

MOOCs – an important step in education

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Abstract – In a globalized world, where anyone has the freedom to travel or work anywhere and where companies develop different ventures in different parts of the world, it was only natural for education to become more globalized. Together with the need of a disruption in education, MOOCs manage to appear in a perfect timing with the global situation. This paper tries to explain why this type of education had success only now and analyses some of its main features. Next, we argue about the importance of MOOCs in education and we try to anticipate the future direction of this technology.

Keywords: MOOCs, Higher Education, Online Education

I. INTRODUCTION

Since prehistoric times, one by one, each field has suffered more or less dramatic changes. Disruption appeared in economy, labour, health, technology, human rights, war and the list can go on. However, in our humble opinion which is aligned with the majority of researchers in the field, one particular domain has remained, in a general understanding, unchanged. Of course, we speak about education. One could argue that a lot of change occurred but we underline the main concept of education in a symbolic learning-trinity: teacher-material-student. The educational flow states that the teacher will present the material to the student.

As a matter of fact, we want to point out the major changes education underwent in its history. First of all, education was done orally, as we can point out the best example of the philosophical school of the Greeks. Second of all, a big disruption happened at the moment of Gutenberg's invention of the printing press (1439), which was of great help for information dissemination, as until then most of the texts were hand written. We move now almost 500 years into the future, to the first public radio broadcast (1910) of a live Metropolitan Opera House performance, which opened the way to a new way of spreading information. We can honestly say that the 20th century brought a lot of changes into the educational methods and ways of information transmission with the subsequent invention of the radio, television, computer and finally, the Internet. The Internet itself was a revolution, as it opened an unimagined potential for communicating and finding information on every

single field that we could imagine. To quote, Sir Tim Berners-Lee, "it's difficult to imagine the power that you're going to have when so many different sorts of data are available." [1]

Nevertheless, there is one specific internet technology that was the most stated so far to strongly disrupt education as we know it. In 2008, two Canadian researchers and teachers, Stephen Downes and George Siemens, developed a connectivist course [2][3] which they held online and left it entirely open for anyone to join. They were surprised to have a total of over 2200 students enrolled who interacted and collaborated like never before seen. During a conference call they had with Dave Cormier, the latter came with the name "MOOC" [4][5] for the new educational paradigm. This is an acronym and it stands for Massive Open Online Courses. In an amusing note, he keeps stating both in private and at conferences that he is sorry he didn't come up with a better name.

The idea of education offered online, for free, to the masses was not new, as other ventures like OpenCourseWare [6], AllLearn [7], Fathom [8] or even Khan Academy [9] appeared and some of them even disappeared until MOOCs came into the picture. We believe that the time synchronization was not proper before. The next step into MOOC development was the year of 2011 when different professors from Stanford started the privately funded Coursera and Udacity, offering courses that gathered as much as over 100.000 students in one iteration [10][11]. The "MOOC-mania" was fully unleashed in 2012, sustained also by Laura Pappano's New York Times article "The year of the MOOC" [12].

Since then, an explosion of MOOC providers and courses appeared, offering a diversity of educational material that would have been unbelievable 50 years ago. The concept of MOOCs is pretty simple: you need an internet connection and a device on which to access it; you choose one of the multiple courses available. You start it right away, or wait for the starting date when the materials will be available, depending on the platform you choose. Then, you start learning in your own rhythm and way. Again,

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depending on the platform, this rhythm could be constrained, as there are weekly or monthly assignments that need to be completed. The fact that MOOCs are offered within a paced and time-dependent course model limits this flexibility [5]. If you choose to finish the course, most of them offer you the possibility of receiving some sort of credentials. You might be required to have a written exam or to submit a specific paper or project. Some platforms require payments in order to offer credentials, others offer open credentials and/or badges. Some platforms have proctored exams in collaboration with institutions like Pearson VUE, others work by peer-reviews or they have software or employees that review the final assignments of the students.

In order to better understand how MOOCs work we tried to analyze some of their particularities and to explain the way in which they might have an impact over education.

II. MOOC PARTICULARITIES

MOOCs have been divided into two big groups that differ a lot from each other from the point of view of the pedagogy, the course structure and the interaction of the students with the teacher and with each other: cMOOCs and xMOOCs.

The cMOOCs are based on a connectivism theory of learning with networks developed informally. cMOOCs provide great opportunities for non-traditional forms of teaching approaches and learner-centered pedagogy where students learn from one another [13].

The xMOOCs (appeared in 2011) follow a more behaviourist approach. It is the instructional model, essentially an extension of the pedagogical models practiced within the institutions themselves. xMOOCs can be divided into profit and non-profit. They are based mainly on interactive media, such as lectures, videos and text. xMOOCs have been criticized a lot for lacking innovation in what pedagogy is concerned and for adopting a knowledge transmission model [14][15]. The xMOOCs have a formal (traditional) course structure and flow while the cMOOCs have some content as a starting point and then the learners are expected to create and extend the content.

George Siemens depicts beautifully the difference between the two: cMOOCs focus on knowledge creation and generation whereas xMOOCs focus on knowledge duplication [16].

The most encountered way of disseminating the course materials are educational videos. There has been a lot of research going on about the way the videos should be realized, filmed, structured or scripted. The main types of videos used in MOOCs,

as we have encountered in our experience are: “talking-head”, “hand on screen”, “interactive lecture”, “voice over presentation”, “lecture capture”, “demonstration video”, “animated video” or a “hybrid video”.

Lecture Capture represents the recording of a live lesson. This preserves the classroom environment, the communication between the teacher and the students. However, it offers no interactivity for the online student.

Talking Head video consists of close-up shots of the instructor. He speaks directly to the recording equipment and is filmed at his office or in a studio with no audience, during which he talks on the subject matter [17]. There is no interactivity: the script of such lecture must be presented in a manner that does not seem boring to the online students.

Voice over Presentation includes a slides presentation, supplemented with a voice over that gives details/explain the slides.

In a Hand on Screen video the teacher’s voice is synchronized with the hand writing on the table/board/paper. The video content focuses on what is being written or shown on the board [17]. The style is popularized by Khan Academy videos.

A Tutorial/Demonstration proposes a video screen capture with the teacher's voice over, where the instructor demonstrates a concept, writes a code in a text editor or command - line prompt, using different programs or documents [17].

Animated instructional video implies technical advanced skills for developing or learning commercial software.

Interactive Lecture represents one of the most complex types of online lecture videos. Interactivity has multiple ways to manifest: switching mode between slide and video modes, supplement video part with hyperlinks, resource and files, annotations etc.. The instructors can create the content in a way that allows students to choose segments of the video lectures they want to study.

A Hybrid video lecture offers a combination of the lecture types listed above or particular teaching cases.

We conclude this by stating that the most important aspect of a MOOC, especially for xMOOCs is the video, as its quality may be the decisive factor for a student to continue or stop following the course.

III. IMPACT ON EDUCATION

But why should a university develop a MOOC or join the MOOC business? We believe there are a lot of

reasons. To begin with, the impact of MOOCs being so high in the current period, the publicity that doing a MOOC brings can help the university to attract new students both for their online programs but also for the traditional brick-and-mortar type education programs. Furthermore, the challenge to rethink a course structure and materials could be benefic to the instructors and policy makers because they get a fresh perspective and get more involved and enthusiastic about this new endeavor. Moreover, offering quality online courses makes a clear statement that the institution offering them is looking into the future and is positioning itself as a leader of innovation and education. The possibility MOOCs hold out is that the educational parts of education can be unbundled [18]. It is imperative that the goal(s) be clearly established early so that appropriate decisions regarding design and development can be made which support the goals [19].

However, we have to state the issues as well. One big problem is the quality of this new type of pedagogy. Because it is our opinion that the way of disseminating the course material is innovated and not so much the pedagogy style, and we are not the only ones to state this [20][21][22][23]. Usher [24] questions whether our interest should be really about making the existing “old” education cheaper – or rather about making education more meaningful and relevant for 70% of the young people, who have to find a job after graduation. The flipped classroom concept, in which the student studies the theory at home and then discusses the issues and the examples in the classroom is connected with MOOCs and could be one solution to the positive change that is looked for by many people involved in education.

Another major discussion over MOOCs is about the low retention and completion rates of the courses, with 5 to 15% numbers [25][26][21], depending on various sources. Is this a problem? Is the goal of a MOOC to have high numbers in percentage? If we consider that 5% of 10.000 represent 500 people, this is a good number after all. From our perspective, the goal of a MOOC student differs from person to person so we need to come with new ways of measuring the success percentage, adding different filters depending on what students want to achieve. This has been strongly supported by other researchers as well [27][28][29][30][31].

As Downes [32] put it, it's about reducing and eventually eliminating the learned dependence on the expert and the elite - not as a celebration of anti-intellectualism, but as a result of widespread and equitable access to expertise. The other “forefather” of MOOCs, George Siemens stated that the value of MOOCs may not be the MOOCs themselves, but rather the plethora of new innovations and added services that are developed when MOOCs are treated as a platform [16].

From an economical point of view, there is still to find the proper way in which these MOOCs could be financially sustained. After all, it is estimated that a course costs around \$50.000 to put online [33]. For example, Udacity has changed its focus towards corporate training, which brings more money to satisfy the venture capitalists that supported the original costs of the platform. Sebastian Thrun, Udacity's owner went so far to say that they've created a lousy product and that they need to rethink their whole strategy [34].

There's nothing particularly new about MOOCs. Most universities have offered online courses for many years and the basic technologies involved – video lectures, discussion forums, tests, and the like – are the same we have used with on-campus and distance students. The only difference is the scale [35].

IV. CONCLUSIONS

One big discussion revolves around the quality of the courses that are offered via MOOCs, as the providers leave the verifying of the material in the hands of the course creators. This could be ok if the course is created by a university, but even so, there are many question marks regarding the seriousness with which this job is done. But what happens when individuals choose to create a course and some platforms allow them to do so. We, as students, need to have a very good filter when it comes to what is good education and what isn't.

Scholars who are skeptical of MOOCs warn that the essence of a college education lies in the subtle interplay between students and teachers that cannot be simulated by machines, no matter how sophisticated the programming [36].

The hype of MOOCs has passed and the disruption most foreseen never happened. Some called the MOOC phenomenon as a tsunami [37], others called it a revolution [38][39][40] and some went so far and stated that in 50 years, only ten universities will stand [41]. However, brick and mortar institutions have prevailed, and the disruption seems unlikely to happen, at least not in the way it was predicted a couple of years ago. Online education cannot replace the human factor, offered by real campuses. The on-campus experience helps the students to interact with teachers and peers and helps them build upon their socialization and networking skills [42].

The benefits of free online learning are undeniable and the opening that MOOCs offered to remote areas around the globe and to people who don't have physical or economical means to pass through the universities' gates is one of great importance to the ongoing development of the world.

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