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Massive open on-line courses (MOOCs): global education paradigm shift?

Summary

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Abstract:

Massive open on-line courses or «MOOCs» is the current catchphrase of the on-line education sector. Many see MOOCs as representing a «disruptive innovation» that will change the education.

There are many supporters and many cynics who have weighed in on the MOOC debate. This paper provides an overview of the development and evolution of MOOCs with a view to looking at possible future directions that might be available for these types of courses.

Keywords: on-line education, MOOCs, disruptive innovation.

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Cursos en línea masivos y abiertos (MOOC):
¿un cambio de paradigma en la educación global?

Extracto:

Los cursos *on-line* masivos en abierto o «MOOC» son el eslogan actual del sector de la educación en línea. Muchos ven los MOOC como la representación de una «innovación disruptiva» que va a cambiar la educación.

Hay muchos partidarios y muchos cínicos que han intervenido en el debate de los MOOC. Este artículo ofrece una visión general del desarrollo y la evolución de los MOOC con el fin de ver las posibles futuras direcciones que podrían estar disponibles para este tipo de cursos.

Palabras claves: educación *on-line*, MOOC, innovación disruptiva.
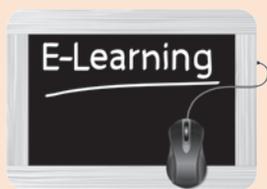
1. INTRODUCTION

On-line education is not a new phenomenon (Sloan Consortium, 2013). An increasing number of universities have embraced the on-line education opportunities. Essentially, on-line learning is simply a method that has been developed to deliver educational products to the end user via technology. As with many other sectors of the economy, technological advances have driven substantial innovation and enhanced productivity. Specifically, advocates of on-line learning suggest that the benefits to the on-line model include more flexibility. Students can access a course at a time suitable to their needs. In addition, the model affords efficiency gains as distance and travel are no longer obstacles for learners. The introduction of on-line learning has generated significant changes both internationally and domestically in the United States.

Internationally, the Global Universities in Distance Education (GUIDE) association was founded by Marconi University in 2005 and it now has more than 140 members on all continents. The aim of GUIDE is to «develop and support international cooperation and open and distance learning worldwide. By strengthening the role of higher education institutions as drivers of innovation and development, GUIDE promotes the implementation of innovative results, insights and best practices in order to identify present, emergent and future needs of regional and international stakeholders and highlight potential areas for strategic partnerships and transnational cooperation» (GUIDE, 2014). Fundamentally, GUIDE is a network of international universities that share best practices and techniques to improve the quality and use of on-line learning.

In the United States, the Sloan Consortium has conducted an annual survey in each of the last ten years. The most recent survey highlights the following:

«i) The number of students taking at least one on-line course increased by over 570,000 to a new total of 6.7 million.

ii) The on-line enrollment growth rate of 9.3 percent is the lowest recorded in this report series.

iii) The proportion of all students taking at least one *on-line* course is at an all time high of 32.0 percent».

(*Sloan Consortium,* 2013)

As reported in the Sloan survey there is an increasing number of students that have already made the decision to take on-line courses. The adoption of on-line learning in the US continues unabated.

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2. CHALLENGE AND CHANGE IN EDUCATION

One of the main reasons that drives the interest in on-line learning is the enhanced flexibility and affordability enabled by technology. From desktops, to laptops, to handheld devices e-learning is continuously improving and meeting the needs of consumers. Education can now be more responsive to the consumer who is looking to build on their skill sets while often working, raising a family or doing other things. In the past, there was one way to get an education which, of course, meant physically attending a school. This mode of education is contrary to many of the methods modern society has adopted to conduct business. By definition, the traditional requirement of attending a school means that many are simply not able to develop the skill sets necessary for the increasingly competitive workplace of the 21st century. The opportunity cost alone of traditional education makes on-line learning a very viable option for many to consider.

As on-line learning was rolled out in the late 20th century there were critics who challenged the rigor and quality of this delivery mode versus the traditional on ground experiences. However, there have been incremental improvements made to the learning management systems, the courses themselves including the content, the use of metrics to manage the student experience and to the instructors that have assisted in addressing many of the initial concerns (Zucker, 2010). As with many new innovations, it has taken time for on-line learning to gradually improve and to be accepted by the main stream of society.

Clearly, as illustrated in the Sloan Consortium (2013) report consumers are «voting with their feet» and they are increasingly embracing on-line learning. Equally, there appears to be increased acceptance of on-line learning by employers (Zucker, 2010).

> **One of the new trends that have caught the attention of many with respect to on-line learning is the introduction of massive open on-line classes or MOOCs**

3. INTRODUCTION TO MOOCs

One of the new trends that have caught the attention of many with respect to on-line learning is the introduction of massive open on-line classes or MOOCs. Basically, MOOCs are simply on-line courses available to anyone. There are no prerequisites in terms of education and experience. Also, MOOCs are available for free. Although a relatively recent phenomenon, the *New York Times* called 2012 «the year of the MOOC» (Pappano, 2012). An average MOOC has 33,000 students in a class with some classes exceeding 100,000 students and the largest class had 180,000 students (Kolovich, 2014). The intent of MOOCs initially was to provide more access to good quality education at an affordable price using technology. However, as noted by Christensen and Alcorn (2014),

> «these courses are not providing the revolution in access that proponents claim. Two-thirds of participants come from the developed world –the United States and other members of the Organization for Economic Cooperation and Development, the club of leading industrialized countries. This is despite the fact that these 34 countries only account for 18 percent of the world population. And 83 percent of MOOC students already have a two– or four-year diploma or degree, even in regions of the world where less than 10 percent of the adult population has a degree. Meanwhile, 69 percent of them are employed».

These data seem to suggest that the reality is quite different with respect to initial goals of MOOCs to the extent that there is a limited pool of students and in many cases these students are already employed.

One key reason for the data showing that many MOOC learners are not involved in courses to improve job skills may be related to the fact that these courses currently do not have academic credit. The actual courses themselves include readings and video lectures and often intra class interactions are the responsibility of teaching assistants. Most assignments are auto graded or peer graded to reduce the hands on component of the instruction. There is very little if any direct interaction with instructors.

4. WHY ARE MOOCs SEEN AS A GAME CHANGER?

Supporters of MOOCs argue that they provide a low cost way to educate society without regard to national boundaries and socio-economic background. For the most part, MOOCs are made available by the leading academic institutions in the world. As an example, only «approved» institutions can join the club offering a MOOC through the Coursera system. Clearly, the on-line and free nature of the courses affords considerable global access. However, there are many skeptics.

In a recent survey of U.S. University Presidents involving 889 respondents many noted that MOOCs were not a panacea. As illustrated in figure 1, many Presidents appear to have significant concerns about the ability of MOOCs to address many of the fundamental challenges impacting U.S. universities today. Specifically, the respondents are particularly skeptical of the ability of MOOCs to improve the quality of learning and the ability to solve the financial challenges facing many academic institutions. Obviously, as leaders in the academic sector the views of university Presidents are important in the ongoing evolution of MOOCs.

Some institutions have big ambitions, and that makes some college leaders nervous. They're especially worried about having to compete with free courses from some of the world's most exclusive universities. Of course, we still don't know how much the courses will change the education landscape, and there are plenty of skeptics as illustrated in figure 1.

Figure 1. **Presidential views of MOOCs**

	Escale is from 1 (strongly disagree) to 5 (strongly agree)					Don't Know
	1	2	3	4	5	
Improve the learning of all students	28%	31%	24%	10%	3%	4%
Solving colleges' financial challenges	31%	33%	21%	9%	2%	4%
Getting superior teachers in front of more students	18%	22%	28%	22%	7%	3%
Fostering creative pedagogical strategies	10%	17%	27%	32%	11%	3%
Increasing collaboration among colleges	10%	19%	30%	29%	7%	5%
Reducing costs of education to students	15%	23%	31%	20%	8%	

Source: Jaschik, S. [2013]: «MOOC skeptics at the top», *Inside Higher Education*.

Retrieved from:
https://www.insidehighered.com/news/2013/05/02/survey-finds-presidents-are-skeptical-moocs

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5. MOOCs: THE PROVIDERS

A number of years ago, the Massachusetts Institute of Technology started a widely publicized initiative called OpenCourseWare. The intent was to make all MIT course materials available free on-line. For the most part these materials are notes only. There are no assignments or interactive components. Also, there are no testing mechanisms in these OpenCourseWare components. Many see this effort as a step towards the MOOCs that we see as so popular today.

A common question about MOOCs is related to academic credit. Often students ask, «if you take tests in a MOOC, do you get any academic credit?».

To date, the answer is primarily no. However, there are a number of changes including the approval of five MOOCs for college credit by the American Council on Education (ACE). Although,

> «the (ACE) council's endorsement alone does not mean students can expect to save money by redeeming their Coursera certificates –evidence that they have passed its courses– for credit toward a traditional degree. But if some colleges follow through, the council's recommendations could go a long way toward straightening the crooked path from free college courses to valuable college credits. Simplifying that process could make the economic significance of MOOCs more tangible».

> (*Kolowich,* 2013*a*)

ACE is continuing to look at an expanding list of MOOCs for possible credit.

Several start-up companies are working with universities and professors to offer MOOCs. Meanwhile, some colleges are starting their own efforts, and some individual professors are offering their courses to the world. Right now three names are the key providers:

EdX

It was founded by Harvard University and by MIT. It provides interactive on-line classes and MOOCs from a number of the best universities in the world (EdX, 2014). There are more than 200 courses in a variety of subjects being taught by more than 400 faculty and support personnel. EdX is a non-profit on-line initiative.

Coursera

It is perhaps the most well-known of the MOOC providers. It is a for-profit company founded incorporated in April, 2012 by two computer-science professors from Stanford University. It has received venture capital from a number of key partners. Specifically, many see

> «(...) Coursera as fast becoming an investor's pet with a new $43 million round of funding (...) raised from investors such as Laureate Education Inc., the World Bank's investment arm, LearnCapital Venture Partners, GSV Capital and venture capitalist Yuri Milner».

> (*Korn,* 2013)

The model of the company is to invite certain colleges who must agree to use the Coursera platform and offer free courses that will allow them to share a specified amount of any revenue. Currently, there are more than 110 high-profile institutions, offering more than 735 free courses to more than nine million courserians (Coursera, 2014). The mission of Coursera is

> «we envision a future where everyone has access to a world-class education. We aim to empower people with education that will improve their lives, the lives of their families, and the communities they live in».

> (*Coursera,* 2014)

Udacity

Another for-profit company founded by a Stanford computer-science professor. The mission of Udacity is

> «to bring accessible, affordable, engaging, and highly effective higher education to the world. We believe that higher education is a basic human right, and we seek to empower our students to advance their education and careers».

> (*Udacity,* 2014)

The company, which works with individual professors rather than institutions, has attracted a range of well-known scientists. Udacity primarily focuses on courses related to computer science and related fields.

> **(...) MOOCs have certainly moved the issue of on-line learning to a higher level of global use and understanding**

6. THE FUTURE OF MOOCs

There are a number of for-profits and not-for-profits behind MOOCs. Funding to develop MOOCs has come from venture capital and from foundations. One source active in supporting academic innovation including MOOCs is the Bill and Melinda Gates Foundation. Most recently, the foundation announced the final recipients of grants for research and development specific to massive open on-line courses (MOOCs) (Korn, 2013).

Of the $3 million total in grant money, $550,000 has been dedicated specifically to schools that will develop MOOCs for «gateway courses» (introductory courses that serve as the foundation for a major (Coursera, 2013). In addition, there are numerous other sources that have been active in funding the development and launch of courses including the World Bank and the Laureate Education Group (Korn, 2013).

Youngblood (2012) identifies a number of common concerns related to MOOCs:

- There is really no business case associated with the development of MOOCs. Currently, MOOCs are one-off courses that have captured the imagination of the popular press and the public at large. However, to date these are not designed in a fiscally sustainable manner. These free courses do not generate any credit nor do they permit any to actually certify with any certainty that any real learning has been accomplished. The lack of a sound business case can mean that the discipline required in addressing issues like enrollment, course quality and outcomes remains a crucial issue and more thought needs to be included in developing a model that can monetize MOOCs.

- As one-off courses there is no consistent way to actually develop and «certify» a body of knowledge for a student. Each participating university simply develops a course and they do not align well in terms of a program or an area of study.

- MOOCs do not have student entry standards with respect to a course. In that regard, the lack of standards helps drive big enrollment numbers in any given course. However, the lack of proper standardization leads to wide variability in respect to the capabilities and background of participants in the course. Indeed, current estimates are that less than 10 % (Kolovich, 2013) of registered students actually complete the course. In part, this figure may represent a lack of suitable skills and training related to some participants. In fairness, Coursera suggests that «(...) most students who register for a MOOC have no intention of completing the course. Their intent is to explore, find out something about the content, and move on to something else», said Ms. Koller (Kolovich, 2013*b*).

7. SUMMARY

In summary, MOOCs have certainly moved the issue of on-line learning to a higher level of global use and understanding. However, there are clearly concerns about the actual impact of MOOCs. Indeed,

> «(...) MOOCs were once hailed as the next big disruption to traditional higher education, opening the door to a college education to anyone, anywhere in the world. But the low percentage of students who complete such classes on their own, and the fact that most people who sign up for MOOCs already have a college degree, have educators rethinking how the new format for college coursework can best be put to use».

> (*Calvert*, 2014)

Although MOOCs have not led to the demise of the traditional classroom setting, they have «undoubtedly instigated tons of innovations that are forever changing how learners learn and teachers teach» (Galer, 2015). In the final analysis MOOCs remain a work in progress.

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