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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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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Fostering collaborative investment in Massive Open Online Courses (MOOCs) by
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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 purchased 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 created 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...
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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”. Accruing 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, MOOC 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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http://oro.open.ac.uk/29201/1/OPEN_EDUCATIONAL_RESOURCES_AND_WIDENING_PARTICIPATION_andy.pdf


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