2013). It is worth noting, though, that higher education in Italy can be as cheap as €150 per year in some public universities (Weingarten, 2014), which would still contribute to equity and social inclusion in higher education if MOOC students pay that amount. It is probably still early to know how this credit offered on MOOCs is validated by other higher education institutions across Europe.

Another institution that offers ECTS credit on MOOCs is the University of Nicosia in Cyprus. The university was recently planning to start a Master of Science in Digital Currency, which would require a total of 90 ECTS credits. The first course in this master's programme (*Introduction to Digital Currencies*) was planned to be a MOOC which was scheduled to start on 14 May 2014 and would contribute 10 ECTS credits for students who successfully completed it (University of Nicosia, 2014). This MOOC would help students in the master's degree programme save €1,470, the sum required for each of the remaining modules.

To sum up, Europe has a competitive advantage that would position it at the forefront of the MOOC market if collaborative investment in these courses were promoted. Many European countries offer free higher education and MOOCs would enable them to maintain this good practice at low cost. The price of higher education in many other European countries is low for EU citizens when compared to the price in other parts of the world. Many European countries also have a stable system of recognising and accrediting non-formal learning, which would be a solid foundation for accreditation of learning from MOOCs. Moreover, Europe has a robust credit transfer framework, the ECTS, which

would enable recognition and accreditation of accomplishment via MOOCs on a large scale. Finally, some European institutions have already started to offer ECTS credit on learning accomplished via MOOCs, which provides an opportunity to learn from what works and what needs to be improved. All these practices may position Europe as a leader in the growing MOOC industry if MOOC practices are built on collaboration between different stakeholders.

Licensing and other legal aspects

Given the legal framework enabled by ECTS and the record in terms of provision of higher education to EU citizens free of charge, open licensing of the MOOC content may be the appropriate option for European MOOCs. Many MOOCs in Europe are already copyrighted under open licences. Such MOOCs include *Sustainability, Society and You* offered by the University of Nottingham on the FutureLearn platform (Nkuyubwatsi, 2014a) and courses on the OpenupEd portal. Partners in the OpenupEd initiative are committed to releasing their MOOC content under CC BY and CC BY-SA licences (OpenupEd, 2013), which may catalyse a collaborative investment in MOOCs. With open licensing, different academics across Europe will be able to develop, share, and circulate learning resources, which may bring down the MOOC production cost. Instead of developing MOOCs from scratch, open licensing may help course developers spend relatively less time and less financial resources on adaptation of content developed by their peers to their respective settings and on adding more content to enhance the course quality. Adaptation of content developed in foreign settings to local ones is not a new practice across Europe. The University of Jyväskylä (Finland), Josef Stefan Institute (Slovenia) and The Universidad Nacional de Educación a Distancia (Spain) have experience in cultural adaptation of OER produced abroad (Holtkamp et al., 2011). Course programmes may be developed collaboratively between universities across Europe, and this collective effort may cut down funds wasted on duplicated course development. Open licensing will also enable sharing the MOOC content with learners for their heutagogical investment, and learners may contribute to the learning materials developed by academics. If the technological infrastructure available at institutions can host MOOCs, these courses may be hosted at various institutions and shared or circulated via a collective portal such as OpenupEd. Such an exchange across Europe would sustain the existing legacy of provision of higher education free of charge. Alternatively, different stakeholders across Europe may want to collaboratively develop a robust European MOOC platform. In a nutshell, the open licensing legal framework would add value for all collaborators involved in MOOC practices.

Conclusion

Sustainable practices in MOOCs and open education require an investment of at least five types of resources: political, financial, technological, pedagogical and heutagogical. These resources are managed and controlled by different stakeholders, which calls for collaboration among them to accomplish shared success in MOOCs and open education. Through a collaborative investment framework, these stakeholders can invest diversified resources that they manage and control to build together high quality learning. This implies a shift toward collaborative quality enhancement and investment. Collaborative investment may lead to sustainability of MOOC practices if each stakeholder can see the value and benefits from their investment. Building on existing European values of openness, equity, quality and diversity, collaborative investment in MOOCs can position Europe at the top in the MOOC, open education and higher education industry. This requires harnessing the opportunities offered by open licensing and the existing ECTS legal framework and

using them to maintain a pan-European sharing of learning, skills, expertise and accreditation of learners' accomplishment.

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MOOC didactics Matters. A hands-on vision for MOOCs and Connected Learning Practices in Europe by Friederike Siller⁽¹⁾ & Jöran Muuß-Merholz⁽²⁾

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Abstract: Demand for MOOCs across Europe both among academics and practitioners is high. Our Interest is in bringing up ideas for conceptualizing MOOCs that focus on the learner and the learning community tending to put lower priority on instructional aspects instead promoting pedagogical approaches to use digital chances for problem-oriented learning, interest-driven learning and collaboration. The pMOOC format introduced in this paper puts collaborative online projects in the center of learning. Openness is described by four factors (1) Enrolment, (2) Licensing/OER, (3) Infrastructure, (4) and Pedagogics. Conclusions are that Open Learning Initiatives in Europe have an immense chance for the support of the development of competencies among its learners by bringing practitioners from the field together with students and academia. Therefore MOOCs have to value the diversity of its learners and help learners to develop digital literacies and connecting practices online.

For many learners not only in Europe but the whole world, using the Internet has become a vital part of our everyday life. We follow our needs and interests when going online, communicate with others and take advantage of the wide availability of information. At least to a specific degree most of us not only retrieve information but we also create, remix, post and share information online. We value the importance of gateways such as search engines, learning management systems and other services tending to offer a central access point to provide and also manage information for learners. These are excellent starting points and offer broad access to informational, educational and engaging content. *But when we are asked to point out to the chances, the possibilities, and also the requirements for being a learner and citizen in digital society, we need to emphasize that learning has to take place in the internet as a whole, not within a 'walled garden'.* Collaboration and informal peer learning, which we assume as being key aspects for learning, quickly come to a limit e.g. in the discussion forum of a LMS. Things do however get interesting when we glance at those places in the digital jungle where subjects are when online in their everyday lives – no matter whether for formal or informal educational reasons. When arranging learning settings in the internet it is not less than the learner's diversity and plurality visible e.g. via social media, digital tools, blogs and websites that have to be taken into account. A concept for MOOC platforms for multi-cultural Europe that shall also function as an invitation to at least potentially ALL Europeans to join in regardless of e.g. age, region, digital fluency or educational background needs to take off from diversity. So it is not about building a new hotel for learners to come in and stay, it is about a journey from the "teachers" to the learners and the inevitable task for them to find ways of smoothly tying learners together to form and build a community of learners. There is a trump card embedded in MOOCs that is the possibility to invite people internationally to a community that shares the same interest! How better can a sound basis for learning be than being led by interest? Of course, challenges are high as we – to mention just one - have to rethink and redefine formal and non-formal education and the demarcation line between both is increasingly about to blur.

There are indeed many ways to conceptualize MOOCs for Europe. We propose a focus on (a) didactics and pedagogy in the context of lifelong learning and (b) communities among learners and community-building elements that deal gently with the cultural, personal and social interactions of its diverse members. What is needed is a shared, European effort to develop standards for open learning in a MOOC format that among others refers to these two aspects in central positions. And let us note right here: A European approach to MOOCs should not solely consider the best and effective instruction of teaching and learning as e.g. getting to know the "learning material"; it is and should be our aim to help learners develop digital literacy in a way that makes them strong

participants of digital and connecting practices to enhance their empowerment to be responsible citizens of Europe⁸.

The didactic side of MOOCs

Due to the rapid growth of large MOOC platforms, a debate about learning and digital media was sparked at enormous speed. New actors are involved. And maybe it was and is for the first time that eLearning via MOOCs is offered some 'mainstreaming' in formal institutions of education. The 'hype' around MOOCs, the prospect of working business models and positive public appearance for MOOC hosts in higher education seem to have helped. Currently, MOOCs prompt universities and other educational institutions to either back out or get started. You have to have a position in this debate. So which horse to bet on? It is, of course, neither nor. We can however aim at better shaping the theoretical and practical needs and digital opportunities for subjects and groups by open online courses in the education sector.

The differences between xMOOCs and cMOOCs have been discussed at large (e.g. DBIS 2013). For Europe in particular, it is still quite unsolved which model of higher education pedagogy MOOCs will apply on the long run. The large MOOC platforms have been criticized for paying only little recognition to the learner. Peer-to-peer learning, interest-driven learning and adequate appreciation for collaboration within MOOCs might be jeopardized and underpart compared to the interest in the 'M' ('Massive') of the courses. "The internet is an amazing place for learning. But recent high-profile forays into online learning for higher education seem to replicate a traditional lecture-based, course-based model of campus instruction, instead of embracing the peer-to-peer connected nature of the web"⁹. (*Reclaim Open Initiative*).

The authors of this position paper indeed do approach MOOCs in a way that it is not primarily about instruction. Rather than instructional teaching methods via a video-based delivery of information to a high quantity of course participants a didactic model is in need to be promoted that sets the focus on the learner. By offering e.g. case-based or problem-based MOOCs participants work on relevant domain-specific or cross-disciplinary tasks and projects. We hence rely on constructivism as learning theory behind as this is how the digital options for peer-to-peer learning, informal, connected and interest-driven learning can come into practice. At the latest since Seymour Papert's *Mindstorms* in the 1980s multiple different approaches loosely tied to a constructivist perspective on learning is on hand encouraging the implementation of computer technology in education. Among those is e.g. learning by design (Kolodner et al.), communities of practice (Lave/Wenger), case-based learning and problem-based learning (Jonassen et al.). There is no reason to jump over these accomplishments in didactics and learning theory when introducing MOOCs in Higher Education and elsewhere. That is especially valid for open online learning claiming to take connected learning practices and online communities for learning serious. This on the premises, MOOCs have a great potential to change and enhance higher education pedagogy substantially.

Give Europe a "p": The pMOOC Format

Let us showcase in more depth possible implementation strategies for MOOCs from a didactic perspective. We played around with the letter "P" to illustrate our hands-on vision to MOOC.¹⁰

⁸ It is our experience that participants of MOOCs not only value the domain-specific learning outcomes but also the exploration of digital learning tools (Siller et al. 2014).

⁹ <http://open.media.mit.edu/about-us/> (13.9.2014)

¹⁰ These ideas also are the author's result of conducting two project-based MOOCs. At the first one, in summer 2013, more than 250 participants collaborated in the course Good Apps for Children. Within three weeks, participants developed a set of criteria to review apps for children and set up a database with app-reviews. In addition, some participants produced podcasts interviewing children about their favorite apps. In order to

P as in Problem. Participants are challenged to work on authentic tasks and ill-structured problems. They start defining the topics they want to work on as a community. The ‘problems’ are relevant to the learning community and refer to the MOOC title. As participants range from different countries, cultures, ages, backgrounds and languages multiple approaches and perspectives exist when trying to solve a problem. It is the arguments, the disputes and maybe the conflicts that participants value when exchanging their ideas to solve the problems in the community.

P as in Project. Participants work on domain-specific or cross-disciplinary projects (e.g. “create a video tutorial to show us how to save the world”). They submit their own ‘work packages’ or choose one that fits their interests. Usually learners group together, however some prefer to work individually.

Some regularly claim for peer-assistance while others like to lurk or comment frequently. The doors are open so people can jump in and help out or pick the type of task they feel comfortable with while leaving others work on other things to do in order to finish the project. Instructional scaffolding and technical support is offered 24/7. At the end participants meet in the online showroom to present and discuss their project results.

P as in Production. Participants leave the course having produced and published several digital artefacts (e.g. text, video, podcast, mind map, database, wiki). There are multiple ways of contributing ranging from the individual learner, the cooperative work of the learning group and the collaborative work of the community. The work and discussions within the courses are public by default. The digital products document the work of the participants and are there for everyone interested from outside the course. Consequently, artefacts stay public after the end of the course under a license that allows sharing, re-mixing and re-usage.

P as in Participant-Driven. Learners can choose between different levels of involvement and different types of activities. They can leave the structure proposed by the host of the course and continue on their own. It is easy for people with little technical knowledge to participate. English, Spanish or French often are the official course languages. However, learning groups in other European languages have formed as well as groups with learners from different countries.

P as in Partners for Learning. The course is crowded with learners from all over - students, academia and practitioners, young and old, female and male, digital literates and those new to digital technologies participating from all European cardinal points. As many practitioners participate the course also serves as a network to find collaborators and supporters for the own work. The internationality of the course is highly attractive to enhance learner’s professional network. Students appreciate the proximity to the ‘experts’ from different professional fields. Many participants use the results of the course for their further professional life and often use and ask the MOOC community still being loosely connected via diverse social media tools.

Opening Up MOOCs

Openness seems to be fundamental to all MOOC concepts. Obviously, because this is what the first O in MOOC stands for. So far, most of the time the O referred to the Open Enrolment – everyone can take part (though that does not mean at no cost). Recently, one can observe however that some MOOCs try to target specific groups, as e.g. from teacher education and therefore set up some sort

accomplish this, app. 50 teams of mostly four group members formed and started working facing the challenge to match und merge their work with the results of the other groups. This demanding process was supported by scaffolding via e.g. peer-to-peer feedback, peer leading, peer reviewing, coach mentoring and video conferences with the organizing team. A vital role had the course community on Google+. Here participants shared experiences and information, gave each other support and organized peer-to-peer structures. It was interesting to observe that many groups started to leave offered course structures and organized themselves online and offline at places they felt comfortable with (ranging from Facebook and WhatsApp to email, phone and cafeteria).

of restricted access. This might be at least partial a result of didactic considerations and thoughts. I mean, what do you do as a teacher in higher education with a 'massive' learning group? As soon as you make the smallest step away from a video-based delivery of your lecture in a MOOC, you do have a very confusing situation when you try to figure out who actually wants to learn something in your course. Putting this aside, advocates for open education are claiming that open does indeed mean much more than open for everyone to enroll (see *Reclaim Open Initiative* 2013). As this paper focusses on MOOCs more from a didactic and pedagogical perspective, we find the following aspects from 'open' for relevant to discuss. (1) *Open Enrollment* offers the explicit chance to bring together formal learning groups e.g. from Higher Education and Professional Development with practitioners from the field. For Higher Education, this is fabulous. The development of competencies is only partial the acquisition of domain-specific knowledge. It is likewise the ability to perform and transfer your knowledge in real-life. MOOCs offer a high potential to discharge universities while connecting their students to people from their professional field (and beyond).

(2) *Licensing and Open Educational Resources (OER)*. The content and resources provided and even more important the materials and artefacts developed throughout a course can be published under a Creative Commons Attribution (CC BY) which explicitly encourages further processing and use. If that is the case course participants have to agree right away with the registration that the results of the individual, cooperative and collaborative work are published under a CC BY License. It is only then that everyone can reuse, revise, remix and redistribute the course results. That would be a big step forward for the allocation of Open Educational Resources, however, that also would keep many potential interested person and parties away (think e.g. about a topic like entrepreneurship)

(3) *Open Infrastructure*. Digital resources and practices do not have to be incorporated via a single platform. One can argue against a central platform referring to the digital practices of learners which we already described in the introduction. Furthermore, a European way for MOOCs could mean to follow a design principle that upholds open formats, standards, and software. Then there would be no 100% closed shop, instead some sort of Open API would allow connections to other projects and platforms via e.g. EU partner networks. (4) *Open Pedagogics*. Open learning in Europe should claim to allow different styles in participating and contributing for every participant. In doing so open course organization reflects the pedagogical perspective of an *inner openness for learning* allowing a high degree of freedom for the learner.

Connected learning practices among Europe – a Conclusion

Digital technology offers the chance of connecting people. They can choose to connect e.g. based on shared interests. A basic principle for learning is that it is social no matter whether offline or online. MOOCs can play a vital role in serving as a professional network based in a shared interest. Then they can claim to also being a social movement, for it is about connected learning practices. Learners can be very active players in the digital world, and chances are fairly good that the artefacts they present and share online will find an audience. These audiences can be individuals (my neighbor, my hero) and it can be institutions. Wisely put together, institutions of higher education (and beyond) throughout Europe could be cooperating in MOOCs and thereby make the learners in its institutions visible outside its own lecture hall.

Our educational systems in Europe do not need MOOCs for information retrieval. We already have the internet for that. So MOOCs are nothing fundamentally new in the field of teaching and learning with digital media, but they can offer an attractive space for learners to explore digital media for learning in a connected way. It is crucial though that MOOCs focus on the learner and learning community rather than on the delivery of facts. Communities unite people who are curious and interested, often enthusiastic and passionate about a specific topic. So as MOOCs are so strongly obliged to peer-to-peer learning, collaboration and interest-driven learning there are immense

chances not only for informal learning but also and especially for institutions of formal education. It is an interesting fact that participants of a MOOC hardly know each other in person. Still, the network offered to subjects in a MOOC can be a very exclusive starting point to match a person's interest with that of others internationally. That's a strong anchor for learning in a global world eager to find connections to each other – in formal and non-formal ways.

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Abstract

Written from the perspective of an individual lecturer at a European university with no particular know-how in e-learning and online educative devices, this paper aims to understand the MOOC phenomenon that, for a couple of years, has hovered over the field of higher education. A tentative answer is given to the question whether MOOCs will disrupt higher education. It is indeed feared in many corners that MOOCs will hurt non-top universities in favour of the Ivy League institutions by replacing average lectures with the stars of the university celestial sphere. This paper argues that, especially in the European context, such a disruption is highly unlikely. More likely is that MOOCs will evolve into one of the many education tools in higher education.

The point is, then, how this evolution can be turned into an advantage. It is argued that having a considerable degree of inter-institutional cooperation would be an asset. Until now, most MOOCs have been developed by single institutions, but it would be an asset for the European Higher Education Area (EHEA) for European-style MOOCs to be developed by European networks of universities (and eventually other partners). Explicit support for this effort should be offered by the Erasmus+ programme.

Keywords: MOOC; massive open online course; higher education; European dimension

1. Introduction

This position paper was written from the viewpoint of an average higher education economics lecturer – with no more than an average know-how of electronic learning devices – who is confronted with a phenomenon that in some corners is being coined a revolution, i.e. the advent of the Massive Open Online Courses or MOOCs. As far as MOOCs constitute a revolution, it has been suggested that MOOCs are threatening the position of the average higher education lecturer by replacing their lectures with electronic lectures supplied by the star professors from the best universities in the world (Gregory 2012; Kalman 2014).

Simultaneously, the universities of these average lecturers would become superfluous. In this vision, MOOCs function as factors of disruptive innovation that destroys existing systems and replaces them with a different technology. MOOCs could then cater for the well-known Schumpeterian ‘creative destruction’.

It is not simple to formulate an original opinion on MOOCs. The concept is still in the making, leaving much room for speculation on the future role of MOOCs. Despite the limited number of facts, much has been written about MOOCs (see Bonk a.o. 2015 for a recent comprehensive collection on the subject). The Department for Business Innovation & Skills (2013) lists more than 100 publications in

the few years since the MOOC concept appeared. This allows us to act in an eclectic way and browse our way through the literature, picking up what appeals to us in our position of average lecturers in higher education.

The position taken in this paper is that the predicted disruption and destruction will not happen and that MOOCs will be incorporated into the traditional university system, especially in Europe. How the traditional system will incorporate the MOOCs idea will determine which contribution the MOOCs can make towards a more modern style of higher education. We shall therefore make a suggestion on how to augment the value added by MOOCs.

2. What is a MOOC?

A MOOC seems to be a hard-to-define concept with many variants and derivatives. The terminology includes cMOOC, xMOOC, SPOC, DOCC, SMOOC (Hollands & Thirtally 2014, p. 25; definitions will follow).

Starting by dissecting the parts that compose the term, a MOOC should be a 'massive' event comprising numbers of participants that significantly exceed the capacity of the classical university auditorium. Tens, even hundreds of thousands, of course members can be involved. Notably, the notion of 'massive' in such numbers implies the near absence of instructor-student interaction.

The element 'open' cannot be unambiguously determined (Bates 2015). Sometimes it means a free course, other times it means the absence of registration. In both senses, MOOCs stand apart from traditional higher education, which for this matter includes e-learning and online education. The distinction becomes blurred, however, when a fee is required for a MOOC, e.g. in order to obtain a credit. 'Open' also sometimes refers to the access to course material, in the sense that legal, open licensing of course material allows anyone to view, use, download and eventually mix it with own content.

The element 'online' is another discerning feature of the MOOC. The medium for the course is the Internet. However, the difference from traditional online courses offered by traditional universities and open universities is unclear. In addition, divergences can be identified in the sense that, sometimes, offline elements are incorporated into MOOCs, while in other instances, MOOCs are incorporated into regular courses or in blended learning situations.

The element 'course' concerns the binding nature of attending the course. There is a well-defined start and end date of the course, and the frequency of the modules is given (usually one or two weekly). Within this timeframe the course participants are free to choose their moments of study.

The relative clarity of this definition is immediately inhibited by the contrast – present from the start of the MOOC – between cMOOCs and xMOOCs. The c in cMOOC stands for 'connectivist' and was an essential feature of one of the first MOOCs, namely the Siemens and Downs course of 2008 at the University of Manitoba in Canada. The objective of this course was 'for people to experience what it means to be part of a social, technical system of learning where the teacher's voice is not an essential hub but, instead, a node in an overall network' (Siemens as cited by Hollands & Thirtally 2014, p. 25). The network of students was central in this approach, while the role of the teacher remained minimalistic. Through the network course, members could participate by contributing and reacting to each other.

The xMOOC was another early MOOC. Here, the x stood for extra enforcement of the m from massive, pointing at the exponential numbers of course members. The first Stanford MOOCs were the model xMOOCs.

Derived from the MOOC are courses such as SPOCs: small private online courses. The SPOC is not open, but closed, and the MOOC material is integrated in a normal course. A DOCC is a distributed open collaborative course that involves students and teachers from different institutions. It is built upon a network of 'participants situated in diverse institutional contexts, within diverse material, geographic, and national settings, and who embody and perform diverse identities (as teachers, as students, as media-makers, as activists, as trainers, as members of various publics, for example)' (DOCC 2014).

SMOC stands for synchronous massive online course and is characterized by 'life' lectures on the Internet.

Furthermore, there is the MOUC: the massive Open University course (Mulder 2013). The MOUC seems to be the European online higher education community's adaptation of the American MOOC. Equally large numbers of students are envisaged. The course is open in the sense of freedom of choice of moment, speed and location. Different, however, is that the MOUC is paid for and leads to credits (ECTS in fact).

What this terminological abundance shows is that 'the' MOOC does not exist. The MOOC concept is constantly evolving and takes such multiple forms that it becomes difficult to discern from traditional forms of higher education, including online education. It also shows that the thinking about MOOCs should not be restricted by the original ingredients of the concept.

The same fluidity is found when considering the suppliers of MOOCs. In the pioneering period, American companies were involved such as Coursera, edX and Udacity. Some were linked with universities, but always with a distinct profile. With the exception of edX, these companies are for profit. The European reaction came mainly since 2012 and shows a varied image of initiatives, partly driven by university institutions, regular as well as open ones (e.g. OpenUpEd, Futurelearn in UK, MyriadaX in Spain), partly by extra-university institutions (e.g. iversity in Germany).

For completeness, we should also mention that, elsewhere in the world, all kinds of MOOC initiatives are underway. The MOOCs Directory (http://www.moocs.co/Home_Page.html) reports a worldwide increase of the number of MOOCs from 615 in June 2013 up to 2,625 in June 2014.¹¹

3. Hype, revolution or extra spice?

¹¹ What catches the eye from a Flemish perspective is the almost complete absence of Flemish higher education institutions in the MOOC world. The occasional exception notwithstanding, Flemish higher education lacks representation and fails to offer any MOOCs. Other institutions are also practically absent. The European MOOCs Scoreboard, made up by the European Commission, reports 742 European MOOCs as of 1 August 2014. Of these, 10 are Belgian, and of these 10, only one can be situated in Flanders. This can be an expression of animosity towards a new threat, but it can also embody an attitude of wait and see in order to do some cherry picking when the evolution becomes clear. As Voss (2013, p. 7) asserts in general: 'And often their tendency is to examine this as an academic experiment—to study it and wait for outcomes'.

A meaningful quote on MOOCs comes from Joseph Ugoretz (CUNY). According to him, we are ‘...at a place where almost any kind of online learning is called a MOOC, or if it's not called a MOOC, no one pays any attention to it...’ (as cited in Hollands & Thirtally 2014, p. 2). In other words, ‘MOOC mania’ is abundant. The question then is, whether MOOCs are just hype, a temporary phenomenon that will pass after a certain while. After all, the Internet has existed for a couple of decennia and online teaching is nothing new, but their impact on education remains limited. Thus, why would MOOCs make such a difference? Will MOOCs cause a real revolution in higher education? ‘Is this time different?’, as the chief information officers (CIOs) of the members of the Committee on Institutional Cooperation (CIC), a consortium of Big Ten universities plus the University of Chicago stated at the end of 2012. Their answer was affirmative: ‘The effect on residential universities relative to previous experiences and events in the arena will be profound and long-term’ (BIS 2013).

Carey (2012) postulated that before this decade is out:

- ‘The “parallel universe” of an online-age education will reach a point of sophistication and credibility where the degrees granted—or whatever new method is invented to mean “evidence of your skills and knowledge”—will be accepted and taken seriously by employers.
- Political pressure will continue to grow for credits earned in low-cost MOOCs to be transferable to traditional colleges.
- Profit margins that colleges have enjoyed in providing more-traditional education will shrink.
- Colleges with strong brand names and other sources of revenue will emerge stronger than ever, but everyone else will scramble to survive as vestigial players.’

Another opinion makes the parallel with the music industry: ‘Whatever their faults, MOOCs herald an unstoppable “Napster moment,” which will break the old business model of Higher Education in the same way that the Napster downloading site provoked the collapse of the traditional music industry business based on copyrights’ (BIS 2013, p. 13).

It is clear that, in some quarters, the MOOC is seen as potentially very disruptive. Nevertheless, the viewpoint we want to present in this paper is that MOOCs will not so much cause a revolution in European higher education. Rather, we see the European context evolving into a smooth incorporation of the useful ingredients of the MOOC.

For that matter, I think it is essential to make a distinction between the substitution and income effects of MOOCs. The substitution effect signifies the substitution of the traditional methods of higher education (including open education) by MOOCs. Because of the reasons explained below, we think this effect will remain limited. The income effect stands for the expansion effect of MOOCs on the higher education market. Because of the low cost and easy access to MOOCs, additional market opportunities will be created. Participants from poorer countries, graduates and other (e.g. elderly) people looking to expand their knowledge will add to the traditional higher education customer group of youths between 18 and let us say 30 years.

Our position can then be restated as follows. The substitution effect will remain limited and will evolve into a recuperation effect that will hopefully improve the level of teaching in higher education.

Similarly, a more substantial income effect will hopefully encourage ‘institutions to develop distinctive missions that will include considerations about openness and access for different groups of students’ (Yuan & Powell 2013). The remainder of the paper focuses on the substitution effect, as this is where the impact on the situation of the individual lecturer, our point of departure, is situated.

In order to answer the question whether MOOCs will cause a revolution in higher education, we first have to define what such a revolution would mean. Yuan and Powell (2013) discussed the possible disruptive effect of MOOCs, which can be interpreted as follows: a new technology is developed; this new technology displaces the old business model, leading to the exit of the incumbents.

Using the elements of this definition, we shall now try to argue that MOOCs will not cause such a revolution.

- Do MOOCs constitute a new technology?

As became clear in the analysis of what constitutes a MOOC, the borders with open education and even with traditional education are blurred and vague. The use of electronic learning devices such as Blackboard and Moodle is now widespread. The extra element offered by MOOCs is the software that enables a course to become 'massive'. Nevertheless, it is not yet clear how this can be used to improve education. The comparison is made between a situation in which two of a group of 100 students give the wrong answer to a content related question and the analogous situation in which 2000 of a group of 100,000 students give the wrong answer. Such large numbers should inspire the discovery of where knowledge acquisition is failing and establish how to remedy the problem (cf. example given by Coursera's Daphne Koller in a recent TED-talk (http://www.ted.com/talks/daphne_koller_what_we_re_learning_from_online_education?language=en)).

In Holland and Tirthali (2014), however, it is convincingly shown that this rich potential is currently not yet exploited because it proves very difficult to transpose the enormous data treasure generated by MOOC platforms into formats fit for analysis.

- Will the old business model be displaced?

The business models behind the suppliers of MOOCs are diverse and their sustainability is questioned (Kalman 2014). The revenue is supposed to come from three categories of sources: sales to institutions of higher education (e.g. access to platforms, assistance with course development), sales of services to private companies (e.g. advertising, job market related services) and sales to students (e.g. fees, payments for credits). In this last case, the 'open' aspect of MOOCs is endangered. It seems that MOOC providers have yet to create a proper business model. The various business models chosen by Coursera, edX, Udacity, etc. do not seem to be viable in the long run. The search for a viable business model seems to be aiming to offer more conventional credited courses (Kolowich 2013). The competitive advantage of MOOC providers vis-à-vis traditional course providers would then lay in the supposed superiority of their software platforms. Rather than ousting the traditional university business model, the so-called new model would be consumed by the old model. Differentiating between MOOCs on the one hand and MOOCs providers on the other, a movement whereby these providers enlarge their supply will be seen. Thereby, the MOOC suppliers can no longer solely be associated with MOOCs, thus leaving MOOCs to transform into one of the many services offered by traditional higher education.

Another problematic aspect of MOOCs is that its large scale is at odds with the desirability of maintaining an element of instructor-student interaction in higher education (Singh 2014). Taking part

in a MOOC is a solitary engagement resulting in a large fall out. Increasing the commitment of the instructor is logically not an area where MOOC providers have an advantage, but rather the traditional institutions.

- Will the incumbents be pushed out?

The evolution sketched under the previous point shows that the traditional suppliers of higher education services, including online versions, will not be pushed out that easily. As the MOOC providers are likely to offer other services, the traditional higher education providers, including those in Europe, will (continue to) be active in developing and offering MOOCs. It seems likely that the established actors will stay established. This image is strengthened by some institutional features of the higher education field, namely by the strong government intervention in the sector and the lobbying power of universities. These features make it hard for the new actors like the MOOC providers to fight universities' monopoly in the granting of degrees. Illustrative of this is that, recently in the US, legislation to grant credits for passing MOOCs has not been passed (California) or only after a long struggle (Florida).

It is to be expected that traditional higher education institutions will embrace MOOCs if they can generate more income and/or reduce costs, but they will fight MOOC providers if these aspects question their degree granting monopoly.

Moreover, it is not only the supply side that needs to be considered, but also the demand side. MOOCs will only be a threat to the traditional institutions if students shift in big numbers from the regular scene to the MOOC scene (cf. the substitution effect). At present, such a shift cannot be observed, and there are no signals that this will happen in the short term. The different profile of MOOC students, the limited success rate and the accompanying large fall out (up to 95% was reported recently) are illustrative of this. A certain reticence to cross over in the opposite direction also seems to exist. Offers by regular universities in Colorado to navigate MOOC students towards credits attracted no interest. 'Meanwhile, several projects aimed at helping MOOC students navigate existing pathways to college credit have attracted little or no interest' (Kolowich 2013).

Thus, our conclusion is that MOOCs will not cause a disruption. As stated by Voss (2013, p. 1): 'MOOCs are just one spice among many online-education spices, and colleges and universities (and faculty members through their pedagogy) will employ many spices to make the perfect academic creation for consumption'. Another strong image is that 'like Russian dolls sitting inside each other, a single course might now be delivered to a large open MOOC audience, to a much smaller number of SPOC students and then down to an even smaller number enrolled at the bricks-and-mortar campus' (Coughlan 2013). MOOCs will serve as educational resources, rather than stand-alone courses, and will target specific audiences.

Kolowich (2013, p. 3) brings a story that very well reflects the direction MOOCs will take in practice:

'Ronald F. Rogers, Chair of the Psychology Department at San Jose State University, co-taught

an introductory statistics course on the Udacity platform this past spring. Nearly 20,000 people from around the globe signed up for the MOOC version of the course. By June, about 3,000 of them had completed the course and earned a certificate from Udacity, according to the professor. But Mr. Rogers was more interested in the 82 students who were taking the online course for credit through San Jose State. For those students, the course was not a MOOC. It was a conventional online course, just taught on the Udacity platform. Their written assignments were graded by hand by a live human being, and they could contact the professor for help. In turn, Mr. Rogers could log in to the platform, see whether individual students seemed to be stuck—and if so, where—and reach out to them’.

This evolution looks at first sight rather disappointing: from a sensational innovation with the potential to bring revolution to higher education to a marginal redirection of higher education. In the next point, however, we shall look for the bright spot in this evolution.

4. Adding a European dimension to MOOCs

How could the post-MOOC story look in Europe? What are the start and end points of this story?

The starting point is the ‘classic’ MOOC with the following features that distinguish it from traditional education, including online and e-learning higher education:

- an online course on a specific software platform;
- the lectures are videotaped;
- feedback is given at set times through quizzes and exams;
- no personal interaction exists between instructor and student;
- the course has to be taken within a certain timeframe;
- the MOOC does not earn a credit;
- the MOOC is free.

An amalgamated form, adapted by the traditional (online included) institutions of higher education would consist of:

- an online course, videotaped, but with limited access, on the same kind of platform as MOOC;
- feedback, as with MOOCs;
- personal interaction between instructor and student;
- time frame similar to the traditional university semester; deviating frequencies remain possible;
- the course is adapted from a traditional university course;
- payment modalities can differ according to the type of student.

Taken with the rationale developed in the previous point, it should become clear that this process does not constitute a revolution, but rather amounts to a repackaging of existing elements into a new product, hopefully with added value that could occur in various domains. The point is that, a new instrument should effectively contribute to better learning results. Each MOOC variant offers chances to do so, since (part of) the lectures are taped and require only a one-off effort, freeing time to improve

learning results (i.e. through better instructor student interaction and monitored interaction between students). However, this is a general consideration, not only applicable to the European situation.

In the case of Europe, extra salt and pepper can be added to the end product by transforming it into an object of European cooperation. It is a European objective to build an EHEA, eliminating the borders between the member states and allowing students, researchers and professors to freely take advantage of the entire European higher education offer. The considerable amount of work already done and the progress observed in the past couple of decennia (e.g. Bologna, Erasmus programme) could still be supplemented by a Europeanised version of the post-MOOC intended for traditional higher education.

The motives for a European area also apply to the MOOC phenomenon: the fragmentation and the linguistic and cultural diversity are responsible for too much provincialism and duplication. Therefore a collective European response would be welcome (cf. Porto Declaration on European MOOCs, 27 November 2014). The pan-European initiatives concerning MOOCs that are underway, however, almost always amount to the development of a MOOC by a single institution. The European element is usually confined to the marketing of MOOCs through an international website. The problem is that the European element remains absent when it comes to developing uniquely European style MOOCs. If institutions create content together and make it available to others, there is potential for savings. However, if everyone is creating the same thing, the potential for economies of scale is lost. The linguistic diversity in Europe only exacerbates this problem.

Institutional cooperation in developing post-MOOCs is made possible in the Erasmus+ programme under the heading of strategic partnerships. This offers individual teachers the possibility to develop joint post-MOOCs in cooperation with colleagues of foreign institutions. Problematic, however, is that the European programmes are very complicated, especially after recent reforms. Adding to the difficulty is that the EU fails to offer any tools making it feasible for individual teachers, or for international teams of teachers, to develop post-MOOCs. If the EU wants to promote MOOCs, it could envisage the supply of services, directly or indirectly, enabling teachers to concentrate on the essence of the learning process when writing projects to develop post-MOOCs. Offering a platform on which such courses could run, for instance, would add significantly to the ease of writing post-MOOC projects under Erasmus+.

A course developed and shared by various international partners looks an obvious idea, but it is not. Worldwide experience shows that a number of cross-institutional collaborations have already been formed to offer online courses, including MOOCs (Hollands & Thirtally 2014). However, success should not be supposed as the example of Semester Online shows. Semester Online was a US online course pool initiative in favour of developing fully online undergraduate degree programs. During the 2012 media storm surrounding MOOCs, it emerged with a distinctive message, promising small course sizes and live, interactive videoconferencing sessions (Straumsheim 2014). However, before the launch of the pilot, and after intense faculty debate, three of the participating universities withdrew, and the universities and the online provider reached a mutual decision to end the initiative (Straumsheim, 2014). This demonstrates that such collaborations among institutions of higher education are not always easy to negotiate and sustain.

In the European context, the Erasmus+ programme could operate as a lever to launch and continue such inter-institutional cooperation. In the initial stage of the Erasmus programme, the EU supported

the development of networks between institutions of higher education. It could do so again with the specific objective of supporting networks adopting a post-MOOC-concept comprising networks of instructors from a multi-country setting, putting the instructor-student interaction at the fore and offering some kind of technological support for the development of such courses. In doing this the European Union could seize the moment to grab the opportunities offered by MOOCs (Jansen & Schuwer 2015).

5. Conclusion

This paper developed the viewpoint that MOOCs will not disrupt the traditional higher education model. MOOCs will, in the first place, create an extra market for higher education where traditional institutions can become active or not. MOOCs will have a much smaller impact than expected by the MOOC pioneers on the core business of higher education, the servicing of their traditional customer base of youths between 18 and 30. Therefore MOOCs will likely serve as a source of inspiration to adapt traditional courses to the modern times. Arguably in Europe, an extra dimension could be added to the MOOC-concept by stressing and supporting inter-institutional multi-country cooperation in the development of student-centred courses. Erasmus+ could be the vehicle for such support.

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Part 4: Why do we need a shared MOOC platform?

Our MOOC with Moodle by Mary Cooch⁽¹⁾, Helen Foster⁽¹⁾ and Eamon Costello⁽²⁾.

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Abstract

Moodle has widespread adoption in European higher education institutions as a virtual learning environment and has also been used to deploy MOOCs. This paper introduces Moodle in this context and provides a case study of a MOOC delivered through Moodle. During September 2013, the Teaching with Moodle MOOC run by Moodle HQ gave over nine thousand educators an introduction to Moodle. MOOCs have been increasing in popularity in recent years, but to Moodle's founder, Martin Dougiamas the concept is not new: "Moodle.org has always been our MOOC".

This paper covers the pedagogical model that the Teaching with Moodle MOOC is based on, describing activities used in the course, levels of participation, problems encountered and lessons learned. It is not a technical paper, but instead focuses on the MOOC from the facilitator and participant point of view.

About Moodle

[Moodle](#) is an open source Learning Platform (also known as a Learning Management System or a Virtual Learning Environment), provided under the GNU public license. Now twelve years old, it is the platform of choice in over 200 countries with more than 70 million users worldwide. Anyone can use, extend or modify Moodle for both commercial and non-commercial projects without any licensing fees. Supported by a global network of certified [Moodle Partners](#), [Moodle HQ](#) works with developers and educators worldwide to support a fast-growing community of Moodle users.

Moodle and MOOCs

Moodle is also being widely used as a MOOC platform. The history of the MOOC is held to have started in the Connectivism and Connective Knowledge MOOC which was run during 2008 at the University of Manitoba by George Siemens and Stephen Downes. This original MOOC was based around Moodle (Mackness et. al., 2010), however it employed what Downes (2008) terms a connectivist approach whereby the learning space was encouraged to sprout beyond the VLE and seamlessly permeate other networks such as blogs, wikis, Facebook, Second Life, email lists and Twitter.

As MOOCs mainstreamed, dedicated MOOC platforms such as EdEx (open source) Coursera and Udacity (both proprietary) appeared. The Open2Study (x)MOOC platform launched in March 2013, was developed by the Open Universities Australia (OUA), based on Moodle and Drupal (Hartnett et al, 2014). Open2Study provides MOOC courses from 10 Australian Universities, with a handful of other international partners, and has reported over 600,000 student enrolments. Moodle also

appears to be a popular choice of self-hosted MOOC platform. An examination of the homepages and HTML source code of MOOCs in the OpenUpEd MOOC portal revealed several based on Moodle from institutions such as: The Open University of Israel; Slovak University of Technology in Bratislava; Kaunas University of Technology; Moscow State University of Economics, Statistics and Informatics (MESI) and the UK Open University (which also later developed its own FutureLearn platform).

A comprehensive picture of the status of “home grown” MOOC initiatives is difficult to discern i.e. those created by institutions using their own LMS/VLE infrastructure and not one of the main commercial platforms such as EdEx or Coursera, but a scoping literature search shows various evidence such as a Romanian initiative for a national platform based on Moodle (Mustea et al, 2014); small scale MOOCs in Ireland (IT Sligo with 1,270 users) (Mulligan et al, 2014) and the UK (Warwick with circa 600 users) (Sinclair et al, 2014) and some reasonably large scale MOOCs such as from University of Goce Delcev (4,000 - 5000 users) (Kocaleva et al, 2014).

Moodle allows institutions to experiment with MOOCs without incurring the large costs associated with many major MOOC platforms and enabling them to leverage their expertise in their existing educational infrastructure. Moodle is widely deployed in European educational institutions. Although information is difficult to gather, data is available from institutions who have opted-in to register their Moodle site with moodle.org. As of November 2014, according to Moodle statistics, there were several European countries in the top 20 countries by Moodle deployments worldwide including Italy, Germany, Poland, the United Kingdom and Spain, which has 4,763 declared Moodle sites, being second only to the US (Moodle.org 2014). The open source licensing model which lowers costs of Moodle may be an important factor in its adoption and also its strong support community. What may be of particular relevance here, in the European context, is its strong support for language localisation. Moodle is currently being translated by its community of users into over 100 languages including all 24 official languages of the European Union.

In spite of the success and widespread use of Moodle as a large scale learning platform perceptions still exists, stoked perhaps by commercial MOOC interests, that Moodle is not suitable for running courses with large numbers of users (Sánchez Gordón, & Luján Mora, 2014). This paper aims to help dispel such perceptions by providing a detailed case study of how a MOOC in Moodle was implemented and how the features of the platform can be used at scale to realise rich, socially predicated learning scenarios.

The Teaching with Moodle MOOC

Teaching with Moodle: An Introduction was hosted on a Moodle site - [Learn Moodle](#) - designed and developed by Moodle HQ in order to deliver MOOCs.

The MOOC ran for 4 weeks. Anyone who wished to view the course for interest but not actually participate was welcome to do so. 9,522 people from over 150 countries around the world chose to sign up and enrol in the course.

Although the MOOC was delivered in English, participants were encouraged to post in forums and enter data in other activities in their own language. Participants could select their own language in their profile; 53 different languages were selected.

As described in [Why a Moodle MOOC?](#) by Moodle's founder Martin Dougiamas, one of the main reasons for running a MOOC was to show teachers what Moodle is, and to enable them to experience the activities as a student. A side benefit was to demonstrate that Moodle could scale to any size, and could cope with an enormous number of active users and many hundreds of courses.

Live teaching sessions took place weekly, and teaching resources (text and video) were also available to participants. However, the MOOC's strength lay not in its static content but in its social constructionist nature, with participants connecting with each other and learning by creating content rather than consuming it.

Moodle and social constructionism

Moodle's founder, Martin Dougiamas, began developing Moodle as part of a PhD project [Improving the effectiveness of tools for Internet based education](#). From the start, Moodle's design and development has been guided by a social constructionist pedagogy. Moodle uses constructionist referents to model engagement of the participants with the content and each other. Five referents, as outlined in the [Moodle documentation: Pedagogy](#), are the guiding concepts for building communities of learners and as such formed the basis of the activities used in the MOOC.

“All of us are potential teachers as well as learners - in a true collaborative environment we are both”

Forums

The Moodle [forum activity](#) enabled total newcomers to ask questions of those slightly more experienced, and participants freely shared what they had learned and made suggestions for improvement to others. While the vast majority of posts were in English, forum discussions in other languages soon took off, providing support to those whose English was less proficient.

Despite their value in collaborative learning, there were some issues with the management of forums. Newcomers to Moodle were frustrated by the volume of forum notification emails and struggled with searching through forum posts; newcomers and experienced users alike bemoaned the inability to subscribe to just one forum thread; and from a facilitator's perspective, it would have been nice to have had the option to keep particular discussions at the top of the board ('sticky') and to be able to close a discussion i.e. prevent further replies. Granting users a finer level of control over discussions, such as allowing them subscribe to just one forum thread was later developed as a new feature of Moodle (version 2.8) which gives an example of how MOOCs can be used to innovate pedagogy.

Are you a beginner needing help? Post your [question](#) here. Experienced [Moodlers](#) will support you.
 Feel [free](#) to start a new [discussion](#) in your own language!

Add a new discussion topic

Page: (Previous) 1 2 3 4 5 6 7

Discussion	Started by	Replies	Unread	✓	Last post
Topics	 steinie janssen van doorn	5	0		Mary Cooch Mon, 2 Sep 2013, 8:16 AM
Первые уроки	 Valeria Sheveleva	2	0		Valeria Sheveleva Mon, 2 Sep 2013, 7:57 AM
Overwhelmed	 Teresa Cushing	33	0		Kim Dhority Mon, 2 Sep 2013, 6:07 AM
Posting content	 Frederick Daniels	11	0		Michael Cenker Mon, 2 Sep 2013, 6:04 AM
Saludos a todos...	 Mariana Balanzario Gutiérrez	3	0		Maryel Mendiola Mon, 2 Sep 2013, 5:49 AM
Moodle mobile Android App	 Nacho Santa-María Megía	8	0		Nacho Santa-María Megía Mon, 2 Sep 2013, 1:04 AM
Practice course	 Scottie House	2	0		Scottie House Mon, 2 Sep 2013, 12:27 AM
Installing Moodle	 Miguel Angel Mayer	12	0		Visvanath Ratnaweera Sun, 1 Sep 2013, 10:36 PM
Can i use my ipad for the course	 Teresa Cushing	6	0		Chris Jobling Sun, 1 Sep 2013, 10:25 PM
Mobile Learning - "best" activity?	 Rickard Skiöld	4	0		Rickard Skiöld Sun, 1 Sep 2013, 10:17 PM
Live webcast	 Shirley Crawford	11	0		Bill Crawford Sun, 1 Sep 2013, 9:52 PM

The questions and answers forum

Two weeks into the course, the suggestion was made to enable ratings in the forums, allowing participants to provide additional feedback for posters. Participants could rate posts in the Questions and answers forum as 'Helpful suggestion' or 'Solved my problem'. Posts in the Share your good ideas forum could be rated as 'Interesting idea' or 'Will definitely use this idea'. All rating options were positive and more descriptive than a simple 'Like'.

Over 15,000 forum posts were made during the four weeks of the course.

Workshop

A Moodle [workshop](#) allows for self and peer assessment. Bearing in mind the time and language constraints, very straightforward instructions were provided for the task, with an equally straightforward grading rubric. Participants had to write three sentences describing their home country and include a picture and link to the Wikipedia page about their country.



Poland

by **Agata Skibska**

submitted on Thursday, 19 September 2013, 1:10 PM | modified on Thursday, 19 September 2013, 1:17 PM

Beautiful breathtaking landscapes, amazing cuisine and hospitable people. From the seaside in the north to the mountains in the south. In autumn, what we like is mushroom picking in the forests 😊.

<http://en.wikipedia.org/wiki/Portal:Poland>



A workshop submission

After the submission deadline, participants received five submissions from other participants to assess.


Your assessment
 by Trudy Tester
 Grade: 80 of 80

Assessment form ▼

Assertion 1

Are there 3 sentences describing a country?

Your assessment ☐ No ☒ Yes

Comment Your description makes me want to visit Poland :-)

Assertion 2

Is there a picture?

Your assessment ☐ No ☒ Yes

Comment A beautiful picture

Assertion 3

Is there a link to the page about the country in Wikipedia?

Your assessment ☐ No ☒ Yes

A workshop assessment

The aim was both to provide an opportunity for participants to experience a Moodle workshop from a student perspective and also to have an insight into Moodle's grading process.

The deadline set for submissions proved problematic for people signing up for the course late and so the workshop phases had to be changed manually several times in order to allow participants both to make a submission and to peer assess others.

The workshop activity was available during the third week of the course, with assessment of submissions taking place in week 4. Workshop submissions totalled 1116, with 789 assessments being completed.

Many of the activities in Moodle are designed to allow participants to add and edit common content. Two activities in the course - the glossary and database - required participants to contribute, respectively, a key educational term from their country and a favourite national recipe. In so doing, participants were not only learning about how these activities worked in Moodle but they were also

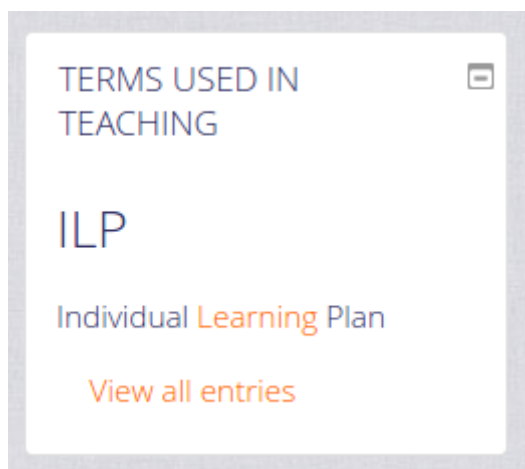
teaching others aspects of their own country and cultures. This connects also with the second referent.

“We learn particularly well from the act of creating or expressing something for others to see”

Glossary

Another participatory tool available in Moodle is the [glossary](#). Participants could add as many entries as they wished to the Terms used in teaching glossary, and could also comment on others' entries. Glossary entries were given value by being displayed on the course page via a [random glossary entry block](#), with a different entry displayed each time the page was refreshed. A further way that glossary entries were given value was by having them automatically hyperlinked to elsewhere in the course where the word was used (using the [glossary auto-linking filter](#)). However, this feature caused some annoyance with hyperlinks within words (e.g. 'ID' within 'provide' was auto-linked) until the the auto-linking filter was restricted to match whole words and made case sensitive.

1350 glossary entries were made during the four weeks of the course.



A random glossary entry block

Add an educational term, phrase or acronym with its definition here.

Search ☒ Search full text

Add a new entry

Browse by alphabet Browse by category Browse by date Browse by Author

Browse the glossary using this index

Special | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | ALL

Page: (Previous) 1 2 3 4 5 6 7 8 (Next)
ALL

M

Metacognitive Skills

Metacognitive skills are usually conceptualized as an interrelated set of competencies for learning and thinking, and include many of the skills required for active learning, critical thinking, reflective judgment, problem solving, and decision-making.

<https://dts.lectica.org/PDF/Metacognition.pdf>

Keyword(s):
metacognitive

▼ Comments (1)

 Helen Foster - Thu, 20 Nov 2014, 9:28 AM
Interesting information in the pdf.

Add a comment...

Glossary: Terms used in teaching

Database

As with the glossary, participants could add entries to a [database activity](#), and also rate and comment on others' entries.

1070 database entries were made during the four weeks of the course.

Database: Food for Moodlers

[View list](#)[View single](#)[Search](#)[Add entry](#)

Page: (Previous) 1 ... [1061](#) [1062](#) [1063](#) [1064](#) [1065](#) [1066](#) [1067](#)

Fries



Long, thinly cut slices of fried potato, often incorrectly referred to as 'French fries'.

Type: Vegetarian

[Recipe](#)

Record added by [Helen Foster](#) - Wednesday, 28 August 2013, 4:23 PM

Rate: ?

▼ [Comments \(5\)](#)



[Mary Cooch](#) - Thu, 29 Aug 2013, 9:23 AM

We call these chips in England 😊

A database entry with rating and comments

Wiki

Lessons learned from the Moodle [wiki activity](#) highlighted that tasks needs to be very clearly explained and explicit instructions given to participants about the use of this tool. In addition, adding some example content on the first page with links to other pages could provide guidance for participants in how to start and prevent lots of people from attempting to edit the first page at the same time.

630 edits to the first page of the wiki were made and around 250 new pages were created during the four weeks of the course, though many pages were not connected to other pages.

Practice courses

Each participant had two parts to their learning: a collaborative aspect in the main course *Teaching with Moodle* and their own practice (sandbox) course. A [course](#) in Moodle is a learning space typically used by a tutor with a class, for either remote or blended learning. Tasks were set each week for the participants to try out in their own course. As their courses developed, participants were asked to share the link to their course so others could go in and review them. Participants were encouraged to use OER resources in their own practice course and those who felt their content was of sufficient quality were encouraged to share their courses with others on [Moodle.net](#).

Having their own course to practice in was seen by participants as a valuable element of the MOOC, although being able to enrol other users manually as students into a course did result in one participant accidentally enrolling all users on the site into their course, causing confusion when unexpected email notifications were received. However, people were generously prepared to forgive and forget after an apology from that participant and everyone was unenrolled. From then on, [manual enrolment](#) was disabled.

2646 practice courses were requested and set up for participants during the four weeks of the course.

“We learn a lot by just observing the activity of our peers”

The participants page allowed everyone to see their fellow participants in the course with links to everyone’s profiles.

My courses
Teaching with Moodle ▼

Visible groups
All participants ▼

Inactive for more than
1 days ▼

User list
Brief ▼

Current role
All participants ▼

All participants: 8498

First name : All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Surname : All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Page: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 ...425 (Next)

User picture	First name / Surname	City/town	Country	Last access ▼
	Víctor Hugo Chávez Marín	Pucallpa	Peru	5 days 3 hours
	Αλέξανδρος Νικολάου	Καρδίτσα	Greece	5 days 7 hours
	Wahyu Purnomo	Malang	Indonesia	6 days 9 hours
	葛文双	beijing	China	7 days 16 hours
	Helena Jaeger	Flop	Brazil	7 days 22 hours
	Jose Valiente	Madrid	Spain	8 days 3 hours

Teaching with Moodle course participants

Using a Moodle site to actually teach learners about Moodle meant that their every experience was a learning one - reading forum posts, looking at the glossary and database entries and courses of others and seeing how other aspects of Moodle worked - blocks, email and messaging notifications and so on.

“By understanding the contexts of others, we can teach in a more transformational way (constructivism)”

When MOOC participants first joined the course they were given an introductory task as their first forum post of the course to provide some information about themselves.

Come and introduce yourself and get to know each other before the course opens on 1st September 2013.

Activities in this course are in English; however, you are welcome to post in your own language. 😊

Add a new discussion topic

Page: (Previous) 1 ... 20 21 22 23 24 25 26 27 28 (Next)

Discussion	Started by	Replies Unread		Last post
Coming from Hanover	 Sebastian Becker	1	0	Greg Walters Wed, 21 Aug 2013, 8:39 PM
Greetings from Italy	 Fabio Manuppella	0	0	Fabio Manuppella Wed, 21 Aug 2013, 8:36 PM
Hello	 Ashley Mason	0	0	Ashley Mason Wed, 21 Aug 2013, 8:24 PM
A bit about me	 Alison Blair	2	0	Derek Chirnside Wed, 21 Aug 2013, 8:23 PM
Representing New Zealand	 Carter Voyce	2	0	Derek Chirnside Wed, 21 Aug 2013, 8:18 PM
Some information	 Birgid Schlind	4	0	Derek Chirnside Wed, 21 Aug 2013, 8:13 PM

Forum: Introduce yourself!

Participants could also edit their profiles, adding a photo, description, [interest tags](#) etc. and view the profiles of others.

Mary Cooch



I am happy to be the course facilitator for *Teaching with Moodle: an Introduction*. I've been a teacher since 1985 and in latter years have begun working with educators globally to make the most of Moodle. I blog and write books about Moodle, and I help ensure the [Moodle documentation](#) is up to date for every new version of Moodle that comes out. I'm also the "virtual" Principal of Mount Orange, Moodle's [School demo site](#) which provides courses with real user data you can explore.

Country	United Kingdom
City/town	Preston
Course profiles	Teaching with Moodle: An Introduction , Practice course , curso de prueba , Information Literacy in Life Sciences , Cats Vs Dogs , A scuola tra le nuvole , TK test course , The Robot Helps
First access	Monday, 1 July 2013, 11:16 AM (1 year 141 days)
Last access	Sunday, 26 October 2014, 2:02 PM (24 days 4 hours)
Interests	Cats , French

A participant's profile page

Cats

[Remove "Cats" from my interests](#)

Related tags: [reading](#), [elearning](#), [Moodle](#), [teaching](#)

Users tagged with "Cats": 11



Helen Foster



Mary Cooch



Ekaterina
Rogozhkina



Michael Spall

An interest tag page

Blogs

Participants were encouraged to write [blogs](#), either in Moodle or on their usual blogging platform, such as Blogger or Wordpress, as a way of sharing thoughts in a public but reflective way. Others could then give comments on the blog posts.

Over 700 blog posts were made and around 700 comments were added to blog posts, glossary and database entries during the four weeks of the course.

Site blog: Learn Moodle

Page: (Previous) 1 ... 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 ...59 (Next)



So many MOOCs...so little time!

by Sylvia Riessner - Sunday, 25 August 2013, 3:18 PM

Retrieved from: [Xploring Education](#)

Anyone on this site

I've been browsing some of the MOOC offerings coming up this fall and trying to restrain myself so I don't bite off more than I can chew. But I'm interested to see how they design, how they facilitate, how they ... [Continue reading →](#)

[Link to original blog entry](#)

[Permalink](#)

► [Comments \(0\)](#)



Learn Moodle

by Maria Lina Tarricone - Sunday, 25 August 2013, 3:15 PM

Anyone on this site

Hello! My name is Maria Lina; I am a secondary school teacher of Italian and interested to technology. I'd like elearning with Moodle!

<http://www.giovanni23corato.it/moodle/>

[Permalink](#)

▼ [Comments \(2\)](#)



Mary Cooch - Sun, 25 Aug 2013, 7:33 PM

Welcome Maria and I hope you enjoy the course.



da Brandão - Thu, 29 Aug 2013, 11:50 AM

Hello Lina,

You already use Moodle in your school as well as other colleagues of yours. Do all teachers use it in your school? Is it part of the school policy? Do the students have access to it?

Blog entries, one from an external site and one with comments from other participants

Surveys

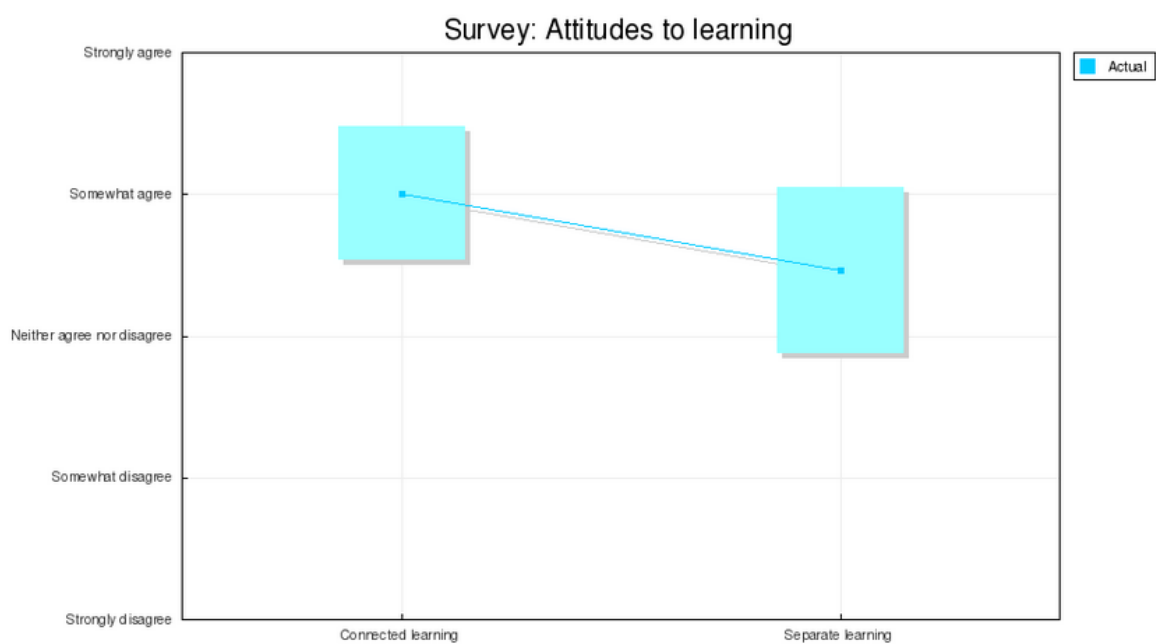
Two [survey activities](#) - ATTLS (Attitudes to Thinking and Learning Survey) and COLLES (Constructivist On-Line Learning Environment Survey) - were included in the course for gathering data from participants to help learn about them, and in particular to determine how well participants felt the course matched their own learning styles, and to reflect on the teaching.

2221 participants completed the ATTLS survey and 1088 participants completed the COLLES survey.

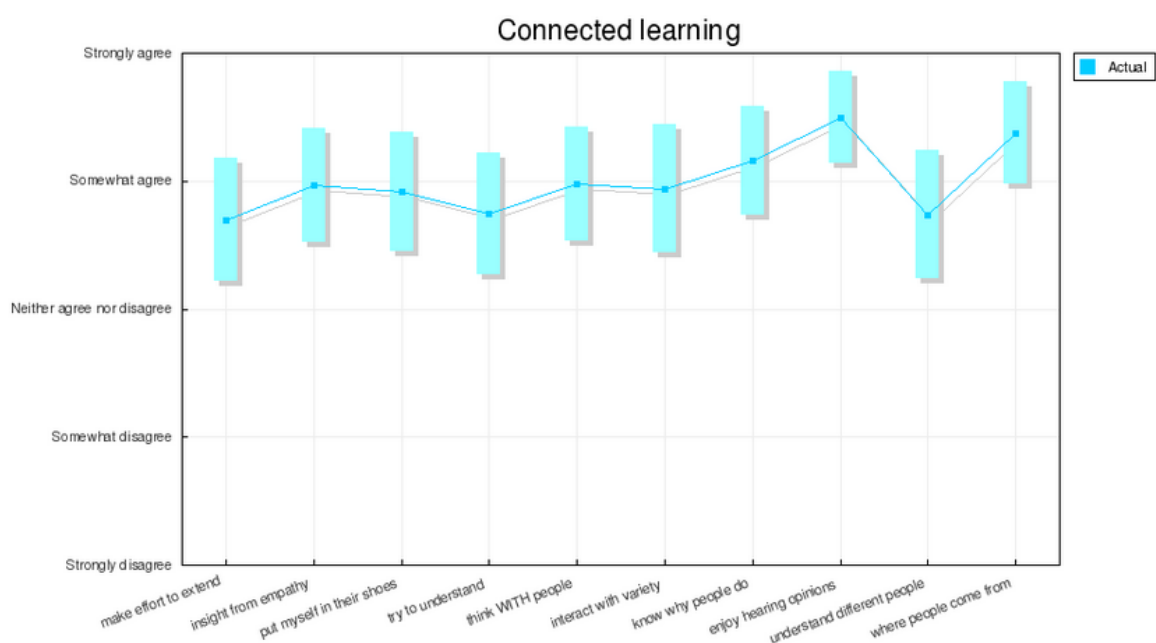
Attitudes Towards Thinking and Learning

Responses	Not yet answered	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
In discussion ...						
1 In evaluating what someone says, I focus on the quality of their argument, not on the person who's presenting it.	☐	☐	☐	☐	☐	☒
2 I like playing devil's advocate - arguing the opposite of what someone is saying.	☐	☐	☒	☐	☐	☐
3 I like to understand where other people are 'coming from', what experiences have led them to feel the way they do.	☐	☐	☐	☐	☐	☒
4 The most important part of my education has been learning to understand people who are very different to me.	☐	☐	☐	☐	☒	☐
5 I feel that the best way for me to achieve my own identity is to interact with a variety of other people.	☐	☐	☐	☒	☐	☐
6 I enjoy hearing the opinions of people who come from backgrounds different to mine - it helps me to understand how the same things can be seen in such different ways.	☐	☐	☐	☐	☐	☒
7 I find that I can strengthen my own position through arguing with someone who disagrees with me.	☐	☐	☒	☐	☐	☐
8 I am always interested in knowing why people say and believe the things they do.	☐	☐	☐	☐	☐	☒

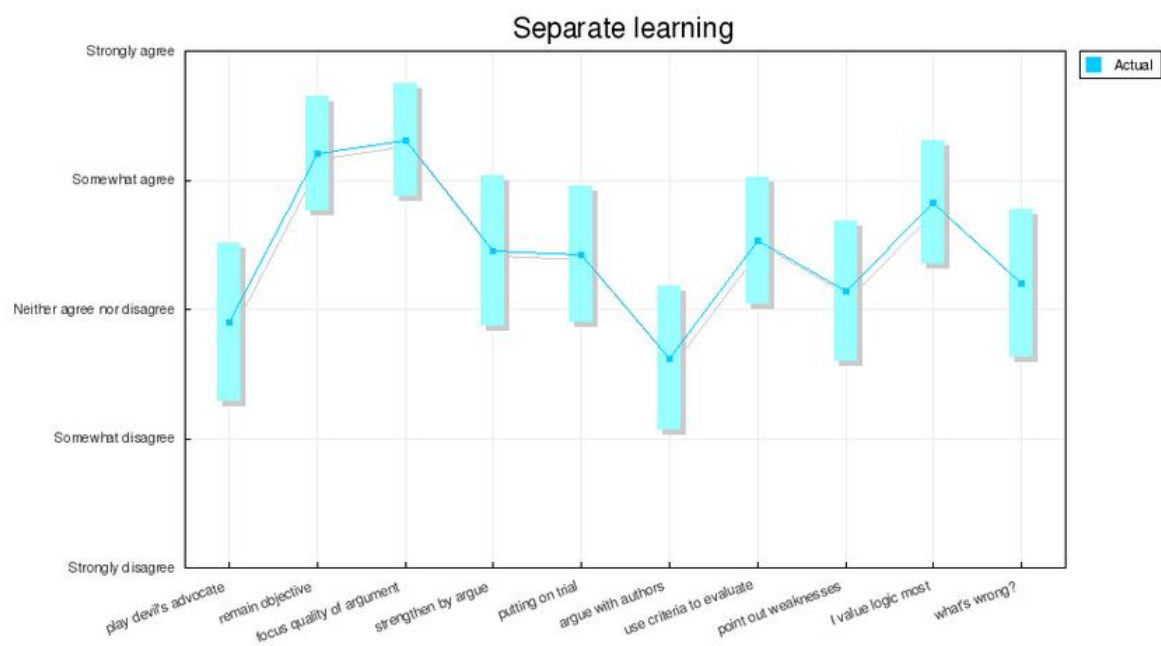
Attitudes to Thinking and Learning Survey



ATLS results summary



ATLS Connected learning results



ATLS Separate learning results

This is designed to help you **reflect** on your participation with others in the course.

All questions are required and must be answered.

Relevance

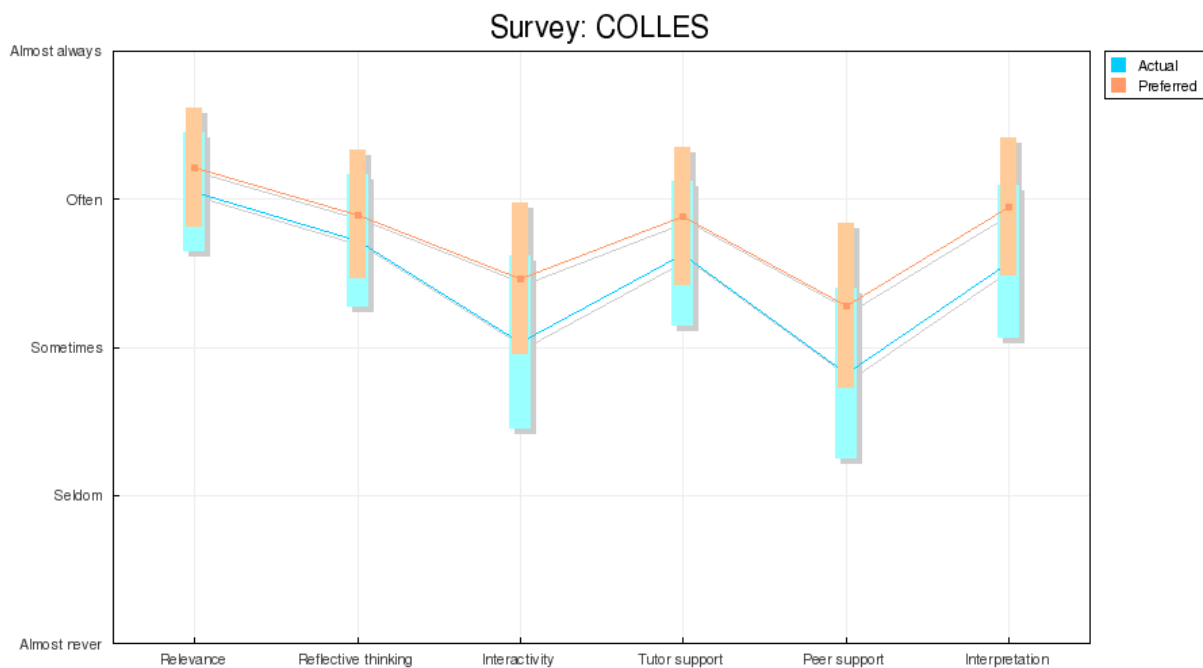
Responses

Not yet answered Almost never Seldom Sometimes Often Almost always

In this online unit...

1 I prefer that my learning focuses on issues that interest me.	☐	☐	☐	☐	☒	☐
2 I found that my learning focuses on issues that interest me.	☐	☐	☐	☐	☐	☒
3 I prefer that what I learn is important for my professional practice.	☐	☐	☐	☒	☐	☐
4 I found that what I learn is important for my professional practice.	☐	☐	☐	☐	☒	☐
5 I prefer that I learn how to improve my professional practice.	☐	☐	☐	☐	☒	☐
6 I found that I learn how to improve my professional practice.	☐	☐	☐	☐	☒	☐
7 I prefer that what I learn connects well with my professional practice.	☐	☐	☐	☒	☐	☐
8 I found that what I learn connects well with my professional practice.	☐	☐	☐	☐	☐	☒

Constructivist On-Line Learning Environment Survey



COLLES report

“A learning environment needs to be flexible and adaptable, so that it can quickly respond to the needs of the participants within it”

Moodle’s design made it easy to modify the [course page](#) during the MOOC without disrupting the participants’ experience of it. Content could be dragged and dropped into different locations and extra activities added with a couple of clicks.

The weekly live hangout was adapted according to events of the week and feedback from participants. There was a mix of reflection on the previous week, teaching for the week’s tasks and highlighting a hot topic, based on the week’s activity.

Feedback

A [feedback activity](#) was used after the first week to gauge participants' initial impressions. Comments made were acted upon in subsequent weeks.



The screenshot shows a Moodle feedback form titled "Feedback: Week 1". The form is set to "Anonymous" mode. A note at the top right states "There are required fields in this form marked *". The first question is "Did you watch the Live launch on Sunday 1st September?*", with radio button options for "Yes", "No", and "I watched the recording afterwards". The second question is "What has been your overall impression of the first week?*", with radio button options for "Outstanding", "Good", "Satisfactory", and "Unsatisfactory". The third question is "How did you find the tasks you were asked to do -bearing in mind the course is aimed at complete beginners?*", with radio button options for "Too challenging", "Just the right level", and "Not challenging enough". Below the questions is a text box for additional comments, with a note: "If you have any comments you would like to make or further remarks about the above questions, please type them in the box below. (You can make the box bigger by clicking on the bottom right corner and dragging it.)". At the bottom of the form are two buttons: "Submit your answers" and "Cancel".

Feedback: Week 1

A final feedback activity at the end of the course gave overwhelmingly positive results, with 92% of participants rating the MOOC as 'outstanding' or 'good'. The course had been designed for teachers new to Moodle and 87% felt it was pitched at 'just the right level'. Participant remarks included for example:

"Moodle is no longer a monster",

"my confidence with Moodle is hugely enhanced"

"great example of a Moodle course - best practice in action" .

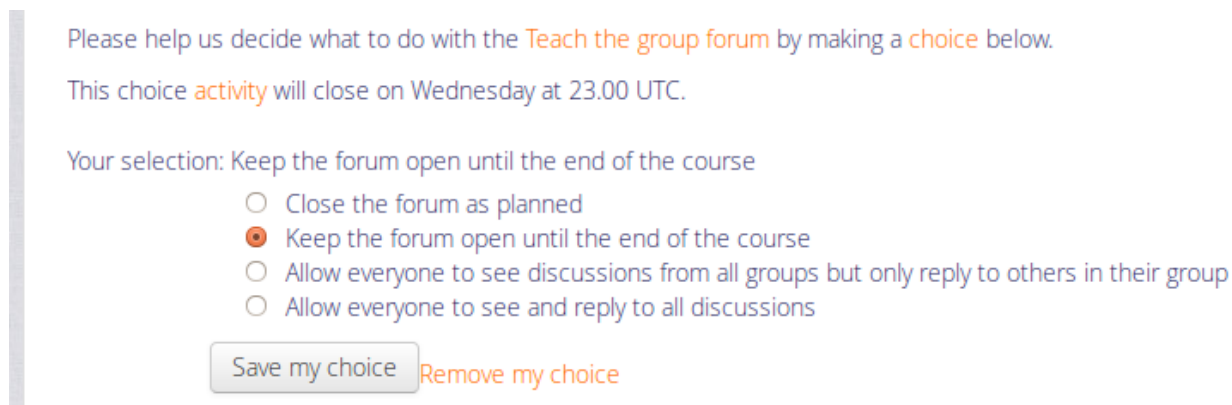
1964 participants submitted feedback in week 1; 896 participants submitted feedback in week 4.

Choice

The [choice activity](#) was used in the first week of the course to gauge the level of prior knowledge of Moodle. The course was for total beginners but experienced Moodle users were welcome to help mentor newcomers.

29% of participants classed themselves as complete beginners, while 49% had “some experience with Moodle” and 3% classed themselves as very experienced users. When asked if they had used another learning platform, 55% of participants said no and 45% said yes. Of those who said yes, 41% had experience of Blackboard.

Another choice activity in week 3 asked participants for help in deciding what to do with a forum set to separate groups (where each group could only see posts from other members of their group). Problems arose with the forum when only one member of the group was still active in the course. Newly enrolled course participants were manually added to these groups but in a showcase instance of social constructionism, one participant began a forum discussion “*Alone in your group?*” encouraging participants whose other group members were inactive to join their discussion.

A screenshot of a Moodle choice activity interface. The text is as follows: "Please help us decide what to do with the Teach the group forum by making a choice below." followed by "This choice activity will close on Wednesday at 23.00 UTC." Below this, it says "Your selection: Keep the forum open until the end of the course". There are four radio button options: "Close the forum as planned", "Keep the forum open until the end of the course" (which is selected), "Allow everyone to see discussions from all groups but only reply to others in their group", and "Allow everyone to see and reply to all discussions". At the bottom, there are two buttons: "Save my choice" and "Remove my choice".

Please help us decide what to do with the Teach the group forum by making a choice below.

This choice activity will close on Wednesday at 23.00 UTC.

Your selection: Keep the forum open until the end of the course

- ☐ Close the forum as planned
- ☒ Keep the forum open until the end of the course
- ☐ Allow everyone to see discussions from all groups but only reply to others in their group
- ☐ Allow everyone to see and reply to all discussions

Choice: Help us decide what to do with the Teach the group forum

Recognition of participation and course completion

It was decided to award [badges](#) for participation and completion of the MOOC. [Mozilla Open Badges](#) give recognition for achievements, are integrated with Moodle and are a popular way of motivating students.

The Learn Moodle participant badge was relatively easy to obtain whereas the Learn Moodle completer badge was only for the most committed participants.

We did not display the completer badge until very late in the course to be sure everything was correct. This had the added bonus of keeping participants in suspense about what they needed to do precisely to gain the elusive badge!

<i>Badge name</i>	<i>Criteria</i>	<i>Number awarded</i>	<i>Percentage of total enrolled</i>
Learn Moodle participant 2013	Awarded to people who have participated in the course by posting in ANY of the 5 forums in the course	3,236	34%
Learn Moodle completer 2013	Awarded to people who have completed ALL 33 activities in the course	638	7%

Discussion

Several lessons can be drawn from the case study presented here. As are to be expected in any richly participatory large scale educational enterprise, challenges arose during the course. The Moodle platform proved versatile at coping with issues as they happened. This may be in part attributed to the high level of expertise of the participants, and other accounts of teaching practice in Moodle based MOOCs would help provide greater context here. The Moodle platform also proved scalable to large numbers of simultaneous users. Although the level of participants did not reach those of some of the largest MOOCs there is other evidence of Moodle being deployed at large scale such as by the UK Open University (Sclater, 2008) and the Moodle community itself runs a Moodle site, moodle.org. Of particular note for example should be the feature that allowed participants to develop their own practice (sandbox) courses.

A third (34%) of the 9,522 users completed the Track A of the course earning a participant badge. 7% of enrolled users went on to complete all activities and earn the more elusive completer badge. The 30% completion for Track A is high compared with MOOC persistence rates (Jordan, 2014). We speculate that the high participatory nature of the course activities may have helped contribute to this by keeping learners engaged. Unlike most MOOCs however this MOOC is not linked to a formal University course of study and in general emphasized the learning of more practical than theoretical skills. The use of open badges to gamify the course may also have had an effect as such mechanisms can increase persistence.

The MOOC demonstrated that Moodle has several tools that are useful for deploying participatory pedagogies at scale. Under the five social constructivist principles outlined here were shown examples of participants engaging in peer teaching and co-constructing knowledge in a variety of ways. Learners engaged in activities using tools which are specifically designed for peer learning such the Moodle Wiki, Database, Glossary and Workshop, all of which allow participants to co-create knowledge and provide opportunities to give feedback on each others' learning. Learning activities using these tools can be designed to run with limited levels of teacher input, which is a key premise of MOOCs. It may not be apparent to some that virtual learning environments that are in widespread deployment, such as demonstrated here in the case of Moodle, have sophisticated capabilities for

delivering MOOC pedagogies. Some commentary on the limitations of LMS/VLEs as MOOC platforms relative to dedicated MOOC platforms may be flawed in this regard.

One of Moodle's strengths is its availability as an open platform. The cost of deploying Moodle is low relative to commercial alternatives. Moreover Moodle is situated in a large and innovative community spread throughout the world and is particularly strong in Europe for example. Moodle has its own OER hub (Moodle.net) where resources at the course level can be shared amongst educators. Moodle.net could be used for example to share courses under a license that enabled their adaptation and modification to local contexts. The ability to localize Moodle for example was one of the determinants of its early adoption in Europe and elsewhere (Costello, 2013) . There is no comparably sophisticated localization infrastructure in existing MOOC platforms and consequently much energy is being expended in an area, where it is arguable, robust solutions already exist.

The future of MOOCs is uncertain. They appear to be here to stay but much has yet to be decided and the rapid innovations in the area show no sign of abating yet. It may be that a convergence of LMS/VLE and MOOC platforms occurs. MOOC platforms might enter the VLE/LMS space but equally mechanisms of leveraging existing courses run on VLEs/LMSes into MOOCs more effectively are also inevitable.

Conclusion

In this paper, we have focused on the pedagogical approach and have aimed to show how a MOOC can be successfully run on a large scale using the social constructionist model which underpins the development of Moodle. We have taken five key referents and outlined how they guided the design and implementation of the *Teaching with Moodle* course.

The organisation of the MOOC, with a common course for everyone using social constructionist-based activities, together with individual practice courses meant that participants had the opportunity not only to discover, create and learn on their own but also to share this learning, collaborate, assist and assess their peers. Feedback at the end of the MOOC suggests that this approach proved very successful with newcomers in building confidence and understanding of how to use Moodle for teaching. As one participant commented: "*This has been a very well organised MOOC - certainly one of the best I've attended*". Moodle, as illustrated here, is a capable MOOC platform and it is argued provides an open platform, aligned with European initiatives such as OpenUpEd.

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Useful links

- [Moodle.org](https://moodle.org) - Moodle community home
- [Learn.moodle.net](https://learn.moodle.net) - the official Moodle site for delivering MOOCs
- [Why a Moodle MOOC?](#) by Martin Dougiamas, Founder and Lead Developer
- [Improving the effectiveness of tools for Internet based education](#) Dougiamas, 2000
- [Moodle documentation](#)
- [Mozilla Open badges](#)

Do we need a shared European MOOC platform by Tiago Santos, Carlos Costa and Manuela Aparício

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In the last few years, Massive Open Online Courses (MOOCs) have dominated the discussion of the role of online learning in the future of higher education (HE). The MOOC movement is mostly based in the USA where the for-profit educational start-ups such as Coursera, Udacity, and the MIT and Harvard-founded non-profit platform edX take the lead. On the European level, many Member States have recognized the potential impact of technology on education and e-learning initiatives have been launched. Some universities have joined the USA initiatives and others were created, like the pan-European initiative OpenupEd, supported by the European Commission (EC), as well as FutureLearn, Iversity, France Université Numérique (FUN), UNEDcoma or Miriada X^[1]. Nonetheless, European initiatives have been isolated and fragmented and the EU risks in lagging behind the USA and some Asian countries that are investing in ICT-based strategies to reshape education and training. The EU recognizes that has a role to play in the promotion of best practices and support exchanges across Member States. The EU intervention concerning the deployment and availability of digital technology and content through financial support, public-private partnerships and recommendations, could generate economies of scale and interoperability benefits, thus avoiding fragmentation^[2]. One solution that fits this line of action would be the creation of a shared European MOOC platform, where HE institutions (HEI) could publish their courses. Such platform would enable the collaboration of (pan-)European HEI in the development of new educational solutions which could otherwise be out of reach if designed by each institution on its own, promoting their international reach, including recruitment and support.

The EC launched 'Opening up education' to provide more open learning environments and technologies in order to education and knowledge can travel more easily across borders and increase international cooperation. The delivery of high quality education contributes for reducing early school leaving and increasing tertiary or equivalent attainment as well as to serve the Europe 2020's goals of boosting competitiveness and growth, maintaining economic and social convergence^[2]. Although the actual European MOOC panorama reveals some cooperation at the trans-institutional level, the offer is fragmented in terms of approaches, technology and markets.

According to Open Education Europa's European MOOCs scoreboard^[3] database, there are 770 European MOOCs, 68 of them starting in September, a growth rate that is comparatively higher than the non-European MOOCs (2476 at the time). Although, the actual European initiatives represent a remarkable effort to open education however, the isolation and fragmentation issues limit their educational reach. In 2013, the European Association of Distance Teaching Universities (EADTU) initiative joined partners in 11 countries to launch, with the support of the EC, the first pan-European MOOC, OpenupEd (<http://www.openuped.eu>). The OpenupEd initiative framework is a good starting point but the portal only aggregates the courses that are actually being offered in the partner institutions' learning platforms. This dispersion hinders the administrative and educational benefits that a single shared platform may enable, and may also cause confusion on users due to the variety of platforms that they must register in order to enrol in the different courses. Meanwhile, other initiatives have been created that involve collaboration at the trans-institutional and trans-national level on a

single platform. This is the case for FutureLearn, a private company owned by The Open University^[4], that partners with more than 20 universities, as well as institutions such as the British Council, the British Library, and the British Museum. We have also France Université Numérique (FUN), another MOOC portal launched by the French Government to gather the national MOOC offer and makes use of edX's open source learning platform^[5]. Miríada X, a project launched with the support of Santander bank and Telefónica through the Universia network and uses WEMOOC open source software^[6]. On the other hand, European universities such as the University of Edinburgh^[7] and the University of London International Programmes^[8] are publishing MOOCs on Coursera, or Delft University of Technology^[9] that relies on edX to publish its courses. But these initiatives may get limited benefits because the actual dispersion of initiatives prevents the generation of economies of scale.

In addition, despite their number and growth, European MOOCs are mainly concentrated in Western Europe and serve a limited number of language communities, resulting in lack of cross-cultural relevance of their educational content due to cultural and language barriers, creating this way a division between those who have access to innovative education and those who don't.

The proposed launch of a shared European MOOC platform would blur this division and bring cost-efficiencies that would enable the participation of a wider range of institutions, especially those in countries where the economic crisis led to cuts in public funding^[10]. This would generate an economy of scale that could lower the cost of development of educational technology and content. A shared platform could also aggregate the contributes of the actual initiatives (through web services and semantic technologies p.e.) and provide the scaffold for a series of shared services like registration, single sign-on, LMS integration and partner agreements on badge/credit transfer and/or networked curricula that could be included in learners' user profiles on the platform. Such platform would represent a step further the EU vision, translated in the key transformative actions through the new programmes Erasmus+ and Horizon 2020 of promoting the “ development of open frameworks and standards for interoperability and portability of digital educational content, applications and services, including OER, in cooperation with European standardization organisations and programmes, and develop components for an efficient educational technologies market place including the coordination of joint specifications for public procurement of innovative solutions to help the deployment of affordable devices, software and content”^[2]. The use of open source software would also facilitate the implementation and maintenance of this platform, as well as its continuous improvement, that could derive not only from the actors involved but also from the open source community. With some similarities with this solution, in terms of development and institutional collaboration, edX expects to launch mooc.org later this year^[11] in order to “broaden access to education by making educational online tools available to everyone, including universities, institutions, businesses, governments, NGOs and individuals”. It will be a partnership with Google to jointly develop the edX open source learning platform, Open edX, in collaboration with leading experts from many edX partner institutions, including MIT, Harvard, UC Berkeley, Stanford, University of Western Australia, University of Queensland, and Tsinghua University^[12]. The company witnessed tremendous interest in both mooc.org and the Open edX technology and registered more than 5,000 inquiries from schools, teachers, foundations and individuals.

MOOCs are a rather recent educational phenomenon and there are still many concerns about their pedagogy, in particular their high drop-out^[8] and low completion^[13] rates. But these are also long

standing issues in distance education and studies reveal that these may be related with student qualification and satisfaction^[14], professional, personal and health reasons^[15], or lack of student engagement due to the non-formal structure of MOOCs^[16]. Some of these problems are not directly related to MOOCs quality or pedagogic efficiency, but that doesn't mean that they should not have their quality assessed. Just like in any other educational endeavour, there is the ethical imperative of providing the best educational experience possible, and that can only take shape through a culture of quality assessment and enhancement. Moreover, even though MOOCs can be an excellent marketing tool in the promotion of institutions, there are reputational risks involved that may only be mitigated by assuring MOOCs quality. The cancellation of Georgia Tech's "Fundamentals of Online Education: Planning and Application"^[17] on Coursera is an example of the negative impact of a MOOC failure on the institution's reputation and stresses out the need of quality assurance procedures in MOOC production. In addition, methods of recognising MOOCs for academic credit are being explored, like the recognition of prior learning of a prospective student's application and licensing arrangements in order to integrate MOOCs into the curricula and awards of third party institutions^[18]. Therefore, there must be a quality assurance process in order to provide credibility to academic qualifications for these accreditation purposes. Nonetheless, we can't use the quality measures developed for formal education because they relate to the specific relationship between the education provider and student, which is fundamentally different in a MOOC^[19]. While traditional higher education filters learners before they arrive, MOOCs filter on the way out and, therefore, we can't rely on quality measures like student satisfaction or course completion because learners don't have the same intentions, nor the same financial and emotional commitment. Responding to the need of a quality assurance process better suited to MOOCs, the OpenupEd initiative created the OpenupEd Quality Label^[20], specifically tailored to e-learning, so it can assure a quality educational experience that can bridge informal and formal learning and provide recognition for the student's achievement. The OpenupEd partners will perform an initial self-assessment and review process that considers benchmarks, both at institutional and course level, and keep an ongoing evaluation and monitoring of courses in presentation. This information should be shared later as standardised evaluation data. A shared platform could take advantage and build upon the OpenupEd Quality Label for the same reasons listed above. The platform could help student and credit transfer across institutions and enable the creation of a digital European learner profile to aggregate student's academic achievements and provide integration with career services and professional orientated social networking platforms like LinkedIn. It could also drive pedagogic improvements due to the possibility of using learning analytics technology at a larger scale. The scale of the platform could generate enough information about learner's activity that would give rise to personalised learning environments that adapt to the learner's needs in order to secure completion. Baer & Campbell^[21] defend that this access to data is not only leading to adaptive learning and personalised opportunities but also improvements in institutional decision making, a key to transform student retention, graduation, and success. The current data^[7] shows that the general profile of the MOOC student is a mid-thirties, well-educated male living and working in a developed or BRIC economy. These results are consistent with the fact that MOOCs are highly dependent on students already having a high level of understanding and ability to learn independently, and to think critically. Therefore, the learning analytics data will also be essential to understand how students learn in MOOCs in order to make them more accessible to less independent students. Nevertheless, their effective use could liberate resources to formal education's mission of

developing and fostering learners' ability to participate meaningfully in MOOCs and other forms of self-learning.

In terms of business models, policy makers and the main platforms are increasingly looking for ways to provide formal recognition of MOOCs in order to develop sustainable business models and flexible models of learning. Typically we have stand-alone courses and students may receive a certificate of completion and can have their examination validated for a fee. In 2013, Coursera revealed that their Signature Track that gives students the opportunity to earn Verified Certificates in recognition for course completion represented 25,000 sign ups and \$1 million in revenue^[22]. This solution alone may not be enough to create a sustainable business model but other paid-for services are also being developed by MOOC providers, such as career services or tuition support services. In addition, some initiatives such as the Open University's OpenLearn and Coursera, are delivering 'badges' that can be integrated into learners' profiles on professional orientated social networking platforms like LinkedIn^[18].

While European universities are facing cuts in public funding due to the economic crisis^[4], in the US, an analysis conducted by Goldman Sachs suggests that venture capital investment in education technology has increased from \$204 million in 2008 to nearly \$900 million in 2012, even if MOOC providers are yet to set out a sustainable business model^[18]. The contracts between Coursera and edX and their partner institutions include proposed profit-sharing arrangements structured on a course-by-course basis. In the case of Coursera, universities will get 6 to 15 percent of the revenue, depending on how long they offer the course and will also get 20 percent of the gross profits, after accounting for costs and previous revenue paid, which means that the company gets most of the cash flow^[23]. Both companies also have contractual elitisms that ultimately will leave the vast majority of universities out of the MOOC movement. A contract obtained says that Coursera will "only" offer classes from elite institutions of the Association of American Universities (AAU) or "top five" universities in countries outside of North America, unless Coursera's advisory board accepts the requirement, although the company has already made several exceptions for non-AAU institutions. EdX also has its own elitism, not on contractual language but it is reflected in the few universities that partner with it^[24]. Due to their for-profit nature (edX is a non-profit but is backed by private capital) we can assume that both initiatives will not partner with any institution that poses a risk to their brand. These companies made a great contribute to the massification of MOOCs, but their development model does not suit the European HE panorama with values like equity and diversity.

An European shared platform would harness the economic benefits that could derive from economies of scale provided by the institutional collaboration in the development of shared educational services and licensing arrangements. A shared cloud hosted MOOC service would also be the key to lower platform infrastructure and maintenance costs by taking advantage of the already installed IT university infrastructures and staff. Concerning the funding, the EU vision^[2] states the willingness to support the development of such services, in which could be complemented by institutions through paid enterprise-tailored courses for corporate training and lifelong learning purposes, sponsorship^[25], or even by the state, as it is the case of the Ministry of Science of the German state of Baden-Württemberg that funded the development of MOOCs in English language to promote usage of foreign languages in education^[26].

Regarding pedagogic content licensing, the Open e-Learning Content Observatory Services (OLCOS) project findings show that Open Educational Resources (OERs) play an important role in teaching and

learning, but that it is also crucial to promote innovation in educational practices so that the OERs don't become a means to an end, but a way to help people acquire the knowledge and skills needed to participate fully within the political, economic, social and cultural realms of society^[27]. UNESCO notes that “resources” are not limited to content, but comprise “three major areas of activity: the creation of open source software and development tools, the creation and provision of open course content, and the development of standards and licensing tools. The outputs of all three may be grouped together under the term Open Educational Resources (OER)” [27]². According to Geser (2012), in the lack of an accredited definition, the definition of OER must be based on the following core attributes:

- Access to open content (including meta-data) is provided free of charge for educational institutions, content services, and the end-users such as teachers, students and lifelong learners;
- The content is liberally licensed for re-use in educational activities, free from restrictions, designed within open content standards and formats;
- Educational systems/tools software is used for which the source code is available (i.e. Open Source software) and that there are open Application Programming Interfaces (open APIs) and authorisations to re-use Web-based services as well as resources (e.g. for educational content RSS feeds).

With the emergence of OER, institutions are able to experiment with new ways of collaborating on the development of educational resources. Already existing case studies show the many different collaborative models for educational resources use and development and explain how open licensing is making it easier to share the effort involved in developing educational resources as well as how it may enable new institutions to be able to start open and distance learning programmes more easily and at less initial cost^[28]. Although MOOCs initiatives like Coursera or edX provide access to their courses to everyone with an internet connection, according to OER principles they do not fully abide as “open” because they have restrictive terms of service that don't permit the copy, reproduction, redistribution and modification of the educational materials. Taking the opposite stance, the Open Education Resource Foundation launched OERu (Open Educational Resources University) ^[29], an independent, not-for-profit network that offers free online university courses using OER and provides more affordable ways for worldwide learners to gain academic credit from accredited institutions. The access to courses is free, but students have to pay assessment fees if they want to get formal academic credentials [30]³. Since the assessment and credential services cost is recouped through the students' fees, Open Education Resource Foundation Director, Wayne Mackintosh, commenting Tony Bates' article on OERu, estimates that the OERu model would have approximately a four-to-one cost ratio when compared with traditional education - a cheaper and more efficient way to use taxpayer's contributions that will probably attract government funding ^[31]. Mackintosh anticipates that the network model will facilitate better coordination on the degree programs and guarantee credit transfer within the network, and implement the necessary quality assurance mechanisms and transnational qualification frameworks. It is also expected that this network will achieve cost-efficiencies through collaboration on shared course development making the calculated breakeven point for sustainability at 30 contributing institutions, at this point it counts with 35 partners from 6 regions ^[32]. With this model, participating institutions get considerably more value in return than the cost of participation. As example, if 10 contributing institutions agree on assembling 2 courses for an OERu credential, each

anchor partner will get 18 courses for the 2 they produce. By belonging to OERu, institutions have the opportunity to be part of a global network of organizations with the same philanthropic mission of providing a more affordable education and to explore new business models and competitive advantages that the burgeoning open education trend is revealing^[33]. It is expectable that an European shared MOOC platform that adheres to these same principles would bring tremendous benefits for education and lifelong learning in a knowledge society. For the educational networks (European, national, regional) and institutions, the OER could provide a long-term conceptual framework for alliances in the creation, sharing and quality control of educational resources based on the re-use of open content. This would allow a higher return on investment of taxpayers' money, through better cost-effectiveness and enrich the pool of resources for teaching & learning practices. Another advantage would be the easy access to resources that may otherwise not be accessible by potential user groups or available in other languages, fostering this way lifelong learning and social convergence. From the point of view of teachers and students, OER can offer a broader range of materials for teaching and learning, and flexibility in their choice, saving time and effort in the re-use of resources for which Intellectual Property Rights (IPR) / copyright issues have already been resolved. This can promote user-centred approaches in education and lifelong learning, providing tools to set up collaborative learning environments and communities^[27].

While a shared European MOOC platform has the potential to provide the benefits discussed above, we must reflect on the possible barriers that hindered its development until this moment. At first sight we have all the administrative and bureaucratic difficulties of managing a project with a large number and variety of stakeholders like this one. From the study of the OERu initiative, research findings also report issues related with the use OERs, assessment and accreditation challenges, and recognition of prior learning (RPL). As it is a rather similar concept to the one we are proposing we will assume that it will face similar barriers. The concept of "openness" is a controversial educational innovation of recent years, and universities are still reticent to reuse openly licensed courses and corresponding assessments. Even when formally approved by another accredited university with the possibility to be adapted locally at no cost and offered in parallel to diversify curriculum offerings at the home institution. To overcome this issue, in a European context, institutions should be strongly encouraged to map qualifications offered, whether by open learning or otherwise, to the European Qualifications Framework, and, within Higher Education, to make them ECTS-compliant [34]. Other concerns are the fear of change, confusion over copyright issues and the possibility of conflict with commercial publishers and other special interest groups. To address these concerns, the EC recommends the creation of a structure of a European (or global) citation database applied to learning objects in order to determine the extent of reuse/repurposing and quality of any learning object, using the same trust infrastructure as is used for scientific publication^[34]. But the greatest barriers to participation are the lack of availability of committed staff members and support from senior management, and the potential costs to support of (re)developing courses as OER. The key to success on this matter is the reliance on a strong base of support within institutions – both in terms of leadership and resources, and an existing culture of openness, including policies and practices around the creation and use of OER^[35].

The assessment of learning and its resultant accreditation toward a credential is also a major hurdle to the integration of open learning with formal learning. While several jurisdictions have developed and implemented national accreditation frameworks, notably the UK and Australia, international

accreditation and assessment services are not currently available. Therefore, it is necessary to develop a robust system that can service thousands or even hundreds of thousands of learners internationally^[35]. The regulatory frameworks should allow for the unbundling of course design, provision and certification, so as to allow OER assessment to happen on a credit-equivalence basis by independent providers ^[34].

In terms of recognition of prior learning (RPL), in order to provide maximum access to learning, in fulfilment of its mandate, OERu acknowledges that learners' prior learning is a valuable commodity. This is already an innovative practice in many tertiary or post-secondary educational institutions and usually has deeply idiosyncratic institutional policies. In some cases, such practices are labor-intensive and not particularly cost-effective or scalable. Due to the broad landscape of diversity involving the OERu network, there is a difficulty in establishing a standard policy and functionality across a range of participating institutions. Even for those institutions already comfortable with their adoption of RPL practice, the participation on such collaborative venture opens the door to more internal decision-making and re-evaluation of mission and probability^[36]. Therefore, initiatives to share resources in the recognition of prior learning, should be piloted and deployed, so that the equivalent learning based on the same resources does not need to be checked on multiple occasions ^[34].

With the help of a shared platform, the students that have geographical or economic limitations, or even health disabilities that prevent that prevent them from attending traditional mobility programmes like Erasmus could experience foreign cultures through the contact with international learning communities. But the platform by itself will not address the cultural and language barriers. *Educational content must have cross-cultural relevance* in order to provide meaningful learning, especially for students that take MOOCs developed in foreign settings. Studies^[37] reveal that the lack of cultural translation is an issue of course design rather than a typical feature of MOOCs, and these can be designed to allow students from diverse cultures to adjust the courses to their specific settings. In contrast to copyrighted material, that restricts cultural translation, OER's make the original versions of the courses relevant and easily understandable to audiences from other cultural, geographical and professional settings, and various institutions in Europe, have already been engaged in cultural adaptation of OER^[37]. The EC recommends that the new programmes Erasmus+ and Horizon 2020 encourage partnerships between creators of educational content (e.g. teachers, publishers, ICT companies), to increase the supply of quality OER and other digital educational materials in different languages, to develop new business models and technical solutions which provide transparent information on copyrights and open licenses to users of digital educational resources^[2]. Best practices, like the translation into foreign languages, the promotion of local study groups or geographical clusters for collaborative learning and the inclusion of projects that require students to find a solution to a real life problem, help students to adjust to the course in ways that make sense to them. If cultural translation is deliberately kept in mind in the design process and students engage in collaborative learning with their peers, the course can be relevant to students regardless of their cultural background ^[37].

Conclusions

Disruptive innovations like MOOCs have the potential to transform HE. Even though the European MOOC movement has been gathering momentum, European initiatives have been isolated and fragmented in terms of approaches, technology and markets, and the EU risks in lagging behind the USA and some Asian countries. To invert this scenario, we suggest the deployment and availability of a

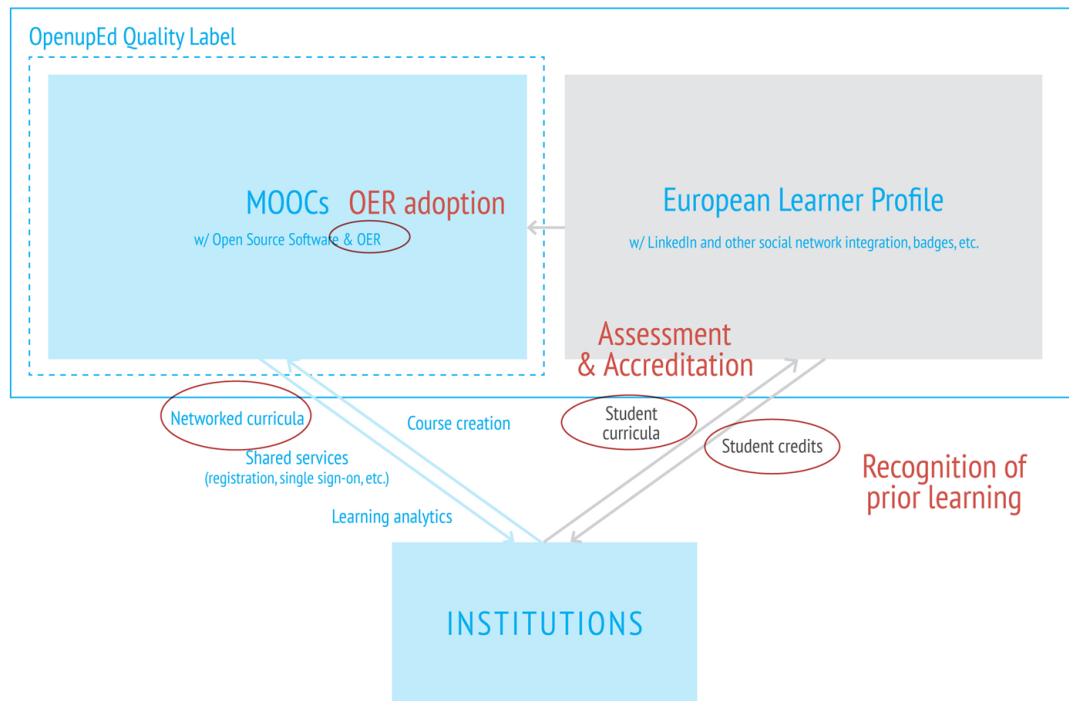
shared European MOOC platform, where HE institutions could publish their courses, in order to generate economies of scale and interoperability benefits. Such platform would enable the collaboration of (pan-)European HEI in the development of didactical models and educational materials, using an open source software infrastructure that would also facilitate its implementation, maintenance and continuous improvement, and also aggregate the actual initiatives. The scale of the platform could generate enough information from learning analytics technology that would give rise to adaptive learning, personalised opportunities and improvements in institutional decision making. Additionally, *the new methods of recognising MOOCs for academic credit in a context of a shared European platform could help student and credit transfer across institutions, promoting the international reach of institutions and students with the quality assurance provided by the OpenupEd Quality Label*, enabling the creation of a digital European learner profile to aggregate and track student's academic achievements. It is also expectable that a shared MOOC platform that adheres to the OER principles would bring tremendous benefits for education and lifelong learning through alliances in the creation, sharing and quality control of educational resources.

The possible barriers that may hinder the development of such platform rely on the administrative and bureaucratic difficulties of managing a project with a large number and variety of stakeholders and issues related with the use OERs, assessment and accreditation challenges, and recognition of prior learning (RPL). To overcome these issues, there must be a strong base of support within institutions – both in terms of leadership and resources, and an existing culture of openness, including policies and practices around the creation and use of OER. It is necessary to develop a regulatory framework to allow the unbundling of course design, provision and certification, and OER assessment to happen on a credit-equivalence basis by independent providers and launch initiatives to share resources in the RPL should be piloted and deployed, so that the equivalent learning based on the same resources does not need to be checked on multiple occasions. This would not only allow a higher return on investment of taxpayers' money, through better cost-effectiveness, but also enrich the pool of resources for teaching & learning practices accessible to potential user groups or available in other languages.

We hope that the deployment of a shared European MOOC platform will enable the trans-institutional and trans-national collaboration required to improve EU knowledge base and take advantage of the impact of technology on education.

Figure 1: European shared MOOC platform advantages and barriers

EUROPEAN SHARED MOOC PLATFORM ADVANTAGES & BARRIERS



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Part 5: European MOOC collaboration

MOOCKnowledge: Establishing a large-scale data-collection about participants of European Open Online Courses by Marco Kalz et al.

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Abstract. While MOOCs have emerged as a new form of open online-education around the world, there are still no cross-provider and large-scale data collections that provides reliable information about demographic details of the population of MOOC participants on the one hand, and their motivation, intentions, social context, lifelong learning profile and impact on study success and career development on the other hand. The MOOCKnowledge project is an initiative to establish a large-scale data-collection about participants of European MOOCs. In this paper we describe the motivation behind the project and discuss the research focus. We explain the structure of the survey-instrument, report about the data collection process and provide an outlook on potential future developments of the project.

1. Introduction

Open educational formats have received a boost of attention with the hype around Massive Open Online Courses (MOOCs). Institutions all around the world are joining initiatives to provide external participants cost-free access to their online-courses. Open Universities around the world have already a longer tradition and history to support open learning practices for people who are unable to follow traditional formats of educational programs provided by institutions from higher education. We have earlier discussed the decontextualized discussion about MOOCs and have reframed it with regard to relations to the open educational resource initiatives and experiences with open educational practices (Kalz & Specht, 2013). In a meta-review Liyanagunawardena, Adams, & Williams (2013) summarize existing research about MOOCs until 2012. The authors state that most studies to date have focused on case studies, the influence of MOOCs in higher education structure or educational theory framing. Although MOOCs generate a plethora of data the learner perspective is still underrepresented in current research.

Fischer (2014) argues that we are currently still in an early development cycle of MOOCs and he states that “both the hype and the underestimation [of MOOCs] are more based on assumption and beliefs than theoretical groundings and qualitative and quantitative data”. While the situation has partially improved recently with several in depth studies about participants of MOOCs using learning analytics or survey methodology (MOOCs@Edinburgh Group, 2013; Anderson et al. 2014; Christensen et al 2014; Breslow et al, 2014) and partially even open datasets mainly focused on U.S

courses (Ho et al., 2014; Jordan, 2014), these isolated initiatives do not solve the problem that a joint research instrument is needed to collect data of participants across European MOOCs systematically to produce a large-scale data collection that will inform on the one hand policy-making on a European level, but also strategic decisions of providers of higher education in Europe with respect to open online education.

The policy background of the project is mainly connected to two activities. The project is embedded in the overall Europe 2020 strategy by the European Commission in which it is argued that it is essential to concentrate on smart, sustainable and inclusive growth to remain competitive and to overcome the current economic crisis (European Commission, 2010). The modernization of the European Education and Training system is one of the most important means to reach this goal with a special focus on early school leavers and increasing tertiary education attainment. In a communication of the European Commission (European Commission, 2012) the European Union argues that efforts must be made to boost the full uptake of ICT, enhancing both the acquisition of digital competences and the modernisation of education to generate growth, employment and social inclusion.

In this position paper we introduce the MOOCKnowledge project – an initiative to produce a large-scale data collection about participant experiences of European MOOCs. We introduce in this contribution the research focus of the project, report about the structure of the questionnaires, discuss data-collection processes and provide an outlook to potential future activities arising from the initiative.

2. The research focus of the project

The MOOCKnowledge project is addressing directly the underrepresentation of the learners in current MOOC research and has the goal to establish a large-scale cross-provider data collection about participants of European MOOCs. The tender¹² published by the Institute of Prospective Technological Studies (IPTS) of the European Commission has initially defined the background of the research. This basic framing of the research project has been further elaborated. According to the contract the project is expected to deliver data about the

- socio-economical profile
- lifelong-learning profile
- ICT-profile
- MOOC profile
- Motivation

of MOOC participants. We have taken these components as a basis to develop a research model for the project. In addition, two associated PhD projects extend the focus with respect to assessment and feedback practices in MOOCs and language learning.

For this purpose we have used two existing research frameworks that have the potential to one the one hand guide the construction of the survey instruments based on earlier validated items, on the other hand these frameworks allow also a systematic analysis of the data at a later stage. These two

¹² Tender JRC/SVQ/2013/J.3/0035/NC

frameworks are the *reasoned action approach* by Fishbein & Ajzen (2010) and *self-determination theory* by (Ryan & Deci, 2000). These frameworks offer a basis for the prediction of human social behavior and consists of background factors (e.g., socio-economic status) that affect different variables and directly influence the behavioural intention to take a MOOC or not. With taking a MOOC we mean that a person enrolls in a MOOC to get access to all the course materials and teachers or support services. The completion of a MOOC is however dependent on individual objectives. We define completion in this research model as the achievement of earlier set personal objectives, which is not the same as completion in the sense of completing all learning activities, tests and finally receiving a certificate.

Background variables are usually referred to as *distal* variables whereas the different variables that directly influence intention are referred to as *proximal* variables. *Distal variables* in our model exist on an individual level, a social level and a task level. These are for example demographic data, the socio-economic status of the participants, their lifelong learning profile, previous experiences with open online courses and IT competences. The *reasoned action approach* identified attitude, perceived norm, and perceived behavior control (i.e., self-efficacy) as *proximal variables*. Attitude is the person's favorable or unfavorable position toward taking a MOOC. Attitude is generally formed by the outcome beliefs of a person and his/her evaluation of these beliefs. For example, a person may believe that taking a MOOC will give her/him more opportunities in the labor market and this is evaluated as very important for that person. Consequently, the person may have a positive attitude towards taking a MOOC.

Perceived norm is the experienced social pressure to take a MOOC. This perceived norm is formed by important others for this person. These important others may be colleagues, family members, supervisors etc. For example, a colleague advises a person to take a MOOC, that person may be motivated to not to comply with this advice but when the boss is advising a MOOC the person may feel to comply with the boss's opinion. Finally, perceived behavior control defines whether or not a person is able to take a MOOC. Does the person have time to take a MOOC? Does she/he possess all the necessary equipment and software to follow a MOOC? All these questions will give indications to the perceived behavior control. All distal variables exert their influence on a person's intention to take a MOOC through these three proximal variables. In other words, these proximal variables are mediating the influence of the distal variables on intention. A next element in the *reasoned action approach* is the intention behavior gap. Not all intentions will result in actual behavior. There may be a dozen of reasons. For example, the MOOC presupposed that the person has some pre-knowledge about the topic of the MOOC which turned out not to be true. This is what Fishbein and Ajzen call *actual behavior control*.

Actual behavior control is moderating the relationship between intention and behavior. Actual knowledge and skills are also moderating this intention-behavior relationship. This actual knowledge and skills refer to all the knowledge and skills that are needed to accomplish the realization of the intention. For example, knowing which codec has to be downloaded to view a footage that is part of the MOOC. It is important to notice that until now, nothing has been said about the MOOC itself such as how it is organized, what its prerequisites are, if a certificate is obtained after completion, etc. These are aspects that the questionnaire will also address. Consistently with the theoretical model the project has two questionnaires planned during the course: a pre-course questionnaire which will assess the proximal variables and intention, whereas a post-course questionnaire which will also assess actual behavior. The reasoned action approach was earlier applied in many different domains

like health, economics and the authors have applied this approach earlier in an educational context, namely to investigate motivations and intentions of teachers to use open educational resources (OER)/digital learning materials (DLMs) (Kreijns, Vermeulen, Van Acker, & Van Buuren, 2014).

Self-determination theory differentiates between intrinsic and extrinsic motivation and assumes three basic needs that each person has, namely competence, relatedness and autonomy. Autonomy is the feeling that a person is the origin of one's action in harmony with the concept of the integrated self. Competence is the feeling that a person is effective, and that there are sufficient opportunities to demonstrate efficacy. Relatedness is the feeling that an individual is connected and valued by others and that one experiences a sense of belonging. If the social environment is not satisfying these basic psychological needs, then negative consequences will become salient with respect to activity and development. In particular with respect to the different types of motivations a person may develop.

From the perspective of the MOOCKnowledge project it is important to have a differentiated picture about motivation because it makes an important difference if a participant is motivated intrinsically or externally. At the moment, very little is known about the motivational disposition of MOOC participants and the relation to their behavior and impact on study success or career development. To be able to analyse the intention-behavior gap more thoroughly we have integrated into the research model of the MOOCKnowledge project work by Gollwitzer about implementation intentions (Gollwitzer & Oettingen, 2013).

Implementation intentions are concrete plans how a specific goal can be reached. This aspect is important, because the huge gap between participants that subscribe to a MOOC and the ones that actually start learning activities points into the direction of low perceived value of a MOOC or missing implementation intentions. These three theoretical foundations are combined with other aspects like usability aspect or interaction experiences in MOOCs taken.

On a long-term perspective, the MOOCKnowledge research model also aims to fill another identified research gap in the MOOC literature. Currently there are some literature studying the economics and social returns of higher education and adult learning, however little has been studied regarding online learning (Carnoy et al, 2013) and almost nothing has been done regarding open learning. Therefore, despite the increasing importance of MOOC offer there is a lack of knowledge about the effects of MOOC on formal study success and career development. This aspect has been integrated as a long term component of the MOOCKnowledge research model and will be realized with a follow-up questionnaire that will be sent to the learners approximately 1 year after participation in the post-questionnaire. Due to the big scale of the MOOCKnowledge project, it is expected that although MOOCs students mainly have a high socioeconomic status and educational background, not only information on the effects on this majority group but also on minority groups (as unemployed people or learners without a degree) will be obtained. In addition to the variations related with the socioeconomic profile of the learners, variations on the economics and educational returns depending on the course topic, the country, the certification etc. will be explored.

3. The survey instrument of the MOOCKnowledge project

The survey-instrument of the MOOCKnowledge project has been developed in several iterations. The pre-questionnaire consists of 5 chapters consisting again of several blocks with a special focus. The chapters of the pre-questionnaire are:

1. Demographic and socio-economic questions
2. Lifelong Learning/Professional Development
3. ICT profile
4. Motivation
5. Miscellaneous aspect

The post-questionnaire consist of 5 chapters each containing again several blocks of items. The chapters of the post-questionnaire are:

1. Demographic and socio-economic questions
2. Learning experience
3. Feedback (partially optional)
4. Assessment (partially optional)
5. Language Learning (optional for specific MOOCs)

After the post-questionnaire participants will be recruited for voluntary participation in a follow-up-questionnaire sent out to participants 1 year after finalization of the MOOC. In all chapters earlier validated instruments and questions are used to reach the highest possible reliability and validity.

4. Data collection and data sharing

The project is set up to primarily collect data from MOOC providers which are part of the OpenupEd initiative or the European project HOME. As a secondary target group the consortium has recently published an open call of interest to other MOOC providers¹³. The project consortium intends to make agreements with as many MOOC providers as possible beyond the initial target-group to produce a large-scale data basis allowing to analyse the MOOC-phenomenon from a European perspective based on scientific evidence.

For each participating MOOC the MOOCKnowledge consortium will implement a dedicated and unique version of the online-survey instrument. The survey instrument consists of a pre-questionnaire, a post-questionnaire and a follow-up-questionnaire. The pre-questionnaire-link will be sent out before participants start the MOOC while the post-questionnaire will be sent after the official end of the MOOC. After each data collection raw data will be shared with the MOOC provider in an open format, preferably in form of CSV-files (comma-separated-values), which can be read by most statistical software suites. Further details for delivery of data will be defined in an agreement with each MOOC-provider. The full cross-provider dataset will be analyzed by the MOOCKnowledge consortium and IPTS will be using the aggregated data to develop future policies as discussed in the introduction of the paper.

¹³ <http://openeducationeuropa.eu/en/news/contribute-researching-impact-moocs-career-development>

5. Future perspectives

Taking advantage of the standardized and cross-provider nature of the questionnaire, at later stages of the project, a benchmarking service will be explored in which detailed results of a single MOOC are compared against several other data categories. With this approach it will be possible to provide MOOC providers a more detailed feedback with regard to how their MOOC investment can be compared to the MOOC initiatives of other institutions. In addition, different approaches will be tested how the anonymised and aggregated dataset can be explored by the general public, ideally in form of a set of linked data (Piedra, Chicaiza, Lopez, & Tovar Caro, 2014). For this purpose the consortium will also explore different data visualization services to be used.

For these services to become effective a sufficient amount of data needs to be collected to deliver a meaningful benchmarking analysis. Attracting a sufficient amount of MOOC providers will be one of the upcoming challenges for the consortium. Potential threats arising from the chosen approach are related to a potential selection bias and survival bias. While the selection bias could exist on the level of the representativeness of the participating MOOCs the survival bias will be related to the ratio of non-successful participants that fill out both questionnaires. To be able to explain the huge gap between subscribed learners and active learners it will be critical to also collect a representative amount of answers from learners who did not reach their learning goal. While these problems might be addressed simply by the scale of the data-collection, the consortium has foreseen statistical corrections but also incentive mechanisms to attract higher response rates from this special target group.

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1 INTRODUCTION

Massive Open Online Courses (MOOCs) are becoming increasingly popular and have been attracting much attention from educational stakeholders. One reason for this hype can be found in their economic strength, as they open new ways for e-learning providers to reach out to a greater audience with relatively little costs, another one lies in their didactic, practical and innovative value that they appear to hold in store.

At the same time, MOOCs offer a vast set of possibilities and chances for learners. These include free and open access to learning materials of high quality university settings; video lectures and textual learning resources provided by experts and subsequent assessment in form of quizzes, surveys and exercises to test participants' knowledge base. So, on a positive note, MOOCs certainly make a valuable contribution to open educational resources (OER) as they are freely and openly accessible for all sorts of learners interested in a particular content with the intention to use, reuse, modify and share it with a larger community. On a more critical note, though, it was found that these learning materials are predominantly set up in accordance within the rather rigid confines of their providers' internalised socio-cultural backgrounds. While the Information Age was aiming at knowledge workers that acquire and share knowledge, often through online channels, the requirements for the upcoming Conceptual Age appear to challenge previous ways of knowledge distribution. This is reinforced by Generation Y (born after 1980) as the fastest growing segment of the workforce. These digital natives are described as creative, ambitious and difficult to manage (Sheahan, 2005) and consequently appear to require a fresh approach towards education in general, and e-learning in particular.

In the following, an outline of the MOOCversity is given and the two major strands are presented. Then, key components of dialogical learning are identified and a micro-analytical lens on cultural features is adopted. By doing so, we claim that an additional form of MOOCs, one that we like to call "enhanced MOOCs" (in short eMOOCs) might be a promising avenue to better understand contemporary learners' needs in a more context-sensitive way where fresh and timely approaches for e-learning settings need to be on the daily agenda of an Age of increasingly adaptive expertise.

2 A SYNOPSIS OF THE MOOCversity

For years face-to-face instruction has been successfully blended with online instructional modes, whereby MOOCs have been playing a crucial role for enhanced online education. In this regard, two major strands have been dominating the scene and their differences considerably impacted the roles taken on by facilitators of each type and also influenced the learning outcome of the participants to a large extent.

2.1. xMOOCs

The most traditional and dominant form of MOOCs are the so-called xMOOCs. They are characterised by holding on to a linear presentation of online classes, based on video lectures, readings, and quizzes while at the same time trying to break the traditional knowledge industry chain by introducing an Internet business mode and applying an operational mode for online education (Xibin

et al, 2013). What is more, most of their learning materials are issued with proprietary licenses and within a relatively closed schedule. It seems that by clinging on to rather traditional structures of online courses, the teacher-centred "sage-on-the-stage" model (King, 1993) is still particularly dominant. xMOOCs are not pedagogically driven and hence in line with the cognitive-behaviorist perspective of learning where information transmission and content delivery are heavily foregrounded.

When taking a closer look at pedagogical models used at xMOOCs, former computer based-learning concepts such as drill and practice programs attract immediate attention. Not only are learning materials presented in video lectures, often followed by short quizzes, learners also immediately receive feedback on whether their provided answers are right and wrong. It is true that discussion boards exist, yet this way of learning reminds of more traditional lectures at University with teacher-centred approaches where the content authority traditionally has all the knowledge and transmits it to the students (see also Bates, 2012; Clarà & Barberà, 2013).

Despite certain limitations, xMOOCs are interesting and fruitful options to get some initial introduction into the respective field of interest or an overview of varying disciplines, especially for learners that draw on limited digital learning experiences. Consequently, xMOOC courses are particularly valuable if they are consciously designed for (digital) beginners with the aim to convey both instructional videos and short quizzes. For learners who seek to get more in-depth knowledge and to discuss relevant aspects with experts or other participants, it was found that the so-called cMOOCs are a more valuable learning resource.

2.2. cMOOCs

The second form of MOOCs, the so-called cMOOC, are underpinned by a connectivist learning approach adopted in a more dialogical environment. This new instructional model was identified as being more dispersed and learner-centred and by taking a more social perspective of learning, it puts greater emphasis on generating new knowledge. At the same time, cMOOCs were found to have a rather complex structure where frequent use of ad-hoc technology and educational resources is foregrounded. One of their main goals has been to allow learners to co-construct meaning through their interactions and hence positively impact the learning process.

The idea behind cMOOCs, in general, is to cope with the new possibilities offered by the Internet in a participatory and collaborative way. In view of the ever-increasing online information flow, the need for a lens that incorporates these dynamics has been pressing. Becoming increasingly aware of the complexity of the Information Age, Siemens (2004) proposed a fresh learning approach which he named connectivism. Siemens argued that it was important to know where information and data can be found and how it might be successfully gathered, used, reused, shared and connected through nodes of information sources. What appears to be crucial here is the way of connecting information and persons by keeping a vigilant eye on the impact of networks. The issue at stake, however, is that connectivism as it is proposed by Siemens, can hardly be labeled a learning theory as previously outlined by Clark and Barberà (2013) and Jadin and Gaisch (2014). Firstly because it does not address the "learning paradox" in terms of "how you recognize a pattern if you do not already know that a specific configuration of connections is a pattern?" (Clarà & Barberà, 2013, p.131). Secondly, it appears that interactions and connections are reduced to a rather static binary form which is contrary to the understanding of learning as a process. Such a process view regards the emergence of knowledge and the quality of interaction as predominant features and refrains from the simplistic perspective of an on/off interaction. Overall, it appears that connectivism is too vague a concept to explain concept development in its full complexity. On a more positive note, connectivism nevertheless points to

relevant issues of learning in and through networks, to the significance of reusing existing knowledge, and to aggregate and transform it to other settings and practices.

Taking these aspects into account, cMOOCs can be regarded as an additional, valuable offer, especially for learners with more extensive Internet and Web 2.0 experiences and a previous knowledge base of the presented learning content. Consequently, heightened awareness of the usage of social media tools such as Twitter or Google+ appear to be a vital component for the success of cMOOC scenarios. By taking learners' abilities of using, reusing and discussing learning materials with other participants and experts into consideration, traditional MOOCs can truly be enriched and further extended beyond instructional videos and quizzes.

2.3 Conceptual Gap

Despite these two well-established forms of MOOC, this contribution suggests that further consideration about a more diversified look at online teaching is a pressing issue. One example for an alternative way of video lecturing is provided by Leuphana University Lüneburg with what they called "Community MOOCs". This form seeks to set the stage for students that are supposed to learn primarily from their peers. By placing particular emphasis on peer-to-peer and personalised learning, their focus is placed on quality rather than quantity, which is further translated in their efforts of getting rid of the adjective "massive" (Zuehlsdorff, 2013). Primarily being designed for a smaller number of participants, Community MOOCs tend to incorporate a more personalised and intensified interaction with the teachers.

This, in our mind, is a fruitful step to meet the changing demands of the emerging Conceptual Age where generation Y seems to be best prepared to navigate shifting spaces and take on multiple identities. It appears that by drawing "on networks that go well beyond group boundaries, not only in terms of societal cultures but also with regard to professions, class or gender" (Gaisch, 2014, p 50), teachers that are capable of dealing with the complexities of increasingly permeable boundaries recognise that "localised social practices are bound to give way to models of variations" (Gaisch, 2014, p 54).

Based on the premise that this approaching new era will require people with a non-linear, intuitive and holistic understanding of the world, it stands to reason that rigidly analytical knowledge workers of the "Information Age" are increasingly becoming obsolete. Hence, this societal evolution points to a number of challenges, many of which will have to be met by educators, also by those who conceptualise or deliver content for MOOCs. Pink (2004) claims that the prevailing left-brain domination of logic, linear and reasoned thinking will soon need to be complemented by a variety of key properties such as comprehensive, metaphorical and contextual thinking patterns.

Against this background, we think it is timely to conceptualise an enhanced form of MOOC - the so-called eMOOC - to stay abreast of societal changes of an increasingly interconnected and globalised world. In this context, the question arises how content should be prepared and presented to accommodate the variety of challenges that awaits current providers. What appears to be certain is that generation Y is very likely to require different, even more context-sensitive approaches. This generation, also referred to as the "Digital Generation" or "Generation www" (Martin, 2005, p 40) is increasingly bringing its values to educational and professional practices and as such is constantly modifying the educational landscape. The answer has yet to be given and in order to give adequate responses to those future conceptual workers, it will be crucial to identify what factors play a decisive role in fulfilling this task.

We are far from grasping the full extent of this new phenomenon. Nevertheless, in the following, it is attempted to present a conceptual approach that synthesises ideas of dialogical learning and micro lenses to culture, hence offering a fresh way to look at MOOCs.

3 CONCEPTUALISATION OF eMOOCS

It is argued here that enhanced MOOCs appear to be a promising avenue for online learning settings that are particularly fruitful for the requirements of creative learners. Such adaptable expert thinkers were found to have the ability to detect patterns in highly conceptual ways, and by doing so, they are capable of relating seemingly unrelated concepts into a holistic narrative.

With this knowledge in mind, we suggest a form of MOOC that not only appears enhanced in terms of context-sensitive teaching and learning approaches by enriching it with the concept of trialogical learning, it also seeks to adopt a micro approach to cultures. For the purposes of a clearer understanding of how learning theories can be implemented into an e-learning scenario that is both student-centred and context-sensitive, the following approach seeks to shed light on how the MOOCversity may be diversified by taking account of an enhanced MOOC enriched by a trialogical learning approach.

3.1 eMOOCS enriched by trialogical learning

Based on cultural-historical activity theory (in short CHAT) (Vygotsky, 1978; Roth & Lee, 2007), the expansive learning approach (Engeström, 2001), Nonaka and Takeuchi's model of knowledge creation (1995) and theoretical considerations of knowledge building (Scardamalia and Bereiter, 1996), the concept of trialogical learning sets out for new ways to conceptualise teaching and learning theory in e-learning settings. Introduced by Paavola, Lipponen and Hakkarainen (2004), this learning approach associates modern knowledge work with the process of unfolding objects or knowledge artefacts to make collaborative processes more explicit.

In Hakkarainen & Paavola (2007), the following approaches to learning and cognition are distinguished: 1) it concentrates on processes which aim at developing shared objects; 2) it takes place across long timescales; 3) it involves interaction between individual and collective processes; 4) it relies on cross-fertilization of knowledge practices; 5) it relies on collaborative technologies designed to elicit object-oriented activities; and 6) it develops through transformations and reflections across forms of knowledge.

By drawing a distinctive line between three metaphors of learning, namely the acquisition metaphor, the participation metaphor and the knowledge-creation metaphor, they contrast monological, dialogical and trialogical models of learning. While the acquisition metaphor refers to the monological approach which corresponds to individual learning that emphasises conceptual knowledge, the participation metaphor draws on dialogical theory that foregrounds collaboration and interaction with other social actors laying a particular focus on situated cognition. The knowledge-creation metaphor as the third approach brought forward is defined by „interaction through these common objects (or artifacts) of activity, is not just applicable between people, or between people and environment” (Paavola et al., 2004, S. 545). This implies that interaction between social agents is extended beyond its rigid boundaries; it is interaction through shared objects; be they conceptual or material artifacts, practices or ideas. What they have in common though is that they are mainly developed collaboratively (Paavola & Hakkarainen, 2009).

In other words, the trialogical learning approach tends to facilitate the development of “something new collaboratively, not repeating existing knowledge” (Paavola & Hakkarainen, 2009, p.84). As a

result, trialogical learning takes place in situations of knowledge-centered work that are more open-ended, dynamic, reflective and creative (Paavola & Hakkarainen, 2009).

Since Paavola & Hakkarainen (2009) draw heavily on cultural-historical activity theory (Vygotsky, 1980), some more detailed considerations on CHAT may be useful at this place. By linking elements of connectivism with major principles of CHAT, Clarà and Barberà point to "visualization of objects and the enabling of dialogic and sustained joint activity" (2013, p. 134) as two key principles that require particular attention in an online environment. Representations, i.e. knowledge, as psychological tools that mediate between the subject and the object are distributed in communities. Moreover they are used, reused and transformed by the social agents involved in the teaching and learning process. Such psychological tools in the sense of Vygotsky can either be maps or mathematical signs (Kaptelinin & Nardi, 2006).

In addition, such a setting presupposes that learning takes place in ways in which learners internalise representation in relation to a specific object. Consequently, Clarà and Barberà (2013) suggest visualising an object to guide and focus on what should be learned to enable opportunities for joint activity and collaboration to use a representation as a common object for internalisation.

Hence, for the above-mentioned reasons, the trialogical learning approach appears to be a particularly promising concept for an extension of the MOOCiversity, even more so as it pinpoints major aspects that are becoming increasingly prevalent for our times. Although trialogical learning refers to cultural aspects in the collaborative development around shared artifacts, micro-approaches to culture have so far been hardly incorporated. Consequently, the next section seeks to focus more on the relevance of a culturally sensitive conceptualisation on MOOCs.

3.2 Micro-approaches to culture

The second aspect that we seek to incorporate into the conceptualisation of an enhanced MOOC concept is a culture-sensitive lens predominantly adopted on a micro level. To our mind, such a perspective has not received the level of attention that it ought to deserve. On the contrary, it was found that the development of digital learning scenarios have largely been driven by dominant societal and lingua-cultural values of the stakeholders. This is particularly striking in view of the fact that nowadays online participants come from increasingly different geographical parts. Corners of the world that have had access to the Internet for just a short time are starting to contribute to online learning processes. It has yet to be found out how such users contribute to the learning experience of the entire online community. Even more so in view of the fact that they are shaped by different societal backgrounds, lingua-cultural socialisations and learning expectations.

While the quantitatively approached macro-level paradigm is concerned with cultural dimensions (see House, 2004, Trompenaars, 1998, Hall & Hall, 1990; 1969, Hofstede, 2001; 1997) and, more recently, with cultural standards (Utler & Thomas, 2013, Thomas, 2005; Kinast et al, 2001; Schroll-Machl, 2002), micro-level studies deal with particular settings in which social actors create cultures on the basis of their emic cultural understanding. The argument being made here is that macro approaches to culture seem to have reached their limits while at the same time paving the way for more interpretive micro studies that leave room for adopting a contextualised and dynamic cultural lens that not only takes societal, but also organisational and professional cultures into considerations (Gaisch 2014, p 45).

Strikingly, when looking at the MOOCiversity it becomes apparent that cultures appear to only play a marginal role and that neither cultural dimensions nor cultural standards are incorporated in ways that might account for a cultural-sensitive lens. What is equally obvious is that micro approaches to culture are also missing on a large scale and therefore need to be addressed on a much more prominent level. For this purpose, we propose to extend the MOOCiversity and suggest an additional label that is intended to spur scholarly discourse.

4 A possible MOOC SETTING

Based on the previously mentioned considerations, we would like to propose a MOOC scenario that blends in elements of xMOOCs, cMOOCs and eMOOCs to more holistically integrate the multiplicity of factors involved in online learning. For a better understanding, a contextual MOOC scenario is presented through the example of a course entitled “qualitative research methods for the social sciences”. In table 1, such a course outline is sketched in more detail by both drawing on different MOOC elements and learning metaphors. In doing so, the visualisation of the learning resources makes no claim for completeness. What it underlines, however, are the dynamic overlaps between the different forms of MOOCs and the smooth transition between them.

The MOOC course consists of eight chapters. To begin with, it starts with an introduction and an overview of different methods, which can be presented by means of video lectures and subsequent quizzes. Additionally, a number of video lectures are provided throughout the participation phase in the form of tasks to share participants’ previously acquired experiences made with qualitative research methods. At the beginning of chapter 2, learners are asked to work in small groups and to elaborate on the tasks at hand. The challenge is designed in such a way that learners should make use of and reflect on the knowledge presented in the video lectures and engage in some extended project work. The tasks are typical examples for the knowledge participation phase and much in line with the connectivistic idea of reusing, remixing and sharing knowledge. The challenge is conceived as a typical scenario where knowledge creation takes centre stage, and work on shared artifacts such as a common research plan or the implementation of concrete methods is foregrounded.

In this context, it needs to be highlighted that the participants’ societal and epistemological backgrounds represent a major challenge for MOOC designers. To ensure sufficient common ground as to the understanding of the tasks, prior familiarisation of the group, their special needs and frames of reference appears to be a valuable asset for each MOOC designer. Once this awareness is internalised, the portfolio of tasks can be assigned in a customised and context-sensitive way. By taking account of the interplay of culture, learning preferences and prior knowledge base, learners can be gradually made familiar with the content. In doing so, the designer can draw on a variety of tools with the ultimate goal to allow learners to acquire knowledge, participate in the knowledge process and create knowledge by themselves.

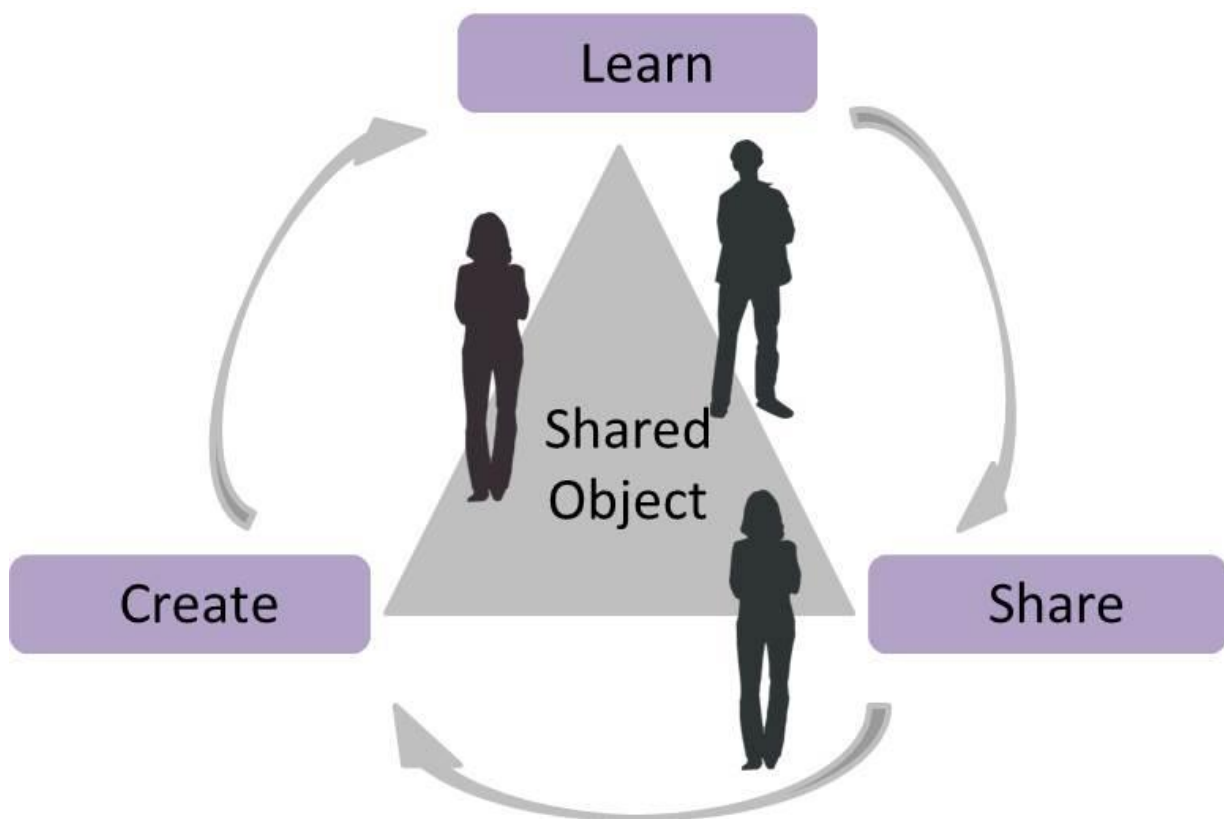
To outline the importance of a culture-sensitive lens, we wish to further zoom in on our course of “qualitative research methods for the social sciences” by asking the participants to conduct an ethnographic study where observational techniques play a crucial role to “discern ongoing behaviour as it occurs” (Cohen et al, 2011, p 298). Undoubtedly, internalised patterns of communication styles and a good portion of reflectiveness are vital in the way salient features of the setting at hand are grasped. At this point, it needs to be added that differences in low-context and high-context communication, and as a result, the underlying cultural knowledge of such messages, are likely to impact the results of the ethnographic account. For a MOOC designer, lingua-cultural expertise

appears to be a key ingredient in a successful MOOC course, one that goes beyond sheer knowledge acquisition but requires joint knowledge creation of a diverse participant community that does not draw on a common cultural socialisation. Rather, it seems that they fall back on their internalised frames of reference which, in the worst case, might lead to a talk at cross-purposes and biased findings.

Tab.1.: Example of a MOOC course that draws on different elements of xMOOCs, cMOOCs and eMOOCs.

Learning Metaphor	Learning Resources	Learning Environment	MOOC Element
Knowledge Acquisition	1) Introduction in quantitative vs. qualitative research methods 2) Overview of different methods 3) Method of Interview 4) Focus groups 5) Different methods of observation, 6) Ethical and intercultural aspects 7) Designing qualitative research 8) Analysis of qualitative research	Video Lecture, Quizzes, Discussion Board	xMOOC
Knowledge Participation	Follow-up task 1): think of your experiences with qualitative research methods and share your thoughts Follow-up task 6): discuss with other participants about ethical and socio-cultural aspects of qualitative research	Blogs, Microblogs, Social Media	cMOOC
Knowledge Creation	Challenge: You want to find out how students benefit from using a tablet during a project-based learning setting? Conceive a qualitative research scenario, develop your methods, do a small-scale ethnographic study and compile a report that comprises your data analysis	e.g. Social Media, Collaborative Writing, Mindmapping Tool, Video Conference	eMOOC

To illustrate this process, figure 1 seeks to visualise the three central elements involved in the learning process. Learners work on one or more shared objects and learn, share and create knowledge. Learning in a MOOC setting that embraces elements of xMOOCs, cMOOCs and eMOOCs represents an iterative cycle where online learning affordances need to be perceived, reacted to and acted upon by both designers and participants. Such a view then calls for learning, sharing and knowledge creation in a customised and context-sensitive way in which societal, professional, epistemological and institutional backgrounds are taken into account.



5 CONCLUSION

This position paper has argued for a fresh conceptualisation of MOOCs, one that adopts a more comprehensive lens that allows for new interculturalities to emerge and for a cross-fertilization of knowledge practices to unfold by adopting a triological learning approach. It is argued that institutional, professional, structural and societal boundaries need to be identified and acted upon to explore online learning affordances that all stakeholders can capitalise on. Through an in-depth reflection of cultural differences on a micro-level but also through the dynamic cycle of learning, sharing and knowledge creation, it is hoped that in future teachers will become increasingly capable of navigating the Conceptual Age and meet the demands of an increasingly diverse learner body.

The capacity to investigate a social agent's ability to act adequately and in a context-sensitive way when being confronted with representatives of foreign cultures, be it face-to-face or via an online medium, appears to be a much more timely approach than a generalist and broad sketch of how cultures differ.

Although this new form of eMOOC is clearly work in progress, we feel that this approach might be a promising alley of research for the future and contribute to the MOOCiversity in a positive way. The focus on an additional MOOC concept has been guided by the researchers' desire to add and incorporate elements that have so far been sidelined by the existing MOOC forms. Such a perspective then may allow gaining a deeper and more comprehensive understanding of how the future MOOCiversity might look like.

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MOOCs in Question: Strategic Insights from Two Institutional Experiences by Mark Brown & Eamon Costello

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Abstract

This paper briefly outlines some of the claims and unresolved debates surrounding the rapid growth of Massive Open Online Courses (MOOCs) in Higher Education. It then offers insights into the strategic response of two different universities to the challenges and opportunities presented by the MOOC movement. A description of the key drivers, strategic deliberations and major decision points at Dublin City University (DCU) is provided along with the pros and cons of several MOOC options. In reflecting on the experiences of two institutions, coupled with the emerging literature, the paper concludes with a number of strategic questions that should guide future decisions about the adoption of MOOCs by European institutions.

Introduction

There have been numerous claims made about the promise and perils of Massive Open Online Courses (MOOCs) in today's age of digital learning (Krause & Lowe, 2014). The MOOC movement continues to attract interest from popular media, policy-makers and senior academic leaders concerned with the future of higher education. There are predictions MOOCs are a metaphorical avalanche that will totally transform higher education as it is currently known (Barber, Donnelly & Rizvi, 2013). While millions of people around the world have registered to participate in a MOOC through a variety of platforms, less is known in the public domain about the situated factors that influence strategic institutional decisions to develop free online courses.

This paper attempts to address this gap in the literature by providing a unique insider's perspective on the MOOC experience in two quite different institutional settings. Firstly, it draws on the experience of the first author in leading the adoption and enterprise wide implementation of *Open2Study* at Massey University, New Zealand. Key drivers behind and decisions associated with the *Open2Study* initiative at Massey are described along with some of the distinguishing features of the platform. Secondly, the paper reflects on the different MOOC options that Dublin City University (DCU) has explored over the course of 2014 and the strategic drivers shaping key decisions in this area. The objective in reporting these two cases is to offer valuable insights into some of the key

questions institutions need to consider when evaluating MOOCs platforms and related online learning opportunities as part of a wider strategic investment in digital learning.

Background

Although more serious literature reviews are beginning to emerge (e.g., Department for Business, Innovation and Skills, 2013; Holland & Tirthali, 2014; Jacoby, 2014; Liyanagunawardena, Adams, & Williams, 2013; Selwyn & Bulfin, 2014), the current state of the MOOC landscape, especially in Europe, can be described as relatively immature.

On the one hand, MOOCs are claimed to challenge the privileged nature of knowledge in traditional universities and address the problem of meeting increasing demand for higher education, particularly in the developing world. In this regard, the so-called new ‘openness movement’ is seen as a real game changer (Daniel, 2012), which can widen access to life-long learning and address key gaps in skill development. On the other hand, a growing number of critical commentators point to low completion rates and argue that the growth of MOOCs is nothing more than a clever marketing ploy by elite universities (Selwyn, 2014). Peters (2013) points out, amongst other things, that MOOCs reflect a new academic labor policy for globalized universities, an expression of Silicon Valley neo-liberal values and a kind of entertainment media that is the oxymoron of serious learning. In a similar vein, other critics argue the MOOC is just another neo-colonialist tool reproducing privilege through a hidden Western curriculum (Barlow, 2014).

Set against these claims, this paper describes how two institutions with long histories of innovation in online learning—DCU and Massey University—have responded to the rapid growth of the MOOC movement. We begin by briefly describing the Open2Study platform that has received relatively limited attention in Europe; and then outline some of the factors that influenced Massey University in joining this initiative. Building on the Massey experience we then report a number of MOOC opportunities and potential strategic partnerships that have been explored during the establishment phase of the National Institute for Digital Learning (NIDL) at DCU. The strategic lessons from these two insider examples are briefly compared with what we know from recent literature on institutional drivers and the paper concludes with a number of questions that may be useful for other institutions and organisations when weighing up whether or not to become part of the rapidly

evolving MOOC landscape.

Description of Open2Study

Open2Study [www.open2study.com] is a lesser-known MOOC platform developed and maintained by Open Universities Australia (OUA). The platform currently has a stable of 11 Australian partner universities along with a handful of international providers, and almost 50 free courses. According to the website the core principle underpinning Open2Study is that “learning is life-long and should be accessible by all.” As of July 2014, Open2Study (2014) reports that people in over 221 countries had registered to undertake at least one free online course. Since the launch of Open2Study in March 2013, by the beginning of July 2014, there had been, in total, almost 400,000 registrations from over 200,000 people.

Open2Study courses (subjects) are packaged in four-week blocks. Each subject is divided into four modules, designed to be studied over the duration of a week. In turn, each module is divided into up to 10 topics, covering a different aspect of the overall module theme. The course makes extensive use of video where the Subject Matter Expert (SME) explains the content (Figure 1). Each week, a member of Open2Study’s Social Learning and Community Team posts at least one starter question or discussion topic in the classroom forum. Notably, the SME who developed the course is not expected to lead these discussions. At the end of each topic, learners receive a multiple-choice pop quiz or a simulator exercise to help them test their learning. The pop quizzes and simulators do not contribute to the final grade—instead they are intended to be formative.

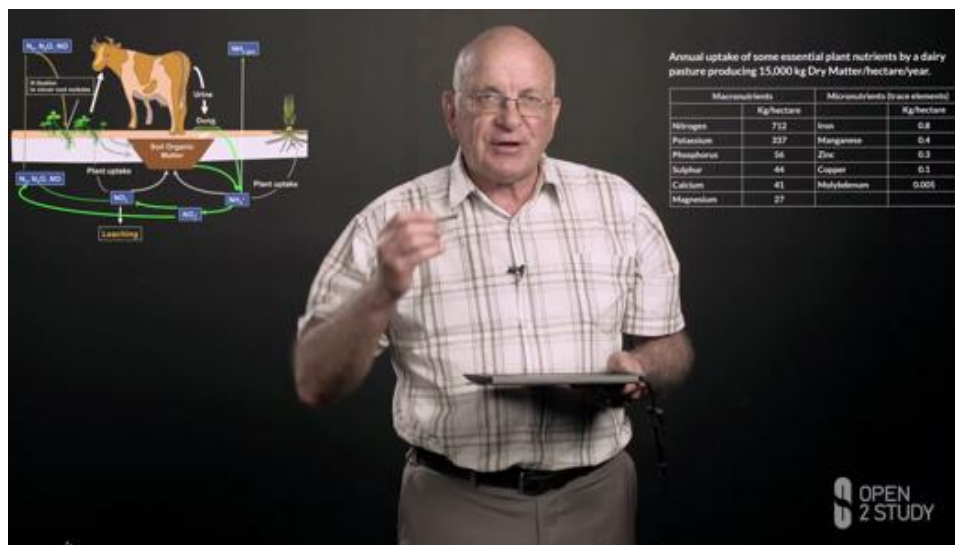


Figure 1: Example video with interactivity through an iPad

Each module ends with an assessment of the information covered in that module. The assessments open one at a time, each week, and stay open until the end of the course. Participants get three attempts at every assessment and need an overall average grade of at least 60% to pass the course. Upon successful completion, learners are able to download a certificate of achievement along with their final grade. At the time of writing, unlike platforms such as Coursera, there is no cost associated with obtaining a formal certificate of completion.

The Massey experience

Massey University [<http://www.massey.ac.nz>] has more than 50 years history as New Zealand's major distance education provider. In 2013, it was the first university in New Zealand to participate in an international MOOC platform on an enterprise wide level. When Massey University was approached to join Open2Study in February 2013, the University's Senior Leadership Team weighed up a number of potential benefits.

At the time, drawing on evidence from relevant high-level papers, some of the perceived benefits included enhancing Massey's reputation as New Zealand's pre-eminent distance education provider and the associated opportunity to position itself as a global player in the delivery of online learning. Massey has approximately 17,000 online/distance learners along with another 17,000 students spread across three campuses. Notably, Massey is ranked 346 in the 2014 QS rankings, has five QS Stars for Teaching, and is one of the highest ranked major distance education providers in the

Southern Hemisphere. Set against the increasingly weight being given to international rankings and the new digitalized higher education landscape, the opportunity to join Open2Study was seen as a way of promoting Massey's signature academic programmes in key areas of world-class expertise to prospective domestic and international students.

Open2Study was not the only option Massey explored but *Coursera* had made it known that it was an exclusive partnership of the world's elite universities and at the time *FutureLearn* had yet to be launched. The *OERu* was also considered but Massey was not convinced of the concept or swayed by the quality of the partner institutions.

Although expressed as very much a secondary benefit, drawing on emerging literature at the time, MOOCs were also perceived to potentially support first-year retention and learner success by helping prospective students to select the right course (Carson, Kanchanaraksa, Gooding, Mulder, & Schuwer, 2012). By exploring a subject through a brief online course, which showcases the discipline, prospective students may gain a better sense of what is required to be successful and the related career opportunities in the particular area. In a similar vein, MOOCs were thought to have potential value in promoting student readiness, especially in terms of learning how to be an effective online learner.

Another important secondary consideration for Massey in the decision to join Open2Study was the potential to help shape the design of the MOOC platform. Unlike more established MOOC platforms, as an anchor partner, there was an opportunity to influence the future design and direction of Open2Study's development.

Notwithstanding these factors, at the time the decision to join Open2Study was significantly influenced by the opportunity to foster a culture of innovation in learning and teaching. Innovation was a key driver. There was widespread support from the Senior Leadership Team (SLT) for strategic initiatives that were consistent with the principles of an entrepreneurial university (Clark, 2004). More specifically, the innovation agenda in the context of Open2Study was informed by Weller and Anderson's (2013) paper on the importance of digital resilience, which drew on a metaphor taken from the field of Ecology. The argument was that to better understand the promise and perils of free

online courses rather than stand on the outside as a passive observer, Massey needed innovate on the inside of the MOOC movement. Therefore, membership of Open2Study was seen as a way of helping Massey enhance its culture of innovation, particularly through the affordances of digital video, and in so doing increase capacity and capability for offering high quality online courses throughout the world.

Finally, the decision to join Open2Study was part of a much larger strategic development underway to establish a new Massey University Worldwide brand. Work on developing this brand and the related business and delivery models began before the approach from OUA. In February 2014, the New Zealand Minister of Tertiary Education formally launched the Massey Worldwide brand, which included a suite of online credit earning programmes along with the Open2Study initiative.

The DCU experience

Dublin City University [<http://www.dcu.ie>] was founded in 1981 and comprises over 12,000 students including over 2600 postgraduate students, of whom almost 600 are research students. The University is ranked 366 in the 2014 QS rankings and has been ranked among the world's best in the QS league table of the world's young universities – QS World Top 50 under 50 University Rankings (ranked 44 in 2013).

DCU is currently undergoing one of the most significant third level undertakings in Ireland in the incorporation of three other higher education Colleges: St Patrick's College, Drumcondra (SPD), Mater Dei Institute of Education (MDI) and Church of Ireland College of Education (CICE). The merging of these institutions with DCU will result in the creation of a new fifth Faculty of Education supporting educational research from early childhood education right through to adult and workplace learning. The Incorporation Project will increase the DCU student body by another 4000 students, which is in the context of an overall demographic shift that is seeing a steady rise in university entrants in Ireland. Notably, the new Faculty of Education will become DCU's largest faculty and the biggest provider of teacher education in Ireland.

DCU has offered distance education programmes for over 30 years and previously hosted the National Distance Education Centre, which later became known as Oscail. The term *Oscail* translates to ‘Open Learning’ in the Irish language and reflects DCU’s commitment to extending access to higher education through flexible learning. DCU continues to play a leading role nationally in the provision of distance and online education, evidenced by the establishment of the National Institute for Digital Learning (NIDL) in November 2013. Each faculty currently offers online programmes and approximately 10% of DCU’s student population is studying off-campus.

The goal of widening access to higher education through the development of a 21st Century digital campus is a core feature of DCU’s strategic plan. *Transforming Lives and Societies (2013-2017)* provides a strategic framework for significant growth in the provision of online and blended learning across all faculties. Importantly, the investment in promoting new flexible models of learning and teaching through digital technology is entirely consistent with, and a key part of, DCU’s overarching mission of transforming lives and societies.

With this mission firmly in mind, in August 2014 the University launched a new initiative known as *DCU Connected* [<http://connected.dcu.ie>]. This initiative builds on DCU’s long history of innovation in distance education and ambitious future-focused plans of extending access to the University’s online course offerings throughout Ireland and globally. DCU Connected, with a strapline of ‘A quality education wherever you are’, deliberately shifts the focus to the learner experience, rather than a particular delivery method or technology; and true to the mission of transforming lives and societies has a philosophy of working with strategic partners to develop customised, locally relevant and digitally-enhanced courses and programmes for a diverse range of students irrespective of geographical location. For this reason DCU Connected incorporates a number of the University’s significant transnational activities, including a strategic relationship with Princess Nora Bint Abdul Rahman University in Saudi Arabia where DCU is contributing to local capability development in a university for women.

Another noteworthy partnership is with Arizona State University (ASU), the largest public university in the United States, where DCU is jointly developing a number of online courses, including a Masters in Biomedical Diagnostics. In this regard the potential to enhance DCU’s international

reputation through new global developments in online education is a factor that continues to influence the investment in DCU Connected.

In summary, DCU Connected provides an overarching strategic framework that encapsulates the mission of extending access to higher education and transforming lives and societies by harnessing the technical and pedagogical affordances of new digital technologies. It follows that the potential of MOOCs in promoting openness, life-long learning and increased participation in higher education aligns with DCU's mission. Developing a suite of online short courses under the umbrella of DCU Connected to extend the University's outreach and reputation is seen as a logical extension of this initiative. Another primary driver for DCU's interest in MOOCs is around fostering innovation in online and blended learning in accordance with the stated goals of the strategic plan. Following on from this point, through a research and development programme supported by the NIDL, the University is keen to transfer pedagogical lessons from the use of MOOCs to enhancing the student experience for both on-campus and off-campus learners. This point is why the NIDL is a partner in a recent EU funded project called "Support Centres for Open Education and MOOCs in different Regions of Europe 2020" (SCORE2020). The SCORE2020 project with a total budget of almost €300,000 involves establishing regional centres for the development of MOOCs. Finally, MOOCs are also seen to offer potential at DCU to support readiness for university study and successful transitions, particularly for at risk learners.

MOOC options

With these factors in mind the following section describes the main MOOC platforms that DCU explored over the course of 2014, including: Open2Study, ALISON, OpenUpEd, FutureLearn, OERu, Udemy, Iversity, and several open source options.

Open2Study

Given the previous experience of the new Director of the National Institute for Digital Learning, in the first quarter of 2014 preliminary discussions took place with OUA about joining the Open2Study platform. Two options were explored: (a) joining the existing group of mainly Australasian institutions using the platform; or (b) negotiating a license to purchase a clean skin version of Open2Study to launch a new Irish or European branded MOOC.

The advantage of the first option was that Open2Study was both technically and pedagogically proven and had a growing base of learners from around the world. It might also help DCU to extend its outreach and course offerings to the Southern Hemisphere and, in particular, Asia. Although there were strategic benefits to Open2Study establishing a footprint in Europe, and the associated business model was potentially attractive, the consortium of partner institutions was less likely to help DCU foster a culture of innovation around online learning and mass pedagogy. There were obvious geographical constraints and exploring pedagogical innovation was not a strong feature of the drivers behind the Open2Study platform.

The second option of taking a lead role in establishing a new Irish/European branded MOOC initiative using a clean skin version of the Open2Study platform was attractive in terms of DCU's reputation for innovation and leadership in online learning. That said, this option was significantly more expensive and relatively high risk as there was no guarantee the MOOC initiative would attract other European partners and sufficient learners, and course offerings, to develop a sustainable business model. Without anchor funding from a suitable partner to mitigate the financial risks, this option was not really considered feasible in the current environment.

ALISON

ALISON, which stands for Advance Learning Interactive Systems Online, is an Irish based initiative that claims to be the world's first and original MOOC platform [<http://alison.com>]. Founded in 2007, ALISON reports that over 3 million learners have participated in one of their courses, which are offered on behalf of, and in partnership with, a number of major companies, including Google, Microsoft and MacMillan. In this respect the courses offered through Alison tend to be more narrowly work skills and vocationally focused and currently there are no reputable universities using this platform. Therefore the platform does not offer the type of pedagogical community of users that DCU was looking for in any MOOC initiative. Although the Irish connection and established track record of attracting millions of learners from throughout the world is attractive, for the reasons cited above, ALISON is not well suited to the strategic intentions of DCU.

OpenUpEd

DCU is already a 'partner in planning' for the European funded OpenUpEd initiative [<http://www.openuped.eu>]. OpenUpEd reflects a particular philosophy of 'openness' and offers a portal for aggregating MOOCs rather than a technical platform. In contrast to other MOOC initiatives, OpenUpEd values and promotes diversity of design and delivery by supporting courses in different languages and through a variety of platforms. In other words, the distinguishing feature of this initiative is that each partner institution uses its own digital platform rather than a common or purpose built MOOC.

Although OpenUpEd currently claims to have around 170 courses in 12 different languages, the lack of a common software architecture and supporting infrastructure makes this option somewhat problematic. OpenUpEd has however an open and explicit Quality Label initiative which is based on existing quality frameworks (particularly the e-Excellence quality framework), draws on the experience of Open and Distance Learning (ODL) institutions and operates on the principles of: openness to learners, digital openness, learner-centred approach, independent learning, media supported interaction, recognition options, quality focus and spectrum of diversity (Rosewell & Jansen, 2014). At this stage DCU remains committed to OpenUpEd as the above principles and overarching philosophy are consistent with those expressed in the University's *Teaching and Learning Strategy (2013-2017)* but the lack of suitable software architecture for the design and delivery of MOOCs is a barrier.

FutureLearn

FutureLearn [<https://www.futurelearn.com>] is one of the latest MOOC initiatives grabbing international headlines. While officially established in December 2012 as a private company wholly owned by The Open University, the first suite of FutureLearn courses was not offered until September 2013. Since this time the number of partner institutions has steadily grown and FutureLearn claims to now support over 20 of the best UK and international universities. That said, the majority of member institutions still come from the UK, with many part of the so-called 'Russell Group', and to date FutureLearn has yet to establish a strong US foothold. A notable feature of FutureLearn is the relationship it has established with icons of British cultural heritage, including the

British Council, British Library and British Museum. FutureLearn is physically located in the British Library.

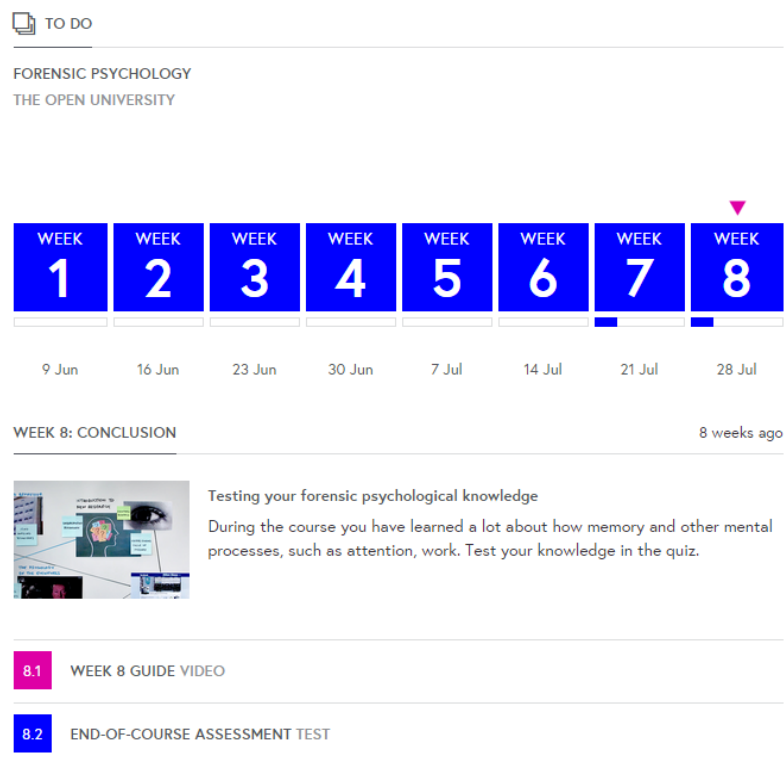


Figure 2. An example of the FutureLearn course interface

Arguably, a major difference between FutureLearn and rival MOOC initiatives is the focus given to the principles of effective online pedagogy from the outset. The website reports that Diana Laurillard's work on conversational frameworks been influential and a set of principles based around being open, telling stories, provoking conversations, embracing massive, creating connections, keeping it simple, learning from others, celebrating progress and embracing future learners guides pedagogical developments. Consistent with these principles FutureLearn aims to:

Connect learners from all over the globe with high quality educators, and with each other. We believe learning should be an enjoyable, social experience, with plenty of opportunities to discuss what you've studied, in order to make fresh discoveries and form new ideas (FutureLearn, 2014).

From a technical point of view, FutureLearn appears to have learned lessons from earlier MOOCs. As illustrated in Figure 2, the interface is clean and the platform was developed from the outset to work on mobile devices. FutureLearn claims to have designed courses to fit around life, with short activities and clear goals to encourage progress at a comfortable rate, wherever you are, whenever you want on mobile, tablet or desktop.

Although two Irish universities--Trinity College and Queens University of Belfast--have already joined FutureLearn, the platform remains an attractive option for DCU. It combines the latest technical designs for mobile learning with a real depth of thinking around pedagogy along strong community of practice amongst partner institutions influenced by the long history of the UK Open University and traditions of promoting life-long learning. For these reasons DCU has been proactive over the course of 2014 in exploring the possibility of joining FutureLearn whilst remaining open to other options. At the time of writing discussions continue with FutureLearn but at this stage neither party has made any firm commitment to formalising a relationship.

OER universitas

The *OER universitas* [<http://oeru.org>] or more commonly known as the *OERu* is a global network of more than 30 universities, colleges and polytechnics that are collaborating to develop free online courses to provide a unique pathway to formal academic qualifications . The initiative has attracted donor funding from The William and Flora Hewlett Foundation and is supported by UNESCO and the Commonwealth of Learning. The OERu describes itself as founded on the principles of outreach and community service and has a mission of providing free learning pathways to students without access to traditional university entry such as in developing countries. It works on a model where using solely Open Educational Resources (OER) and open textbooks people can complete courses at partner institutions and pay significantly reduced fees if at some point they want their study recognised towards a formal academic credential (Conrad et. al, 2013).

Importantly, the OERu is not a formal academic institution and does not confer degrees or qualifications. A unique feature of the OERu is the intention to develop a scalable system of volunteer student support by using community service learning approaches. The OERu has the legal structure of a registered charity under the umbrella of the Open Education Resource Foundation

(OERF) which is hosted at the Otago Polytechnic in New Zealand.

While the principles of outreach and expanding access to higher education align with DCU's mission and the OERu has a credible and growing international community of innovative educators guiding its development, a number of questions remain about its standing, accreditation of programmes and long-term sustainability in the face of more established MOOC initiatives backed by some of the world's leading universities. That said, the OERu remains a viable and interesting MOOC option but needs to be considered in the context of the opportunity costs of committing resources to this initiative at the expense of pursuing less ambitious options that may better advance DCU's strategic goals.

Udemy

Udemy [<https://www.udemy.com>] is a commercial platform that claims to contain over 18,000 courses. This high number is in part explained by its model which provides very little barrier to entry to providers allowing individual instructors to easily sign up and create their own courses. Creating courses is free and Udemy recommends a course to have 1-3 hours of content, no less than 30 mins of content and where 60% of the content should be video.

Udemy's business model is based around a split share of fees with courses ranging in price from free or a few (US) dollars to several hundred. Essentially this gives Udemy a similar feel to an app marketplace as a credit card is required to sign up for the platform, which may exclude it from some definitions of MOOCs on an openness criterion. That said, Udemy may have the advantage of offering DCU a more sustainable business model in the long-term. The platform is currently focused on attracting corporate in-house or free-lance trainers whose focus is specific industry skills or talented hobbyist who may be lay experts of a particular topic. No university courses may currently be taken for credit via Udemy and its lack of quality assurance and broad focus make it less attractive for consideration as a reputable MOOC platform. Nonetheless, it is a large and established platform with a strong customer base that has the potential to evolve in different directions. Udemy also offers a clean skin version should DCU decide to pursue its own standalone platform under the wider umbrella of the OpenUpEd initiative.

Iiversity

Iiversity [<https://iversity.org>] claims to work in close cooperation with teachers, universities and knowledge-based companies to build high-quality free online courses. The stated aim is not to replace the university but to empower individual academics to offer courses in their specialist subjects. In this respect the model is not dissimilar to Udemmy where the focus is on providing a portal for courses rather than a MOOC platform for enterprise-wide institutional initiatives. Having said that, because Iiversity is based in Europe, it can potentially take advantage of the European Credit Transfer System (ECTS). This means in theory that partner institutions can offer assessment of courses that may lead to ECTS credits, although it is unclear how many course participants actually pursue this option. While the Iiversity initiative has European Commission support as far as MOOC initiatives go it remains relatively immature and does not stack up strongly at this stage for DCU in comparison to other options.

Open Source Options

The idea of DCU developing its own MOOC platform has not been entirely rejected, as consideration continues to be given to using an open source installation of EdX or use of our existing Moodle environment. EdX is being used by a number of well-known universities and has the advantage of being a purpose designed MOOC which supports local customisations.

Similarly, a customisable version of Moodle could be deployed with the advantage that DCU already has considerable experience is using this platform. That said, the maintenance, future development and ongoing sustainability of a locally installed MOOC initiative built on an established platform such as EdX or Moodle has similar risks to the aforementioned clean skin version of Open2Study. At this time the risks of using EdX outweigh any potential benefits, although the default option of adopting Moodle has not been totally dismissed as it could be something that DCU explores in the future with one of its strategic partners such as Arizona State University (ASU).

In summary, all of the above MOOC options have advantages and disadvantages and the only way of truly evaluating their strategic fit for purpose for DCU is to understand the institutional drivers. This point is applicable to other institutions considering whether or not to develop their own MOOCs or join one of the many international partnerships. What is clear from the DCU and Massey

experiences described in this paper is that a rational based on the 'Fear Of Missing Out' (FOMO) does not provide either a strong or sustainable argument for committing valuable resources to the MOOC agenda. A strategic decision to invest in MOOCs needs to be weighed up against other opportunities for innovation in teaching and learning.

Comparing the strategic drivers

With the above points in mind, the strategic drivers for DCU and Massey University pursuing their respective MOOC initiatives can be compared and contrasted with some of the reasons described in a recent qualitative study comprising interviews with 83 individuals across a range of institutions (Holland & Tirthali, 2014). The study of predominantly US-based participants involved both public and private institutions, researchers, online learning platform providers, other for-profit education companies, and several additional stakeholders. According to Holland and Tirthali (2014), interviewees were identified from the existing literature on MOOCs, by reviewing the names of conference presenters and panelists, by researching the MOOC activities of institutions on the Internet, or by consulting with known experts in the field.

Notably, similar to the goals of Massey and the stated intentions of DCU, in this study, 65% of institutions report that "extending reach and access" was a key reason for offering MOOCs followed by 41% acknowledging the value of "building and maintaining their brand." In the case of DCU the opportunity to promote wider access to higher education is core to both the DCU Connected initiative and the wider mission of transforming lives and societies. In addition, Holland and Tirthali (2014) found that "promoting innovation" (38%) in online learning and was an important driver for institutions, which is a common theme for both DCU and Massey. However, while "improving economics" (38%) and "supporting research on teaching and learning" (28%) were also cited as drivers, these were not identified at the time as rationale for Massey's decision to partner with Open2Study.

In a similar vein, calculating the costs of designing online courses is not a significant driving factor for DCU, although the opportunity to undertake and learn from research on the development and implementation of MOOCs is important. Somewhat surprisingly a factor not reported by Holland and Tirthali (2014) but common to DCU and Massey is the opportunity to use MOOCs to support

student success and completion through enhanced readiness for study. This finding suggests that as interest grows in using MOOCs in the compulsory schooling sector there is still a gap in our understanding of how we might be able to design and implement online courses in the service of transition education.

Key questions

Drawing on the literature and experiences of DCU and Massey, this final section concludes with a number of key questions to help guide strategic institutional decisions around the investment in specific MOOC initiatives. The questions are not intended to be inclusive of all the situated and contextual factors institutions need to consider as they primarily reflect the strategic drivers identified from the DCU and Massey experience. In our experience, therefore, we suggest that institutional leaders responsible for weighing up the pros and cons of different MOOC initiatives need to consider:

- How technically robust is the MOOC platform?
- How sustainable is the business model for the platform?
- How confident are you in the sustainability of the platform?
- How reputable are the partners associated with the platform?
- How well is the platform suited to supporting academic readiness?
- How well does the platform support innovative forms of pedagogy?
- How strong is the pedagogical community supporting innovation through the platform?
- What will be lost if you do nothing? What are the opportunity costs associated with the specific initiative?
- What are your measures of success? How will you know whether the MOOC platform has met your success criteria?
- How well suited is the initiative to promoting the goals of outreach and wider access to higher education for all?

We recommend that a decision matrix is developed with a weight assigned to the above questions as some have more significance than others. Also a score from low to high should be allocated to the response to each question and multiplied by the respective weight to help calculate

an overall total. While a number of qualitative factors need to be considered in reaching a decision of the most appropriate course of action, this type of decision matrix serves as a valuable framework for evaluating such a rapidly evolving and significant investment.

Conclusion

In conclusion, this paper has given an account of the deliberations and key decision points of two institutions in exploring various MOOC options in two different countries. It gave an explanation of why Massey University joined the Open2Study partnership in 2013 and then presented an insider's narrative of the options that DCU has considered over the course of 2014. Where both institutions go from here remains to be seen as many MOOC platforms are simply reinventing old forms of pedagogy and discussions around a sustainable business model are ongoing with insufficient evidence of any pipeline effect leading to people enrolling in credit earning degrees.

What is clear is that both institutions described in this paper wish to learn from and contribute to the evolution of the MOOC movement, rather than sit on the sidelines. However, the tensions between competing institutional drivers along with the complexity of choices facing universities should not be underestimated, as they have significant financial and reputation risks. Moreover, they may potentially distract teachers and educational leaders from pursuing other innovations in teaching and learning, both with and without new digital technologies. With this last point in mind the particular contribution of this paper is that it has raised a number of strategic questions about MOOCs which we hope will help guide future decisions in other institutions.

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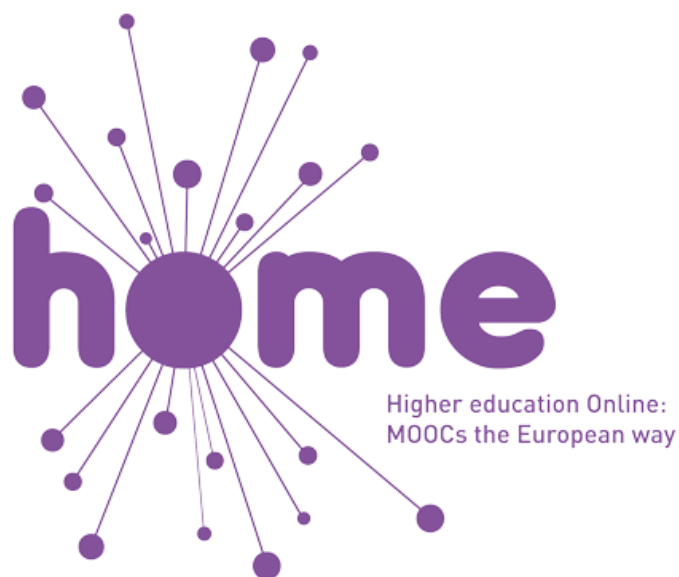
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