A CASE FOR BLENDED LEARNING: INTEGRATING MASSIVE OPEN ONLINE COURSES IN TRADITIONAL DEGREE PROGRAMMES

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ABSTRACT: *In 2008, when they first emerged, Massive Open Online Courses (MOOCs) were regarded as an opportunity to transform traditional education. They were expected to bring changes to the way knowledge is conceived and delivered and open the door to education that is more accessible, more affordable, more global and, at the same time, more individualized. MOOC platforms were seen as a conducive learning environment in which students could acquire new knowledge and skills in an autonomous and collaborative manner. However, despite the advantages that they offer, MOOCs have had a limited impact on higher education. The present paper will review the potential and challenges of the MOOC learning model and make a case for blended learning as a viable educational alternative.*

KEYWORDS: MOOCs, blended learning, online learning, higher education

MOOCs AND OPEN EDUCATION: OPPORTUNITIES AND CHALLENGES

Opportunities

The beginnings of MOOCs (Massive Open Online Courses) can be traced back to the course 'Connectivism and Connective Knowledge' created by Stephen Downes and George Siemens at the University of Manitoba in 2008. Their original goal was to exploit the possibilities of enriching the students' learning experience by promoting interaction among a great variety of participants. There were 25 students who took the course on campus, and a further 2,300 registered users worldwide who took the course online. The initiative received attention. In 2011, Stanford-based Sebastian Thurn together with Peter Norvig offered 'Introduction to Artificial Intelligence', which became the first truly massive online course with an enrolment of 160,000 students (Nanfito, 2013). In the same year, MIT launched its MITx programme with the goal of developing an open-source platform through which MOOCs could be delivered. Millions of students worldwide enrolled in these courses, prompting *The New York Times* to brand 2012 the "The Year of the MOOC".

The main principles of MOOC education are reflected in the acronym MOOC itself.

- MOOCs are *massive* with enrolment that measures in tens or even hundreds of thousands of students.

- They are *open* to everyone with no restrictions in terms of academic background, age, geographical location or social circumstances.

- They can be completed *online* with no required on-campus component.

With its open and flexible learning format, MOOCs have an enormous educational potential.

First, they can help meet the global demand for educational opportunities. The number of people looking for academic or professional training in 2020 was estimated at over 100 million (Read & Bárcena, 2015), which is a far larger population than traditional educational establishments can accommodate. Figures speak for themselves. Out of 500,000 students who qualified to take the entrance exam for the Indian Institutes of Technology, less than 2% were accepted (Najar, 2011). In 2012, nine million high school students in China were competing for the seven million university slots. Peking University, one of the country's highest-ranked schools, has an acceptance rate of 0.5% compared to Harvard's of 5.9% (Wong, 2012). Those who can afford it may continue their education at the top institutions in the West; however, millions of talented and qualified but less affluent students will not be able to get the education they desire and deserve. MOOCs could "offer a form of education to those for whom education is off limits" (Davidson, 2013, para. 7). MOOCs can also benefit matriculated students. The limited number of places on popular courses often means that students have to prolong their studies or abandon their majors altogether. MOOCs can improve access to courses for which there is high demand and for which students are often placed on waitlists, helping them complete their degrees on time.

Second, MOOCs can help students complete their degrees at a reduced cost, thus bringing education to economically and socially disadvantaged individuals and groups. Education level has a substantial impact on employment prospects. According to OECD (2012) report, employment rates for both men and women with tertiary education are higher than for those without. Furthermore, education seems to be good insurance against unemployment. Individuals with higher education are more likely to keep their jobs at times of economic crisis. Data collected across OECD countries between 1998 and 2010 showed that while unemployment rates for people with higher education remained below 5%, they often exceeded 10% for those without an upper secondary education (OECD, 2012). Level of education also affects income. Goldin and Katz (2010) report that college graduates in the U.S. tend to earn about 60% more than high school graduates. This trend is not limited to the U.S. only. Psacharopoulos and Patrinos (2018) report that a year of schooling yields an average annual return of 9%. The positive impact of education on wages is particularly noticeable in Sub-Saharan Africa, Latin America and the Caribbean, and in respect to female education where the returns were estimated to be about 2% higher. Access to higher education could reduce social inequality and help students from low-income families to break out of poverty and secure better-paid and more stable jobs.

Third, MOOCs can also promote social inclusion of people with disability and learners living in remote and isolated areas. WHO (2011) estimates that disability affects about 15% of the world population. Disability can come in many forms such as visual disability, hearing disability, speech disability, motor disability, cognitive disability or

psychosocial disability (Sanchez-Gordon & Luján-Mora, 2016). Some disabilities are permanent. Others are temporary caused by illness or accidents or progressive due to natural aging. MOOCs bring clear benefits to students with mobility problems and various efforts have been made to make them more accessible to visually impaired learners (Królak, Chen, Sanderson, & Kessel, 2017; Sanchez-Gordon & Luján-Mora, 2016). Barriers still exist, but the development of new technologies is expected to further improve access to learning resources and increase opportunities for physically or geographically disadvantaged learners to interact with the wider community of students.

Fourth, MOOCs can make learning an extremely rewarding experience. MOOCs allow students to attend the courses of eminent professors from the world's best universities. They are also characterized by a diversity of participants and their global perspective. Since MOOCs bring together people with shared interests from around the world, they are an effective way of transcending geographical boundaries and breaking cultural barriers. Furthermore, MOOCs provide environments in which course-takers can form personal learning networks. Many MOOC takers are professionals with established careers or educators themselves and interaction on MOOC forums often leads to rich and stimulating discussions and constructive collegial feedback.

Fifth, MOOCs can make education more personalized. In traditional school settings, students often take courses because they are required. Many college professors develop courses based on their research interests rather than students' needs. MOOCs give students an opportunity to explore different educational contents and search for those that match their goals and aspirations without fear of incurring extra fees or staining their academic transcripts. For high-school students, MOOCs offer an opportunity to sample different majors and to 'experience' college-level learning. They can also take advantage MOOCs that specifically prepare prospective students for college studies.

Personalization of learning is also enhanced by giving learners more flexibility in terms of pace of learning and activities they engage with. As Daphne Koller (2012), one of the Coursera co-founders observes, an online format allows instructors to break away from traditional one-hour lectures and break materials in shorter modular units of 8~12 minutes, each of which represents a coherent concept. Students can work with these materials in different ways based on their background, skills or interests. They can also receive immediate feedback on their responses allowing them to monitor their progress and regulate their learning.

Personalization of education is achieved not only by responding to students' interests but also by accommodating their different learning styles. MOOCs include varieties of input and practice activities such as video lectures, reading materials, quizzes and discussion forums, making it possible to accommodate different perceptual processing preferences. The multimodal nature of MOOC learning can improve both students' performance and satisfaction.

Another advantage of MOOCs is the flexibility they offer in terms of time, place and pace of learning. MOOC courses can be accessed anytime and anywhere as long as

there is a stable internet connection. As classes are self-directed, they can be easily fit around regular work or study schedules. MOOCs offer an affordable and flexible way of acquiring new knowledge and skills making them a potentially attractive option for those interested in formal education, as well as for those in pursuit of professional development or lifelong learning.

MOOCs can also foster learner autonomy. In order to succeed in a MOOC environment, students must be able to regulate their learning. They must know how to set their objectives, make decisions and reflect on the actions and strategies they employ. In other words, they must know how to learn. Kevin Johnson, writing for *Forbes*, identified ability as the most important skill for 21st century success (Johnson, 2018). The U. S. Department of Labor Statistics estimates that Americans change careers – not jobs, but careers - four to six times during their working life (Davidson, 2013). There are millions of people worldwide interested in acquiring new knowledge, deepening their skills and even obtaining a second degree. MOOCs can be an extremely valuable resource in personal development and pursuit of lifelong learning.

Finally, MOOCs do not benefit only learners but also educational institutions. Engagement with MOOCs gives educational institutions opportunities to increase their influence and build brand awareness. Furthermore, with tens of thousands of enrolled students, MOOCs' analytics can provide an enormous amount of data on students' interests, backgrounds and their patterns of interaction with course materials, teachers and other students (Nanfito, 2013). Instructors and course developers can learn how much time students spend online, which activities they do and what they tend to skip. That information can then be used to identify the areas that students have most problems with and create more engaging and more focused materials, improving both online and campus learning environments. Instructors can also develop a deeper insight into the effectiveness of different learning strategies. Based on the students' behaviour, it may also be possible to predict their learning outcomes. Students who are likely to fail or withdraw from the courses could be identified early and actions taken to respond better to their individual needs.

MOOCs also bring advantages for client institutions. Integration of MOOCs into regular degree programmes can help universities enrich educational opportunities for their students. For smaller universities, openness to inter-institutional education can make it easier to respond to everchanging job market needs and the growing pressure for competency-based education, while also reducing some of the costs associated with the development of new courses and curricula. Furthermore, MOOCs offer means for faculty staff to learn about online education and identify the best practices for online learning. This knowledge can also be used to improve their classroom teaching practices and student mentoring.

Challenges
Despite their enormous potential, so far MOOCs have had only a limited effect on university programmes. The first decade has shown that there are a number of challenges that need to be addressed if MOOCs are to grow and survive in the dynamic landscape of higher education. The main problems have been linked to: (1) low

completion rates, (2) financial sustainability, (3) assessment and accreditation, (4) technological resources and competencies.

Completion rates. One of the main concerns for MOOC-based education is low student retention rates. MOOC completion rate is estimated to be between 2% and 4% (Despujol, 2018). Wang, Hu and Zhou (2018) report that out of the 154,763 students who registered for MITx's 'Circuits and Electronics' course in March 2012, only 7,157 or 4.6% passed. The course, 'Introduction to Computer Science,' offered by Harvard University in autumn of 2012, had initially 150,349 students registered. Only 1,388 students completed the course – a graduation rate of 0.923%. However, some scholars (Despujol, 2018; Devlin, 2013; Sokolik, 2014) argue that as MOOCs are different from traditional education, their impact and success cannot be measured using traditional metrics. Despujol (2018) gives an example of a course provided by Universitat Politécnica de Valéncia (UPV) on edX, which had an enrolment of over 200,000 students, of which only 7.5% completed the course. However, a closer analysis of the data revealed that about 66% of the registered learners never accessed any course materials. On the other hand, 44% of those who took the first exam completed the course. These figures suggest that the success of MOOC courses cannot be judged based only on the enrolment and course completion rates - high enrolment figures should not be automatically equated with success, and low completion rates do not automatically mean failure. A high number of registered learners indicates interest in the course, but it does not imply that all registered learners ever intended to finish the whole course. Learners who complete only one or two modules may still be meeting their personal needs and goals. For many, obtaining the course certificate may not be on that list.

Yet, the problems of low course retention rates must be addressed. MOOCs best suit self-disciplined learners with well-developed study skills and good work habits (Kizilcec, 2013). However, there are many learners who are not autodidacts and still need to develop their online learning skills.

Financial sustainability. The cost of producing a MOOC is substantial, and the revenues have been slow to come in. In an attempt to address this problem, new initiatives have been taken. While the courses generally remain free, some education platforms have started to offer different subscription plans. For example, Future Learn now offers three types of enrolment: (1) a free type, which offers access to the course for up to two weeks after the course has ended; (2) an upgraded type with which learners can get a certificate and full access to course materials for as long as the course is available on Future Learn; and (3) an unlimited type, which gives users access to hundreds of online short courses for one year, for which they can receive certificates if they complete the coursework. In January 2021, the fee for unlimited access was set at $279.99. Similarly, Coursera has introduced the Coursera Plus plan, which offers unlimited access to more than 3,000 courses, specializations and professional certificates for $399 a year or an option to get a certificate for a specific course at a cost of $39~$79. Non-certificate and audit courses remain free. Learners interested in earning a degree can register for a Coursera MasterTrack Certificate, which costs between $2,000 and $5,000. The certificate is released only when all the courses are

completed, and the credits obtained are counted for the full degree. Finally, learners can also earn bachelor's or master's degrees from the world's top universities. These courses start on a specific date and follow the same curriculum as on-campus classes. The students have to go through an application process and the fees start from $15,000. Coursera pays between 6% and 15% of the gross revenue to course developers (Eckstein, 2019). While the cost may be prohibitive for many learners in developing countries, this model presents a more affordable option for students in developed countries, where fees for on-campus degrees often amount to tens of thousands of dollars. With massive enrolment, this can amount to significant profits. For MOOC developers, the fee-based subscription model establishes a revenue base and ensures at least some return on their investment. Yet, the idea that knowledge should be shared freely to benefit the global society is inherent in the MOOC concept and some scholars (Álvarez, 2014) argue that fee-based accreditation of MOOC courses puts this basic principle in question.

Assessment and accreditation. Another issue of concern in the implementation of MOOCs is learner assessment and course accreditation. Well-designed courses should offer opportunities for both formative and summative assessment. Learners should have sufficient opportunities to monitor their progress and course providers should have the means to assess knowledge acquired for the purpose of formal certification. With tens of thousands of registered learners, traditional college exam practices such as open-ended questions and essay-type assessment are not a viable option for MOOCs. Yet, for credible course credits to be issued, instructors must have means of accurately measuring learners' competencies and verifying their identity. Some online learning platforms such as Coursera and Future Learn offer an option of identity verification; this is where course takers can upload their IDs, which are then matched against their images, allowing learners to receive verified course certificates. ID verification methods such as webcams or keystroke analysis have also been used. However, proving that the certificate is genuine does not say much about the course content or knowledge and skills attained. In many of the courses offered on the Future Learn platform, assessment consists of short multiple-choice quizzes set to allow multiple attempts. While they can help course-takers evaluate their own progress and provide useful data for course developers, they do meet the stringent standards of on-campus examinations. New forms of learning matrix and assessment are needed in order to appropriately evaluate knowledge and competencies of MOOC students.

Some scholars (Nanfito, 2013; Teixeira & Mota, 2014) argue in favour of digital *badges* that students could earn for contributions they make in the course (peer feedback they provide, artifacts they make, etc.), which could be accumulated and eventually exchanged for credits. Credits would not be awarded based on the number of contact-hours, but rather their ability to apply the knowledge and skills they have acquired. Evaluation would not be based on a single task, but rather on a series of accomplishments through which learners demonstrate their competencies, which may have been acquired in different environments. The game-like nature of the badge system could help sustain students' motivation and provide a deeper insight into individual's interests, development and lifelong learning (Nanfito, 2013). However,

these models are still being tested and the number of universities that currently award credits for MOOCs remains low.

MOOCs have also had only a limited impact on students' job prospects (McIntyre, 2018). Employers do not seem to take MOOCs seriously and many are still hesitant to recognize MOOC qualifications. One reason for this is a lack of awareness. According to a 2017 survey by Quacquarelli Symonds (QS), a British company specializing in the analysis of higher education institutions and student recruitment, only 29% of the 4,654 companies that participated in the survey were familiar with MOOCs. The results also highlighted geographical and field disparities. While about 56% of the recruiters based in Eastern Europe were familiar with the MOOC model, the same was true of only 23% of the companies based in Western Europe and Latin America. MOOC awareness rates were also found to be much higher among recruiters working in consultancy, technology, and industry fields than in other business domains (McIntyre, 2018).

The limited value that MOOCs have in the current job market makes them more attractive to individuals interested in supplementing their education or advancing their careers than students on undergraduate programmes. The study of Christensen et al. (2013) on students enrolled on 32 MOOC courses offered by the University of Pennsylvania on the Coursera platform revealed that the majority of course takers were young, educated and employed individuals from developed countries. Following a review of MITx's '6.0002x: Circuits and Electronics' course, DeBoer, Stump, Seaton and Breslow (2013) also report that while learners come from a variety of geographical backgrounds, they tend to be well educated with graduate or postgraduate degrees. Similar observations have been made by Bárcena, Read, Martín-Monje, and Castrillo (2014), Beavern, Codrenau, and Creuzé (2014) and Rubio (2014). The findings about the students' profile put into question whether MOOCs are really making education more accessible on a global scale.

Technological resources and competencies. MOOCs cannot be delivered successfully without an adequate technological environment. Course providers must have a learning management system (LMS) though which they can share the course content, activities and resources, and make relevant course announcements. The LMSs should also have built-in discussion forums through which learners can debate the course content and provide feedback on the activities (Teixeira & Mota, 2014). In addition to infrastructure, MOOC providers also need human IT resources available to assist with implementation and running of the courses. Data from MOOCLab for 2017 shows that Australia accounts for 26% of total MOOCs offerings, followed by North America (18%), Europe (16%) and China (16%). It is clear that the cost of producing and running a MOOC is still prohibitive for many higher education institutions in the developing countries.

In addition to securing access to technology and funding, the development of MOOCs requires knowledge of effective instructional design in a technology-based learning environment. Many faculty members may have extensive subject-matter expertise, but not necessarily the technical or instructional knowledge needed to create a well-designed online course. Designing an online course is not limited to the selection of content, just as preparing an on-campus course does not end with the selection of a good

textbook. As Oblinger and Hawkins (2006, p. 14) point out, "Online instruction is more than a series of readings posted to a Web site; it requires deliberate instructional design that hinges on linking learning objectives to specific learning activities and measurable outcomes". Video lectures and activities should be specifically designed for a MOOC. What may work well in a traditional face-to-face classroom may not necessarily be suitable for an online lesson (Sokolik, 2014).

In order to respond to the needs of the 21st century, courses have to be structured in a way that will allow students to develop critical thinking and problem-solving skills as well as acquire specialized knowledge that they can apply in the new settings. This means that online courses must provide not only content resources but also opportunities for higher-order learning activities such as discussions and debates, peer exchange, as well as formative assessment with peer and teacher-feedback. Meeting these requires formal training in learning theory and instructional design, which many faculty members, though experts in their fields do not have. As Oblinger and Hawkins (2006) shrewdly observe "to expect them to master the instructional design needed to put a well-designed course online is probably unrealistic. A more effective model is to pair a faculty member with an instructional designer so that each brings unique skills to the course-creation process".

Learning in the technological environment poses challenges not only for the teachers but also students. The success of MOOCs depends on course takers having a stable, affordable high-speed internet connections. The multimedia MOOC formats require technology that can transmit high-quality audio signals and images and support stable interactive services. There are still major national and regional differences in this respect.

The digital literacy of the learners and language barriers are other issues of concern. MOOCs are designed on the assumption that learners will have a certain level of technical ability and subject knowledge. However, online learning requires a different set of skills from those needed to participate in social networks. In order to increase participation at a global level, online learning platforms should be made intuitive, and course takers should receive guidance in how to use educational technology and given time to get used to an online learning environment.

Language barriers should also be considered. The majority of MOOCs are offered in English, which for many learners poses an additional challenge of studying in a foreign language. To assist a global learner, lecture videos should be made with subtitles with downloadable transcripts. As Rodrigo (2014, p. 189) points out, "the usability of a product is not an inherent property". MOOC developers must consider the diversity of learners' backgrounds, and the differences in their learning goals, abilities and the context of use.

BLENDED MOOCs: THE BEST OF BOTH WORLDS?
'Blended MOOCs: The best of both worlds?' was the title of an article by David LaMartina, published in the digital edition of *Campus Technology* in 2013. It was one

of the first texts to point out the possible advantages of the MOOC-based hybrid learning model.

The simplest definition of blended learning is an approach that combines online educational materials with traditional classroom teaching. It is also referred to as "hybrid learning" and "technology-mediated" instruction. Blended learning can be implemented in different ways. In some learning models, course content is primarily delivered online and supported by optional face-to-face consultation sessions. In other contexts, learners rotate between face-to-face and online sessions on a fixed schedule or are given a choice with regard to which course components they complete online, and which activities they work on in a classroom. LaMartina (2013, para. 2) suggests a flipped classroom approach, where students work with MOOC content (readings, video lectures, etc.) at home, and meet in class for "discussions, problem solving, group projects or lab work". In this way, students are able to benefit from high-quality lectures from eminent scholars, and at the same time network with other students and enjoy the benefits of peer and teacher support.

Flipped classroom, blended MOOC models can help address some of the challenges of original MOOCs while preserving their benefits. Like traditional MOOCs, the blended MOOC model gives learners convenience and flexibility by allowing them to control the time and pace of their learning. Unlike in face-to-face lectures, learners can pause or re-watch lecture videos as many times as they need. They have more time to think about the content, take notes, formulate their questions and plan their strategies as well as assess their own progress. Self-assessment is considered an essential component of independent learning. It helps learners develop internal criteria for their success and has a positive effect on their autonomy and their motivation. Summarizing the relevant research on the benefits of self-assessment in MOOCs, Kulkarni and colleagues (2013, p. 3) point out that self-assessment "helps students reflect on gaps in their understanding, making them more resourceful, confident, and higher achievers [....] and provides learning gains not seen with external evaluation."

The hybrid model also results in a richer and more authentic learning experience. Integration of MOOCs gives learners access to materials developed by the world's top universities and an opportunity to work with sophisticated multimedia. At the same time, the flipped classroom aspect of the model creates a dynamic and interactive learning environment. A meta review of online learning studies commissioned by the U.S. Department of Education revealed that blended learning had a positive effect on learners' collaboration, creative thinking and independence (Means et al., 2009). Instead of coming to the classroom to sit quietly and listen to the lectures, writing down list of facts they later have to memorize, students can use on-campus time to ask questions and engage in topic exploration, problem solving and peer feedback. According to Vygotsky (1978), peer collaboration fosters deeper thinking and enhances learning outcomes. Learners can benefit from 'collective intelligence', a kind of 'group mind' that emerges from shared knowledge, collaboration and collective efforts of the members in a learning network. All these experiences can help students develop the skills and knowledge they need to succeed in a complex, dynamic, global marketplace.

Integrating MOOCs in the regular curricula would also solve the problem of course accreditation. Proctored testing would allow universities to assure quality of assessment and award credits to students who have successfully completed the coursework. These credits, in turn, would give students official recognition of their competencies, thus making them more marketable to potential employers.

The blended model benefits teachers as well. Instead of investing their time into making PowerPoint slides so they can transmit knowledge to students, with no clear idea how much they understand before the test results are in, they can assume roles of advisors and learning facilitators who guide learners to sources, rather than act as knowledge sources themselves. LMS analytics make it possible for instructors to track individual online learner's progress, while on-campus sessions allow them to spend more time with each student and help them understand the concepts they find challenging. Furthermore, MOOCs can also help lecturers keep up to date with research in their broader fields. As their research careers progress, "knowing more and more about less and less" seems to be the norm. Lecturers will often become experts on a certain subject, but they may fall behind on other developments in their broader field of study. At the same time, in many educational settings, instructors are often asked to teach one or more courses in their field that are outside their specific area of research. MOOCs allow teachers to stay connected with general developments in their fields and keep their courses current and relevant. Compared to other Internet-based resources, they bear an additional advantage in that materials are already structured, thus providing more integration between different course components.

Finally, the spread of the hybrid model could also benefit course developers. Course design, its online maintenance, the system security, and storage of data all involve costs and require investment. Therefore, having a stable monetization strategy is crucial for future growth of MOOC based education. Some MOOC providers have introduced institutional subscription plans. For example, Coursera currently offers special business plans for companies, universities and governments that start from $400 per user per year for teams and smaller organizations, and custom pricing options for larger organizations. EdX, the online platform established by Harvard and MIT, offers two models for university partnerships: the university self-serviced model and the edX-supported model. In the self-service model, edX keeps the first $50,000 of the revenues generated by a new course ($10,000 for recurring courses), and all further revenues are shared equally with the course developer. In the edX supported model, the company provides assistance with course production for a fee of $250,000 and charges another $50,000 each time the course is offered. As with the self-serviced model, edX also collects the first $50,000 of the revenues for new courses and $10,000 for recurring courses; however, course developers can keep 70% of all other revenues beyond this threshold (Nanfito, 2013). Adoption of the blended MOOC model would require that students have ongoing unrestricted access to course materials and freedom to adapt a MOOC to particular institutional needs. These rights can be purchased by client-universities the same way library books or access to journal databases are acquired. The licensing system would give smaller institutions an opportunity to offer international education and secure a revenue base for course developers that could help alleviate the problem of financial sustainability of MOOCs.

IMPLEMENTING BLENDED MOOCs

While the blended MOOC model can potentially bring multiple benefits to all agents in the learning process, it has to be implemented correctly and carefully to succeed. Introducing online learning involves much more than substituting paper and pen activities with a keyboard; adding new technologies will not automatically mean a better learning experience. To make a real difference, technologies need to be integrated in a meaningful way that modifies a traditional learning experience. Effective integration of MOOCs in university programmes presumes adjustments in roles that learners and instructors assume, modification of learning activities and adoption of new patterns of interaction.

A shift to blended learning requires that learners take an active role and assume responsibility in their learning process. Students must learn to plan their learning, manage their time and evaluate their progress. They also must have technical and collaborative skills. They need to be comfortable using computers and browsing the Internet and know how to work with other students in online and offline environments.

Teachers play an essential role in creating an effective blended learning environment. MOOCs are developed as context-independent courses meeting the needs of a global learner. However, as Darryl Tippens (2012, para. 2) points out, "higher education is not a single industry producing a single 'product', but an extremely varied enterprise, with more than 4,000 institutions doing different things in different ways, with different ends in mind". There are significant differences in the ways different universities structure their programmes, their educational goals and the student populations they attract. Unlike the original MOOCs, blended MOOCs are always context dependent. Integration of a MOOC in a degree programme requires that the content students are working with takes into account their geo-temporal conditions, matches their educational level and linguistic background, and meets the curriculum objectives. An undergraduate Japanese student of English taking a MOOC in Applied Linguistics from a British university may not have problems understanding a lecture on social aspects of pronunciation but may struggle with an activity where he/she is asked to identify regional accents in the UK. Instructors are those who must decide which lectures, readings and activities are suitable for their students, which ones should be compulsory and which ones can remain optional.

Course pacing should also be given attention. MOOCs usually last between 4 and 12 weeks and are typically divided into units which take between 4 and 8 hours per week to complete. The frequency of university classes will depend on the student' country of residence and the school they are attending. Some courses may meet once a week, some twice or more. This means that MOOCs cannot be simply adopted as they are. Blended MOOCs require detailed syllabus planning and structuring of the content. While the original MOOC provides a framework, teachers need to decide which activities are to be completed individually and which ones collaboratively, as well as whether that collaboration should take place synchronously or asynchronously. In order to maintain the course coherence, online tasks and classroom activities must be coordinated to complement each other. Face-to-face sessions can build on online activities or,

conversely, online activities can serve as preparation for on-campus work. They must ensure that students have opportunities to work with materials in a meaningful way. Learning will not happen simply by having students watch the videos. Students need opportunities to practice what they have learned both online and in the classroom. Instruction with pre-viewing, while-viewing and post-viewing activities is preferable. This three-stage activity model helps leaners to activate their knowledge schemata, and reflect, clarify and consolidate the content (Williams, 2013). Experimental research has shown that retrieval practice has a stronger effect on learning than elaborative study processes (Karpicke & Blunt, 2011). Content retrieval can be enhanced by having the students summarize what they remember from the lectures during face-to-face sessions.

Instructors are also responsible for student assessment. Assessment is an extremely important component of educational processes as it provides a basis for analysis of students' needs and further curriculum development. Evaluation should match course objectives and include both formative and summative measures. In a blended MOOC approach, assessment can take various forms such as computer-graded tests, self-assessment, peer-assessment or a traditional teacher-graded assignment. Each of these formats has advantages and disadvantages that have to be weighed.

Computer based tests offer a reliable and efficient way of monitoring learners' progress. Many MOOCs come with machine-gradable unit quizzes, which serve primarily formative purposes. Tests can be administered multiple times promoting content retrieval without creating undue burden for teachers. They can also be pre-programmed based on the principles of *mastery learning* (Bloom, 1968), according to which a certain level of content mastery (e.g., 90%) is a pre-requisite for moving forward to subsequent information or they can be adjusted in difficulty based on learners' earlier responses (*computer adaptive testing*). Frequent testing ensures that all students remain engaged with the content and study consistently throughout the semester. Online tests can also be designed to have a 'game-like' feel, making them more engaging for learners than traditional paper-and-pencil tests. An advantage of computer-based tests is that learners can get immediate feedback on their performance and instructors can easily identify the content areas that students have trouble with. A downside is that they require more complex programmes for testing higher-level competencies such knowledge application. Also, while being precise, computer adaptive tests are time-intensive and resource-intensive to create (Burns, 2018).

Self-assessment can be extremely beneficial for learners. It encourages students to think about the content and their learning practices and helps them develop internal criteria for their progress and success. Experimental data also suggest it is reliable. Sadler and Good (2006) find a very high correlation between student self-assigned scores and teacher scores. However, self-assessment requires some training and practice as well as instructors' support. In order to promote learning, self-assessment activities should have readily available answer keys and sufficient explanations and examples for learners to understand their errors. Displaying quiz scores with no feedback is not likely to improve students' performance and may have a negative effect on their motivation. Instructors can also facilitate self-assessment by providing rubrics with clear criteria that will help learners evaluate the quality of their work. Reflection questions can also

be a useful learning tool, as they encourage students to think about their goals and how to achieve them. While it can be a valuable pedagogic tool, a downside of self-assessment is the lack of formal recognition.

Peer assessment has been the most popular form of assessment in MOOCs so far. In this format, students assess the work of other students based on the set of criteria usually given by the instructor. By posting and answering questions in interactive forums and assessing each other's work, learners get opportunities to deepen their subject knowledge and hone the skills needed to evaluate and improve their own work. Nevertheless, there are a number of unresolved issues in relation to peer grading. Kulkarni and colleagues found that even with prior training, there are learners who fail to provide constructive feedback to their peers. Furthermore, learners' beliefs and cultural bias can also be a problem. Not all learners perceive peer evaluation as useful (Kulkarni et al., 2013). Finally, there is a problem of credibility. Although experimental research (Sadler & Good, 2006) suggests that with proper training students can achieve a very high level of grading accuracy, like self-grading, peer-assessment lacks public credibility and cannot provided a basis for official certification. That means that while self- and peer-evaluation can be valuable and rewarding practices in formative assessment, the courses must incorporate some form of "official grading".

Unlike the original MOOCs, where student enrolment can measure in the tens of thousands, in the blended MOOC model class size remains the same as for the regular on-campus classes. This means that assignments can be graded by the instructor. That said, assignment-grading is extremely time-consuming, and instructors should consider what kind of assessment can benefit learners most. For testing factual knowledge, multiple-choice computer-graded tests should be sufficient. For formative purposes, the emphasis should be on self- and peer-assessment. Teacher-grading should be primarily directed to summative evaluation and tasks that measure students' critical thinking and problem-solving skills, which are less suited to machine assessment. The time that is saved on test marking should be used to help students improve their competencies and develop skills and confidence to take control of their learning. Instructors must provide timely, constructive and continuous feedback on students' performance and strategies employed. They should teach learners how to take advantage of the blended learning environment and engage them in active learning and formative-assessment practices.

Teachers' roles as researchers should not be overlooked. MOOCs can be extremely rich sources of quantitative and qualitative data about students' learning patterns and styles. Castrillo de Larreta-Azelain (2014) identifies three types of data saved on the online platforms: (1) system interaction data (the number of registrations, clicks, page access, time on task, modules completed, etc.); (2) interaction data (contributions to forms, blog and wiki entries, etc.); (3) profile data (students' personal information). This information can be used for the development of more personalized learning resources and better learning environments.

It is clear that the blended MOOC model requires a new teacher profile. MOOC teachers must have all the competencies of face-to-face teachers, and assume the roles of course administrators, managers, technologists and researchers. In discussion of

traditional MOOCs, Castrillo de Larreta-Azelain (2014) argues that MOOC learners need both academic support from the course curator as well as support from the course facilitator, who should assist them with the emotional and organizational issues that may arise. A course curator must be an expert in course contents who can help resolve students' doubts, draw their attention to the specific issues, report on possible errors in the materials or recurring complaints or problems. A facilitator should oversee and moderate debate forums, make efforts to create and maintain a pleasant learning environment, motivate students, oversee social networks associated with the course, and report on any technical issues. In a blended MOOC model, the number of learners may be smaller, but the needs remain the same. In order to teach a blended MOOC successfully, instructors must have not only subject-matter expertise, but also technological skills and knowledge of the blended learning pedagogy.

These multiple and versatile roles that instructors must assume require ongoing institutional support. That support should come in the form of polices, strategies and technological infrastructure. Teachers should be given opportunities to develop a wide range of skills through both institutional training and practical experience. Blended learning should be approached as investment into a richer learning environment not a cost cutting strategy. Money could be saved only if MOOCs were adopted as complete courses in their original form. However, that kind of approach would hardly be popular with either the teachers or the students. The teachers may perceive MOOC adoption as a 'threat' or a lack of recognition for their expertise and the materials they have developed (La Martina, 2013). Substituting the existing courses with a MOOC would also raise practical questions about the role that the faculty should assume with regard to their management or student assessment. Pre-packed MOOC formats may not match learners' context and experiences. A 'full adoption' would probably also result in resistance from the students who would question having to pay tuition fees for the content that can be accessed online for free. Blended MOOCs should be introduced to offer students more personalized and more meaningful learning experiences, not to increase profit margins. MOOC integration entails the costs of purchasing course licenses, teacher and learner training, maintenance of digital infrastructure and ongoing technological support for both teachers and learners; therefore, they are not a money-saving strategy. What they do offer is a quicker response to everchanging job market needs and the growing pressure for competency-based education.

CONCLUSION

In 2015, in his essay in *The New York Times*, Thomas Friedman wrote that "big breakthroughs happen when what is suddenly possible meets what is desperately necessary" (Friedman, 2015, para. 3). A development of information communication technologies has removed geographical and temporal constraints of communication. At the same time, a growing demand for affordable education, and concerns whether universities really equip graduates with the competencies they need to survive and thrive in the 21st century have highlighted the need for reform of higher education. MOOCs were developed in an attempt to address these concerns and make education available to all. Today, the question is not whether or not we need MOOCs, but how to increase their impact on higher education. What a 21st century student needs are

experiential learning and global engagement. What a 21st century student wants is affordable, relevant and personalized education experience. A traditional model, where students come to campus to sit passively through long lectures noting down facts on which they later will be tested, is neither desired nor desirable. The 21st century is pressing for a shift from a learner-centred to a *learning-centred* approach (Nanfito, 2013). Learners should work with the subject matter and teachers should work with the learners. Class time should not be used for 'lecturing' but rather for clarification, strategy improvement, discussions and problem-solving activities on which learners should get personalized feedback.

The blended MOOC model, with its fusion of face-to face and online learning experiences, may help overcome some of the challenges of both traditional education and original MOOCs. Blended MOOCs allow learners to work on the materials at their own pace and collaborate with others in a constructive manner. Through self-reflection as well as peer and teacher-feedback, they learn to make sense of information, relate it to prior knowledge and use it for new learning. Through use of course analytics, instructors, on their part, can learn more about the problems that learners have and the strategies they employ. That knowledge can help them offer more targeted on-campus instruction and more personalized feedback. At the institutional level, blending of MOOCs and on-campus courses makes it possible to respond to market pressures for more frequent curriculum reforms in a more efficient way.

However, while access to technology has opened a path to richer and more flexible educational experience, integration of new technologies in education does not end with a purchase of software or a MOOC subscription plan. Blended learning is not a uniformed learning model, and teachers play a key role in making decisions about its implementation to make it successful. Instructors must reassess course syllabuses and develop detailed teaching plans that would maintain a balance between synchronous (time-coordinated) and asynchronous (time-independent) activities (Cleveland-Inners &Wilton, 2018). Synchronous learning is conducive to group work and helps build a learning community. Discussions and peer feedback are easier to do in real time, and collaborative learning and human connection have a positive effect on learners' motivation. On the other hand, asynchronous activities give learners flexibility and promote learner autonomy, as they offer more time for response planning and reflection. Instructors must also monitor students' activity and provide necessary assistance helping students meet the objectives and learn how to learn. In short, successful implementation of a blended MOOC model needs a high level of teacher involvement and preparation, requiring much more than delivering lectures, giving out tests and reporting the scores. To be able to assume these new roles, teachers must have strong comprehensive institutional support.

John Dewey once said that if we teach today's students as we taught yesterday's, we rob them of tomorrow. The world is changing faster than ever before. The most important skill for the 21st century may be the ability to adapt, or to paraphrase Alvin Toffler (1970), students must learn not only to learn, but also to *unlearn* and *relearn*. However, the ability to adapt, to 'unlearn and relearn' is essential not only for students but also institutions. 21st century learners cannot be taught by 20th century teachers

following the 20th century curricula. Change must take place at all levels. It may not be comfortable, but as John Kennedy once observed, "change is the law of life. And those who look only to the past or the present are certain to miss the future" (Kennedy, 1963).

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