Zadání bakalářské práce

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Název bakalářské práce:	**Autonomní vzdělávání: e-learningové trendy 21. století na střední a vysoké škole**
Název bakalářské práce AJ:	Autonomous Learner: E-learning Trends in Higher Education in the 21st Century

Cíl, metody, literatura, předpoklady:

The bachelor thesis focuses on technological innovation as the key aspect of the ongoing transformation of higher education. Noticing the rising popularity of self-directed learning, several studies in the past years considers its appeal among the academia, as well as the general public. The overall aim of the thesis is to validate the positive impact of free educational web content on college students' experience. In theoretical part, it examines how the web technology is changing the way college students find and learn relevant information. The research part then presents several major e-learning sources, such as Coursera's MOOCs or Khan Academy, and analyses their conceptual strategy as well as execution of those goals from the student's viewpoint. With e-learning being a part of discourse on transformation of higher education, this work considers the possible implications of the debate.

ARUM, Richard. ROKSA, Josipa. Academically Adrift: Limited Learning on College Campuses. Chicago: University of Chicago Press, 2011 BONK, Curtis. J. The World Is Open: How Web Technology Is Revolutionizing Education. San Francisco: Jossey-Bass, 2009 BONK, Curtis. J. LEE, Mimi. REEVES, Thomas C. MOOCs and Open Education Around the World. Routledge, 2015 EVANS, Nancy J. Student Development in College: Theory, Research, and Practice. San Francisco: Jossey-Bass, 2009 GOODFELLOW, Robin. LEA, Mary R. Challenging E-Learning in the University: A Literacies Perspective (Society for Research Into Higher Education). Open University Press, 2007 LEER, Raysa. IVANOV, Sergey. Re-Thinking The Future Of Learning - The Possibilities And Limitations Of. Technology In Education In The 21st Century in The International Journal of Organizational Innovation, vol. 5, 2013. PASCARELLA, Ernest T. TERENZINI, Patrick T. How College Affects Students: A Third Decade of Research. San Francisco: Jossey-Bass, 2005 ZOUNEK, Jiří. E-learning - jedna z podob učení v moderní společnosti. Vyd. 1. Brno: Masarykova univerzita, 2009 ZOUNEK, Jiří a Petr SUDICKÝ. E-learning: učení (se) s online technologiemi : kniha s online podporou. Vyd. 1. Praha: Wolters Kluwer ČR, 2012

Anotace:

Bakalářská práce se zabývá současným trendem modernizace a inovace středoškolského a vysokoškolského vzdělávání pomocí informačních technologií. Stoupající popularita sebevzdělávacích kurzů a e-learningových programů se odrazila i ve zvýšeném zájmu nejen akademické obce, ale i laické veřejnosti o tuto problematiku. Hlavním cílem této práce je prokázat pozitivní vliv dostupných online vzdělávacích programů na studenty středních a vysokých škol. Teoretická část se věnuje způsobu, jakým informační technologie mění způsob nalézání s vstřebávání informací z pohledu aktivního studenta. Výzkumná část se poté soustředí na několik hlavních poskytovatelů e-learningových programů jako jsou Coursera, Khan Academy nebo YouTube a analyzuje jejich konceptuální vzdělávací strategie a následnou kvalitu plnění vzdělacích cílů z pohledu studenta se zájmem o sebevzdělání. Záměrem práce je přispět k debatě o využití

online technologií a e-learningu při transformaci vzdělávacího systému vzdělávacího systému v České republice a informovat o jeho možných dopadech.

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Univerzita Hradec Králové

Pedagogická fakulta

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Autonomous Learner: E-learning Trends in Higher Education in the 21st Century

Bakalářská práce

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Hradec Králové   2016

Prohlášení

Prohlašuji, že jsem tuto bakalářskou práci vypracovala samostatně a uvedla jsem všechny použité prameny a literaturu.

V Hradci Králové

Anotace

ČERNÍKOVÁ, Andrea. *Autonomní vzdělávání: e-learningové trendy 21. století na střední a vysoké škole*. ||Hradec Králové: Pedagogická fakulta Univerzity Hradec Králové, 55s. 2016. Bakalářská práce.

Bakalářská práce se zabývá současným trendem modernizace a inovace středoškolského a vysokoškolského vzdělávání pomocí informačních technologií. Stoupající popularita sebevzdělávacích kurzů a e-learningových programů se odrazila i ve zvýšeném zájmu nejen akademické obce, ale i laické veřejnosti o tuto problematiku. Hlavním cílem této práce je prokázat pozitivní vliv dostupných online vzdělávacích programů na studenty středních a vysokých škol. Teoretická část se věnuje způsobu, jakým informační technologie mění způsob nalézání s vstřebávání informací z pohledu aktivního studenta. Výzkumná část se poté soustředí na několik hlavních poskytovatelů e-learningových programů jako jsou Coursera, Khan Academy nebo YouTube a analyzuje jejich konceptuální vzdělávací strategie a následnou kvalitu plnění vzdělacích cílů z pohledu studenta se zájmem o sebevzdělání. Záměrem práce je přispět k debatě o využití online technologií a e-learningu při transformaci vzdělávacího systému vzdělávacího systému v České republice a informovat o jeho možných dopadech.

Klíčová slova: MOOC, autonomní vzdělávání, e-learning, současné trendy ve vzdělávání.

Annotation

The bachelor thesis focuses on technological innovation as the key aspect of the ongoing transformation of higher education. Noticing the rising popularity of self-directed learning, several studies in the past years considers its appeal among the academia, as well as the general public. The overall aim of the thesis is to validate the positive impact of free educational web content on college students' experience. In theoretical part, it examines how the web technology is changing the way college students find and learn relevant information. The research part then presents several major e-learning sources, such as Coursera's MOOCs or Khan Academy, and analyses their conceptual strategy as well as execution of those goals from the student's viewpoint. With e- learning being a part of discourse on transformation of higher education, this work considers the possible implications of the debate.

Prohlášení

Prohlašuji, že bakalářská práce je uložena v souladu s rektorským výnosem č. 1/2013 (Řád pro nakládání se školními a některými jinými autorskými díly na UHK).

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Poděkování

Děkuji Mgr. Janu Sukovi za vedení mé práce, cenné rady a podporu.

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Introduction

The global education landscape changes massively every year and in particularly is being invariably shaped by the recent trends of opening up the higher education to the masses via the internet. The democratization of knowledge, however long overdue, poses an interesting philosophical question in the realm of the extent, to which knowledge can be seen as common property, as well as more practical problem of its real-life applicability and access.

Utilization of open educational resources (OERs) as well as various forms of e-learning software has been a major trend in the education sector, in the past years and a topic of numerous studies by institutions like OECD (*Students, Computers and Learning, 2015*) or the European Commission (*Opening up education: Innovative teaching and learning for all through new technologies and open educational resources, 2013*) as well as the academic community and non-profit organizations like the Bill and Melinda Gates Foundation.

Many higher education institutions, most notably the Massachusetts Institute of Technology (MIT) or the Google (Google Books, Google Scholar) have vowed to create and distribute OERs in the past, but their activity usually ends with uploading such materials online, the pedagogy and instruction on how to teach them or the courses that would teach them remain a well-guarded 'know how.'

Learning and teaching with the help or entirely through the virtual learning environments are a part of a larger e-learning movement within the education, which uses technology to enhance and transform the learning and teaching process. Virtual learning is now one of the fastest growing branches of the e-learning world. The range of online classes that operate fully online and that the students can access and study without any real-life interaction between them, their classmates, and the teacher calls for a new look into what the truly academic experience consist of, and why are such new technologies gaining popularity among the general public.

One of the more recent, of the exciting developments that are happening in educational technology is the creation of the Massive Online Open Course (MOOC) in

2008. The virtual course shares many similarities with the regular university course but operates fully online and attracts learners from around the world due to its zero pre-requirements policy, no payments and massive scale. Companies that provide the MOOCs, such as Coursera or edX, have partnered with traditional brick-and-mortar universities to mirror the academic environment and the depth of a standard university course but with the technological advancements of the 21st century world.

Hundreds of thousands of students can now enroll into the numerous courses created by institutions like the Yale University or the Stanford University and gain knowledge by learning in the MOOC environment, because it is free, without entrance exams, available to anyone from anywhere in the world, and as long as a students have an internet connection and can understand English or have subtitles available for the particular course, they can take advantage of this type of education available to them. The important aspect of a MOOC is its democratic approach - a student can be anyone who wishes to learn. If the course is too advanced, fellow students are often ready to help by explaining some difficult concepts or it can simply be put on hold and retuned back to, months or even years later.

The revolutionary aspect of the MOOC has been subjected to some heated discussions, particularly after The New York Times declared the year 2014 "The Year of The MOOC." The question of the position of ICT in the teaching and learning process seems to be beneficial but in the case of MOOC and their relative novelty, the crucial pedagogy is still very new and in some parts still developing. Once out of the spotlight, the benefits and drawbacks of the massiveness of some of the MOOCs, the uncertainty of how to prevent cheating in the online environments and how to assure the fulfillment of the course objectives are questions that the MOOC and e-learning theorists and practitioners would have to face.

The thesis *Autonomous Learner: The E-learning Trends in Higher Education in the 21st Century* studies the e-learning landscape and particularly focuses on the recent changes and additions to the portfolio in the form of the MOOCs. The work is divided into 4 chapters, each approaching the topic and gradually building up a picture of what MOOC are, how and why they were created, and where they may be heading.

Chapter 1 describes the challenges that the higher education is facing in the recent years and the Web 2.0 role in enabling the transformation of higher education with the more effective use of the ICT. Chapter 2 focuses on the distance education as a mode of distributing education and the MOOC as a natural progression in the e-learning. Chapter 3 examines the role of each of the MOOC's main subjects - the provider, the producer and the learner and analyzes the course's operational hierarchy as well as the parties' motivations and their level of involvement in general. Last Chapter 4 then summarizes the discourse on several of the main arguments of the proponents and opponents of the MOOCs. The 4 main potential benefits, speaking in favor of the MOOCs, are: the openness, the flat hierarchy, the shortness of duration and zero or minimal costs. To contrast the benefits, 4 of the most mentioned shortcomings and possible future challenges are: the hype, surrounding the MOOCs, the lack of effective pedagogy, the worry of elitism and the involvement of the private sector.

The importance of bringing the best possible education to the masses has been an acknowledged goal of the United Nations' member states. But in case of inefficient or missing governmental support, the constant need to keep up with the modern trends in education falls largely on shoulders of teachers and universities and the private mercenaries. The abundance of opportunities create a nurturing environment for such change can also feel too overwhelming to take action.

The MOOC's proclaimed ability to supplement the traditional academic education and to fuel a further academic growth has been a topic of discussion across many educational platforms. This thesis aims to analyze the possible advantages and challenges of such rhetoric and to provide the information about the topic of MOOCs and virtual learning in general, from a perspective of a student and active MOOC participant.

1 Chapter 1

1.1 Higher Education in the Twenty-First Century

"The education in the twenty-first century is mightily different from how it was in the previous one."[1]

The role of brick and mortar institutions in providing higher education to the masses is overwhelmingly dominant, since they represent the great tradition of public education that goes back to the antiquity. Yet as the world, according to Thomas Friedman, flattens due to the globalization, international collaboration, outsourcing, and digitalization,[2] some of the traditional institutions struggle to maintain their leading positions in the twenty-first century. These institutions are being obliged to share their privileged access to the new generation of learners with another powerful force - the internet. Given the recent formation of numerous e-learning courses, specifically designed to work in a distance education mode and therefore function outside the classroom, the traditional institutions must find a way to accommodate the autonomous learners, pioneering the vision of free and accessible knowledge to all as well as maintain their valuable brands associated with the elite skills and unique expertise, they provide.[3]

While some affected institutions shifted their focus and became applied sciences and research universities, others talk about shortening the 3 year bachelor programs or combining the high school and college into a more effective and time-efficient institution that would answer to the demand of the young generation of to-be students and job markets as well.

Apart from the changes happening on campuses, the other reaction and the main concern of this thesis is the emerging phenomenon of distance learning, which is able

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[1] BONK, Curtis J., *The World Is Open: How Web Technology Is Revolutionizing Education*. 1st ed., San Francisco: Josses-Bass, 2009. p. 39.

[2] FRIEDMAN, Thomas., *It's a Flat World, After All*. [online]. April 3, 2005 [cit. 2016-06-01]. Dostupné z: http://www.nytimes.com/2005/04/03/magazine/its-a-flat-world-after-all.html

[3] YUAN, Li., POWELL, Stephen*., MOOCs and Open Education: Implications for Higher Education: A white paper* [online]. CETIS, ©2013 [cit. 2016-06-01]. Dostupné z: http://publications.cetis.org.uk/2013/667

to function and deliver information at a fraction of the costs of a traditional education and produce a good results while creating a whole new branch of higher education within the already established system. The distance education, covering everything from virtual universities to online courses and even whole degrees belong under the Open Education Resources (OER) movement and essentially aims to democratize the access to education. By answering the demand for the service that would efficiently connect experts to their respective audience they effectively disregard the relative distance and other real-world barriers in the process and create a movement of great importance for the future of education.

Currently, the rhetoric surrounding the institutions of higher education in particular and the teacher's role in the teaching and learning process is sometimes overwhelmingly negative. Some of the criticism, for example concerning the lack of individual approach or the abundance of theoretical over practical preparation, directed at schools and teachers may be well founded. The need for a more complex solution remains as the brick and mortar institutions of higher education remain a prevalent of obtaining a degree. However, how much actually does the internet change, in relation with a wide-spreading trend to rely on virtual connections and internet based-sources of information, no one can precisely predict.

1.2 Transforming education through technology

According to the UNESCO Institute of Statistics, the adult literacy nears 98% in the developed regions of Central Asia, Europe and North America, while the regions of Africa and South Asia averages only about 60%. Even though the numbers in still developing countries have experienced a significant change - for example in the region of South and West Asia, where from 43% in 1991 the literacy rates reached approximately 70% of literate adults in 2015. The global trend of rising literacy among adults then leads to a more specific kinds of literacies being adressed that helps in other aspects of people's lives - for example the financial literacy and most recently a digital literacy.

According to the OECD, the computer and information literacy is "an individual's ability to use computers to investigate, create and communicate in order to participate effectively at home, at school, in the workplace and in society." The two main

factors of digital competence are then described as "collecting and managing information, which also involves locating and evaluating information" and "producing and exchanging information, of which understanding of online safety and security are part."[4]

Living in a society which is largely dependent on the exchange of various kinds of information on the internet, and where "the total amount the global IP traffic will reach 1.1 zettabytes per year or 88.4 exabytes (one billion gigabytes) per month in 2016 and has increased more than fivefold in the past 5 years."[5] The strengthening of digital literacy across the age, wealth, and sociocultural barriers is a very important factor of any sound educational policy.

By providing people with above mentioned skills, we allow them to actively search for information, learn and evaluate them independently. The free knowledge in addition also empowers groups for which the traditional educational systems are either unsuitable, inaccessible or very frequently simply unaffordable. Corresponding with recent trends of considering a right to education a universal human right. The freedom and relative affordability of an internet connection equips new learners with a great power and previously unimagined opportunities.

1.3   The Digital Revolution

The Information Age, we now find ourselves living in, began in the 1950s with the rise of the new type of machinery that soon ruled business, entertainment and even people's everyday lives. The onset of this new era was marked by an unprecedentedly rapid progression - from the development of the first mechanical computers to the digital personal

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[4] OECD, *Students, Computers and Learning: Making the Connection* [online]. OECD Publishing ©2014 [cit. 2016-06-01]. Dostupné z: https://www.oecd.org/edu/ceri/spotlights-trends-shaping-education.htm

[5] CISCO, *Cisco Visual Networking Index: Forecast and Methodology, 2014-2019 White Paper* [online]. CISCO, ©2015 [cit. 2016-06-01]. Dostupné z: http://www.cisco.com/c/en/us/solutions/collateral/service-provider/ip-ngn-ip-next-generation-network/white_paper_c11-481360.html

computers and iPhones and clouds in just a few decades.[6] The speed of this progression left only a few particular areas of human lives unaffected, as Bonk adds that "education in the twenty-first century is mightily different from how it was in the previous one… we live in times where informal learning outstrips the more formal variety."[7]

In the past several years, the internet has become an inescapable force and everyday companion. According to the statistics, almost 40% of the world's entire population has an internet connection in 2015, when compared with the year 1995 when only 1% of the population had access to the internet.[8] This represents a significant increase and the numbers are only likely to grow in the future, as many developing countries improve their economic and social situations. The importance for the education sector to remain updated and relevant in the rapid changing era of the digital world is being recognized: "Inspired by the explosion of innovation in consumer technology in the last decade, educational publishers and developers are creating a wide variety of digital learning resources for use inside and outside classrooms, at all grade levels and for learners of all ages. Consumers—students, teachers, parents, higher education institutions, and K–12 schools—are embracing learning technology in growing numbers."[9]

1.4 Educational Technology

The term covers a broad range of hardware and software products associated with information technologies that are generally able to perform a task of storing,

[6] CASTELLS, Manuel, *The Rise of the Network Society: The Information Age: Economy, Society, and Culture.* 2nd revised ed., Oxford: Wiley, 2010.

[7] BONK, Curtis J., *The World Is Open: How Web Technology Is Revolutionizing Education*. 1st ed., San Francisco: Josses-Bass, 2009, p. 39.

[8] INTERNET LIVE STATS. Internet users in the world. *Internetlivestats.com* [online]. ©2011 [cit. 2016-06-01]. Dostupné z: http://www.internetlivestats.com/internet-users/

[9] U.S. Department of Education, Office of Educational Technology, *Expanding Evidence Approaches for Learning in a Digital World* [online]. ©2015 [cit. 2016-06-01]. Dostupné z: http://www.ed.gov/technology

manipulating or retrieving an information in a digital form.[10] According to the UNESCO website "Information and Communication Technology (ICT) can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration."[11]

While the use of information and communication technology (ICT) in the education sector has been a focus of numerous studies over the past few years, the focus has been to pinpoint the exact place where the use of ICT belongs in the process, where it helps and where does it harm the established practice. [12]

The 2014 OECD study *Trends Shaping Educational Spotlight*, reports that while the way people live and question life around them, is undeniably changed by the rapid development of the ICTs. "The speed of technological change makes it very difficult for educators to stay on top of the latest issues."[13]

As mentioned before, the number of people connected to the Internet in the late 1990s made the service a prominent force in everyday aspects of life - the school and more broadly education included. "What this all meant was that by using web tools and resources, more people could connect with other people than at any moment in history. And

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[10] OECD, *Trends Shaping Educational Spotlight 2014* [online]. PISA, ©2015 [cit. 2016-06-01]. Dostupné z: http://www.oecd.org/publications/students-computers-and-learning-9789264239555-en.htm

[11] UNESCO. ICT in Education. *Unesco.org* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: http://www.unesco.org/new/en/unesco/themes/icts/

[12] BOZKURT, Aras., AKGUN-OZBEK, Ela., YIZMAZEL, Sibel et. al., Trends in Distance Education Research: A Content Analysis of Journals 2009-2013 In: *International Review of Research in Open and Distributed Learning*, Vol. 16, No. 1 [online] ©2015 [cit. 2016-06-01]. Dostupné z: http://files.eric.ed.gov/fulltext/EJ1061066.pdf

[13] OECD, *Trends Shaping Educational Spotlight 2014* [online]. PISA, ©2015 [cit. 2016-06-01]. Dostupné z: http://www.oecd.org/publications/students-computers-and-learning-9789264239555-en.htm

each day such collaborations are growing. It is the age that millions, if not billions, of people can read, refine and share a new idea or opinion."[14]

1.5   Web 2.0 and Open Education

The first larger group of internet users went online in the early 1990s when the internet was made available to the general public and manly after 1993 with a development of a user friendly, graphic based browser Mosaic. This stage of the internet with first World Wide Web or email services was later called the Web 1.0., it mostly offered a flat, text-based environment and relatively static environment where most of the contend was created by a few professionals. In spite of its limited flexibility and many technical difficulties, the service gained a momentum and began to develop rapidly. Between the years 1993 and 2001, it gained over 500 000 000 access point all over the world and became a world-wide phenomenon that defined whole era. According to Friedman, accessing the Word Wide Web via a dial-up and later broadband connection allowed for one of the most significant shifts in human history and The increased connectivity and interactivity allowed for a globalized world, where a global citizenship in no longer just a sci-fi term but could eventually become a reality.[15]

Our current stage is Web 2.0, and is generally characterized as a next step on the ladder in the context of the design, flexibility and generally offers much more immersive and user friendly interface with greater interactivity. One of the key differences is the above mentioned flexibility, where anyone with some extent of digital literacy and technical skills can participate in creating its content and make social connections.

With the corresponding technology advancement in the form of the Web 2.0, the notion of opening up education, mainly in the sense of unrestricted access and greater

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[14] BONK, Curtis J., *The World Is Open: How Web Technology Is Revolutionizing Education*. 1st ed., San Francisco: Josses-Bass, 2009. p. 36.

[15] FRIEDMAN, Thomas*., It's a Flat World, After All.* In: The New York Times Magazine [online]. April 3, 2005 [cit. 2016-06-01]. Dostupné z: http://www.nytimes.com/2005/04/03/magazine/its-a-flat-world-after-all.html

affordability has become a reality. Open Educational Resources (OERs) is a term described by the Hewlett Foundation as "teaching, learning and research resources that reside in the public domain or have been released under intellectual property license that permits their free use and re-purposing by others."[16] The OERs published under the knowledge commons[17] philosophy or some of the less restrictive version of the Creative Commons license,[18] allow for the creation, distribution and use of such materials for educational and creative purposes. OERs in the hands of educators and learners promotes greater cooperation across the fields and countries. As Rhoads writes "particularly opportunities linked to collective intelligence and interactivity raised new challenges about how knowledge and information might be shared and produced by co-users."[19]

One of the more visible movements within the OER movement is the OpenCourseWare (OCW) initiative announced in 2001 by the Massachusetts Institute of Technology (MIT). Which, under the banner of 'unlocking knowledge' shared all of its on-campus courses and study materials available free and for anyone interested. According to the MIT: "Through OCW, educators improve courses and curricula, making their schools more effective; students find additional resources to help them succeed; and independent learners enrich their lives and use the content to tackle some of our world's most difficult challenges, including sustainable development, climate change, and cancer eradication."[20]

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[16] THE WILLIAM AND FLORA HEWLETT FOUNDATION. Open Educational Resources. *Hewlett.org* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: http://www.hewlett.org/programs/education/open-educational-resources

[17] HESS, Charlotte., OSTROM, Elinor., *Introduction: An Overview of the Knowledge Commons, Understanding Knowledge as a Commons.* MIT Press, 2006 , 3-27, Dostupné z: https://mitpress.mit.edu/sites/default/files/titles/content/9780262083577_sch_0001.pdf

[18] CREATIVE COMMONS. About. *Creativecommons.org* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: https://creativecommons.org/about/

[19] RHOADS, Robert. A*., MOOCs, High Technology, and Higher Learning*. 1st. ed. Baltimore: John Hopkins University Press, 2015.

[20] MIT OPENCOURSEWARE. About. *Ocw.mit.edu* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: http://ocw.mit.edu/about/

More than 200 million visitors have so far accessed the materials, according to the OCW website, and moreover the initiative served as a pioneer of the OER movement within the academia. While main concern of the thesis is the MOOC - often perceived as a specific branch within the larger open educational resource and open courseware initiatives, it is perhaps necessary to begin by understanding what initially ignited the changes leading up to this point.

2 Chapter 2

2.1 Distance Education

"There is this ingrained notion since the time of Plato and Socrates that a teacher needs to be in the same space as the learner. Not any longer. Students can learn in separate times and locations from the designated teacher and other learners. And they can learn with different types of resources, delivery mechanisms, and assessments."[21]

Distance education or distance learning with the use of ICT is a major trend in education but it roots can be found in the 18th century correspondence courses. The current model serves largely the same purpose of educating individuals who would not be able to gain access to education due to various personal reasons, such as having a full time job, or for example geographical or security reasons. The golden age of distance education came in the form of e-learning, when the expansion of Web 2.0 tools allowed non-professionals to access the Internet and creatively customize its contents.

2.2 E-learning

E-learning is one of the forms of distance education, which utilizes various ICT hardware and software tools during the learning process. Apart from e-learning that happens during the regular classes and inside the school building, perhaps the more visible type of e-learning is the distance learning, happening outside the traditional classroom that uses ICTs to deliver, study and generally use the learning materials in many ways, shapes or forms.

The learning process can have two forms, either synchronous, when educator and learner have to be both present in real-time (e.g. Skype conference) or asynchronous (MOOC) in which they both sides of the teaching and learning process act independently on each other.

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[21] BONK, Curtis J., *The World Is Open: How Web Technology Is Revolutionizing Education*. 1st ed., San Francisco: Josses-Bass, 2009. p. 167.

Among the most popular e-learning software, commonly used for educational purposes, are the Learning Management systems (LMS) such as Moodle, Blackboard or Edmodo. These software solutions provide platforms that generally serve for publishing teaching materials, testing students as well as tracking their progress. The Course Management Systems (CMS) are e-learning tools that operate in the online environment but differentiate from the LMS in one additional function - CMS usually allow the creation of original learning materials directly through the service, using the pre-designed software and templates, while the older LMS only store and distribute materials previously created elsewhere. One of the most prominent branch of CMS are the virtual learning environments, operating fully online.

Most of LMS and CMS software is created by private companies because they offer a possibility of generating an income partnership and licensing. This suggest a study, linking and increasing popularity of the e-learning and particularly the LMS to an estimated worth of almost 8 billion dollars in the year 2018.[22] The growth is particularly due to the increased demand in some previously underserved regions like Southeast Asia.

The idea of virtual learning environments, presenting free educational content is a part of the discourse on e-learning in recent years as well. As the student loans in many part of the world have skyrocketed. The increased costs of higher education not only slows down the state's economies but effectively discourage many prospective students from applying and studying at all.[23]

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[22] SALGARKAR, Rohan., *Learning Management Systems (LMS) Market Worth $7.83 Billion by 2018 Forecasted in MarketsandMarkets Recent Report*. In: Market Wired [online]. October 29, 2013 [cit. 2016-06-01]. Dostupné z: http://www.marketwired.com/press-release/learning-management-systems-lms-market-worth-783-billion-2018-forecasted-marketsandmarkets-1845977.htm

[23] GLUM, Julia., *Student Debt Crisis 2016: Millennials Regret College Loans, Struggle To Pay Them Back*. In: IBT Times [online] April 7, 2016 [cit. 2016-06-01]. Dostupné z: http://www.ibtimes.com/student-debt-crisis-2016-millennials-regret-college-loans-struggle-pay-them-back-2350170

2.3 Virtual Learning Environment

The virtual classes and in some cases like even virtual universities like OpenUniversity, established in 1969 in the UK with the aim of providing education to disadvantaged people who have no time or means to attend university as a full time students.[24] Apart from primarily virtual universities like the Open University, many of the traditional and already well established universities have created their distance-learning branches as parts of their portfolios, which can function on its own and eventually lead to a university degree. Possibilities to engage in virtual learning and teaching are drawing the attention of public as well as bring new theoretical approaches to the field of pedagogy.

The virtual learning environment can either be used as a part of the flipped classroom method of teaching, where the students are assigned video lectures and reading to study at home and the on-campus lesson is then typically spent by going over practical solutions, problem solving and discussions or teachers can simply use such materials to help them explain a difficult concept during a lecture.[25]

On the other side are virtual learning environments created by organizations and initiatives, who bring no formal value in the sense that they offer a degree or a certificate as a symbol of the learners achievement and assumed expertise. Even then, the OERs and the OCWs are showing to be successful effort in revolutionizing the higher education by democratizing knowledge and throwing many long-held concepts of how students should be studying and teachers teaching, out of the window. Even though the English is still the main language of the online educational reformists, other world languages have recently been added as a subtitles or even dub-overs.

Some of the most prominent example of the online educational platform is a non-profit organization Khan Academy, currently boasting over 41 million learners using

[24]THE OPEN UNIVERSITY. About. *Open.ac.uk* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: http://www.open.ac.uk/about/main/

[25] SAMS, Aaron., BERGMANN, Jonathan., Flip Your Classroom: Reach Every Student in Every Class Every Day, 1st ed., International Society for Technology in Education, 2012

their website and YouTube channel.[26] The project was created by an IT specialist Salman Khan, who began by teaching algebra over Skype to his cousin in India and eventually started recording the lectures and making them available online, for free. Now, ten years later, Khan Academy covers subjects from History and Organic Chemistry to Finance or Electrical Engineering. The organization's motto is to run 'a global classroom.' To overcome the language barrier, the videos are being translated by volunteers and most of them now have subtitles in many world languages, including Czech. The entire catalogue has more than 6000 hours´ worth of content and although question about the lack of pedagogical background on the side of the creators have been raised in the past,[27] Khan Academy states that it regularly updates and and refines their content to answer any concerns. The educational content and its quality may vary due to it democratic approach and no real policy to follow but by being free and thus available to anyone in the world who has an internet connection, the value of e-learning and the Web 2.0 tools in creating a shared pool of knowledge is starting to be well recognized.[28] The personal mission of Salman Khan, the engineer who promised to help his 12 year old cousin with her math problems is to educate the 450 million Indian children, struggling to access a good education.[29]

Similarly to the Khan Academy, the CrashCourse is a non-profit created by two brothers John and Hank Green who rely on animation and voice-over to break down the

[26]KHAN ACADEMY. About. *Khanacademy.org* [online]. ©2011 [cit. 2016-06-01]. Dostupné z: https://www.khanacademy.org/about

[27] STRAUSS, Valerie*., Khan Academy: The revolution that isn't*. In: The Washington Post [online]. July 23, 2012 [cit. 2016-06-01]. Dostupné z: https://www.washingtonpost.com/blogs/answer-sheet/post/khan-academy-the-hype-and-the-reality/2012/07/23/gJQAuw4J3W_blog.html

[28] BONK, Curtis J., *The World Is Open: How Web Technology Is Revolutionizing Education*. 1st ed., San Francisco: Josses-Bass, 2009. p. 49.

[29] BANERJI, Rishabn., *Meet Salman Khan, The Man Who Wants To Educate 450 Million Indian Children. In: India Times* [online]. December 5, 2015 [cit. 2016-06-01]. Dostupné z: http://www.indiatimes.com/news/india/meet-salman-khan-the-man-who-wants-to-educate-450-million-indian-children-248061.html

content to their audience on Youtube, where they publish.[30] According to the many interviews due to the extensive press coverage and the much talked about role of technology in bringing education to the masses, both organization's founders can be found quoting the need for bringing good educatio to the masses as their main motivation.[31]

The remarkable growth of the e-learning is connected with many variables, such as the growth of the digital literacy across all age and social groups or the demand for quality instruction and immersive learning and teaching experience. One of the most important factors, contributing towards the mass implementation of online distance education is the problem of scaling up the education to accommodate all the prospective learners without compromising the quality and authenticity of the learning and teaching experience. By reflecting on the issues the higher education is now facing, with some experts even go as far as to describe a "deepening worldwide recession - and with that a loss of revenue for both public and private institutions, a growing student debt crisis, and lagging public confidence in the value of a college degree - had exposed faultlines in higher education that went beyond classroom hardware and software technologies."[32]

To repair the higher education, there exists an increased demand for operational online education systems and tools. Various companies and initiatives have already tried to fill the hole in the market - from private donors, educational enthusiasts to multibillion enterprises, all have ventured into the sphere of distance learning. One of the more recent developments show the new trend of the massive open online courses, commonly known as the MOOCs, taking the spotlight.

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[30] CRASHCOURSE. Youtube Playlist. [online]. [cit. 2016-06-02]. Dostupné z: https://www.youtube.com/user/crashcourse/playlists.

[31] KUZOIAN, Alex.*, How a YouTuber became one of the internet's most influential teachers.* In: Business Insider [online] March 24, 2015 [cit. 2016-06-01]. Dostupné z: http://www.businessinsider.com/hank-green-youtube-crash-course-scishow-internet-educator-science-2015-3

[32] DEMILLO, Richard.,*Unbundling Higher Education and the Georgia tech Online MS in Computer Science: A Chronicle*. In: BONK, Curtis J., LEE, Mimi M., REEVES, Thomas M., REYNOLDS Thomas H., *MOOCs and Open Education Around the World*. 1st ed., New York: Routledge, 2015. p. 147.

2.4 MOOC

According to the UK University and College Union "the Massive open online courses (MOOCs) are free, open access and scalable online higher education courses."[33] These distance education courses provide learners with the opportunity to enroll in a university-level course or courses of their choosing, without any payments, previous academic accomplishments or entrance exams and also independently on the location or time zone, in which the educator works.

The origins of the MOOC movement come from the year 2008, where educators George Siemens and Stephen Downes offered an online version of their course Connectivism and Connective Knowledge (CCK08) to unlimited number of learners that were being taught alongside the class of their regular tuition-paying students at the University of Manitoba. This and several other courses are progression from the Open Educational Resources movement. The movement, first only as a test to the limits of our technological capabilities, then began to serve as a manifesto for more accessible and variable education.

Given the success of the CCK08, and the fact that almost 2300 learners have participated online, the MOOC was replicated several times over the following two years. The real break-through came in the year 2012, where the Sillicon Valley took the initiative to collaborate on the MOOC development and fund start-ups like Coursera or edX, that are now being viewed as the largest players on the MOOC fields, with millions of enrolled students.[34]

MOOCs are largely seen as significant step towards opening up and democratizing knowledge while potentially having the power and influence which could disrupt the fundamental foundations of what is commonly known as the traditional western education system, as it has been laid down by Plato in the ancient times.

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[33]University and College Union, *What Are MOOCs?* [online]. UCU Policy and Campaigns Teams ©2014 [cit. 2016-06-01]. Dostupné z: https://www.ucu.org.uk/media/6190/What-are-MOOCs-Feb-14/pdf/ucu_moocs_briefing_feb14.pdf

[34] HABER, Jonathan., *MOOCs: The MIT Press Essential Knowledge series*. 1st ed. Massachusetts: MIT Press, 2014.

The differences between the MOOC and the previously mentioned initiatives like Khan Academy or CrashCourse are many. Perhaps the most important is the level of pedagogy and instruction involved in the MOOC experience. The MOOC works as an independent unit, with a duration, opening week, course objectives and follows a progress. Similarly to an actual university course, they tell a story or teach a particular skill and knowledge.

After the enrollment, the student is thrown into the virtual learning environment and is given the 'Week1' materials to study, discuss with other learners. The self-paced approach to the study allows learners from different backgrounds and timezones to study where is suits them. The most active weeks of a the MOOC are the first two or three weeks where the learners are generally more enthusiastic, than closer to the end of the MOOC's run.

A MOOC is, how the name suggest an online course, where instructor and learner do not meet face to face to give and receive instructions but communicate in asynchronous form over the internet. The instructor or team of instructors put learning materials onto the course webpage, where they stay available for minimum of the course's duration. The study of the acronym then gives a clear sense of the MOOC's aim and purpose.

Massive in the MOOC acronym generally refers to the seemingly limitless enrollment possibilities. Coursera's largest course - the University of California's 'Learning How to Learn' recently reported over 1 million unique participants. Overall the MOOC movement reports over 15 million learners over the many platforms.[35] The most popular websites then share a combined number of almost 40 million participants of MOOCs. The massiveness also refer to the number of courses available and the fact that can each student can enroll in unlimited number of them.

Open generally represents that there are no entry barriers or course pre-requirements. Anyone without previous academic career or particular qualification can be a

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[35] COURSERA, Learner Outcomes in Open Online Courses 2015, [online]. Coursera.com , ©2015 [cit. 2016-06-01]. Dostupné z: http://www.slideshare.net/Coursera/coursera-impact-revealed-learner-outcomes-in-open-online-courses

part of a course and access the materials. Even though the active students with at least a bachelor degree or its equivalent are more likely to enroll in a MOOC, lifelong learners from various backgrounds or full-time workers seeking additional knowledge and expertise can effectively participate in the same course.[36]

Important aspect of the MOOCs openness and an undeniable source and popularity is the diversity of the student's body that assemble each course, without a policy like the affirmative action, MOOCs work as a global and the a virtual space promoting collaboration and diversity with zero tolerance for discrimination agains race, religion, sexuality or culture.

Online simply states that the courses are accessed via the internet and by using the learner's unique ID. The learner verifies his identity at the very beginning of the process and then uses the same online account in all of his courses on one platform, yet when changing the platform (= the provider) he has to verify his identity again.

The teaching materials are diverse but mostly consist of an assortment of documents, video lectures, audiorecords in the form of podcasts, and hyperlinks. Sometimes an additional reading is required, particularly in the humanities. The material are stored online, usually on a provider's website and can be accessed at any given time during the run of the course (sometimes even after the course has ended). Most of the courses take pride in making the material OERs and encouraging their dissemination past the course's environment, taking an important step towards democratization of knowledge while also effectively marketing their original research. When a course material is not and OER, the other commonly used Creative Commons license generally applies.

Course refers to the format that resembles and cover all of the original aspects of the university course's experience, from assignments to lectures. The MOOC and its creators mirror this experience by adapting it for the learners that is being unwilling or simply cannot attend the regular high education institution. The importance of this step is perhaps best captured in the Hewlett Foundation's white paper "In the United States and around the

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[36] YUAN, Li., POWELL, Stephen., *MOOCs and Open Education: Implications for Higher Education: A white paper* [online]. CETIS, ©2013 [cit. 2016-06-01]. Dostupné z: http://publications.cetis.org.uk/2013/667

world, the demand for high quality education has never been greater. By 2025 there will be 263 million students who will be eligible for higher education. In order to accommodate this demand, at least 4 universities of 30 000 students would need to open every week for the next 15 years."[37]

MOOCs are not yet the flagships of open and digital learning but over the years could become ones. With the increasing focus new pedagogy that would serve the needs of modern society and was able to function on appropriate scale and depth, the MOOCs hold a strong promise. MOOCs were initially designed as a new way to overcome distance through virtual learning and make further use of the technological advancement which over the last decade slowly enabled people to connect and communicate online. MOOC does not need the participating subjects to know each other to communicate in real time and is therefore able to bring reach even the most remote corners of our world.[38]

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[37] RHOADS, Robert. A., *MOOCs, High Technology, and Higher Learning*. 1st. ed. Baltimore: John Hopkins University Press, 2015. p. 53.

[38] KIM, Paul., CHUNG, Charlie.,*Creating a Temporary Spontaneous Mini-Ecosystem through a MOOC* In: BONK, Curtis J., LEE, Mimi M., REEVES, Thomas M., REYNOLDS Thomas H., *MOOCs and Open Education Around the World*. 1st ed., New York: Routledge, 2015. p. 159.

3   Chapter 3

This chapter examines the respective roles of the MOOC's provider, producer and learner, along with their motivation and the level of their involvement in the course's management - from marketing and maintaining, to the fulfillment of the course's learning objectives and the student's sources of motivation and eventual prospects. Given the scope of the educational opportunities presented in the form of MOOCs and the broadness of the topic, the analyses in chapter 3 and in the following chapter 4 present only the key and most distinctive features of the MOOC movement.

3.1   Provider

Provider is subject that does not develop its own MOOC courses and does not participate directly in the learning and teaching process, yet its involvement is a key component of the current success of the MOOC movement. Currently the largest providers of MOOCs, based on the number of registered leaners and their global reach are Coursera,[39] edX,[40] which are all based in the United States and FutureLearn,[41] based in the UK. Established between the years 2011 and 2012 they share a few similarities. All of them were established by former university teachers or social entrepreneurs, focusing on higher education.

Providers are largely being seen as the directors of what is called the MOOC hype.[42] Company or initiative serving as MOOC provider functions as a bridge between the

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[39] COURSERA. About. *Coursera.com* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: https://www.coursera.org/about/

[40] EDX. About. *Edx.com* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: https://www.edx.org/about-us

[41] FUTURELEARN. About. *Futurelearn.com* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: https://www.futurelearn.com/about

[42] WIENER, Jon., *Inside the Coursera Hype Machine*. In: The Nation [online] September 4, 2013 [cit. 2016-06-01]. Dostupné z: http://www.thenation.com/article/inside-coursera-hype-machine/

educator on one side and learner on the other. Instead of delving into specific topics and subject areas of individual MOOC, the company provides a platform for its delivery and offers numerous other services like from maintenance to consulting.

Technological support is necessary for running a massive scale course with thousands of enrolled students, who are studying for free, so the servers and software maintenance costs are therefore taken care of by the provider. Most of the companies additionally offer tools to create the individual MOOCs - from technical support of expert photographers to the actual web design. Apart from tools to create the course, the company also manages the day to day functioning of a website by owning and maintaining the storage servers or having enough resources to maintain the operational side of a MOOC.

Provider also generally markets the MOOCs to the public as well as registers the students and guarantees the fulfillment of the terms and conditions of the use. Enrollment into the course includes a verification process where a student has to upload a picture that gets re-taken by a web-camera every time they take a test or submit any essay or project. The unusual level identity verification serves as a protection against hackers. The images then can be used as an evidence and protection against cheating, but due to the numbers of enrolled students, they are not checked regularly so there is not a lot cases of students being accused of misconduct or breaking of the terms and conditions.

In general, the providers can be divided into two groups, according to the source of their income - some providers are a non-profit initiatives (edX, FutureLearn) and the rest work for-profit companies (Coursera, Udacity.) The distinction is important because of the level of involvement of the private sector. The non-profit initiatives offer their MOOC in the public domain and charge no entrance-fee, they are being funded by their founders (edX was jointly founded by the Harvard University and the MIT), some foundations (e.g.Bill & Melinda Gates Foundation) and governments (The UK government finances the FutureLearn.) The for-profit providers such a Coursera and Udacity explores the means of

generating income through some additional services like certificates of completion.[43] While their MOOC are also available for free, if a students is interested in receiving the certificate for his completion, he is charged for it. The Coursera especially also actively seeks partnerships with the private sector with the idea of offering headhunting services for companies interested to hire some new talents. This type of profit-generation is still under development and currently, most of the MOOc providers rely on investment money, rather that generating profits.[44]

3.1.1 Coursera: A Closer Look

Coursera is a California-based company established in April 2012 by two Stanford professors Daphne Koller and Andrew Ng that came together with the initial aim to provide a wide range of MOOCs to a global audience. After seeing the potential virtual learning of a massive scale, the two professors of computer science and machine learning were able to start a company that is currently a leading force among other providers. The institution that decides to co-operate through a strategic partnership with Coursera can use any of its tools and support and in return receive access to more than 15 million registered learners and potential students, that are being offered over 1000 courses.[45]

Since the start, Coursera has gained a strong portfolio of over 120 universities, research centers and educational platforms. According to Rhoads "Coursera forms partnerships with universities by offering a platform and support for their MOOC offerings, while also sharing portion of any revenue generated through various services provided to

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[43] HEUSSNER, Ki Mae., *Online ed startup Coursera moves further along money-making path*. In: GigaOm [online] December 5, 2012 [cit. 2016-06-01]. Dostupné z: https://gigaom.com/2012/05/online-ed-startup-coursera-moves-further-along-money-making-path/

[44] SHAH, Dhawal., *How Does Coursera Make Money?* In: EdSurge [online] October 15, 2014 [cit. 2016-06-01]. Dostupné z: https://www.edsurge.com/news/2014-10-15-how-does-coursera-make-money

[45] COURSERA, *Learner Outcomes in Open Online Courses 2015,* [online]. Coursera.com , ©2015 [cit. 2016-06-01]. Dostupné z: http://www.slideshare.net/Coursera/coursera-impact-revealed-learner-outcomes-in-open-online-courses

course users."[46] This strategy and the presence of many 'star' professors that have the ability to single handedly promote their faculty and enhance the institution's reputation are becoming a marketable asset, that are hi and satisfy masses of hungry students, that would otherwise never listened to what they have to say and offer. Apart from top-tier players from the US and the UK, Coursera recently expanded partnerships to regions of Europe and South Asia.

Coursera also provides a product called 'Signature Track' when, upon paying a fee that ranges from 39$ to 99$, the participant receives a certificate of completion that confirms their attendance and states their accomplishments. Similarly to for example a summer school certificate, these have a potential value when used as a part of job application or extension of a personal portfolio

Since many employees have started to shift their attention from the number of degrees earned to an actual number of applicable skills acquired, many of Coursera's participants are therefore willing to pay a fee to earn the certificate as well as sign up for a course in the first place.

The rates of completion are significantly lower in MOOCs that in traditional university courses and most reports show a single digit completion rates. Even though they vary from course to course - Coursera average is about 8% and edX averages at about 8% of students earning a statement of accomplishment.[47] Even though the low completion rates are often seen as a failure in some way, the studies concerning the motivation of MOOC students show, that self-regulated learners are more often not interested gaining credits and

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[46] RHOADS, Robert. A., *MOOCs, High Technology, and Higher Learning*. 1st. ed. Baltimore: John Hopkins University Press, 2015.

[47] ONAH, D.F.., SINCLAIR, J., BOYATT, R., *Dropout Rates of Massive Open Online Courses: Behavioral Patterns.* In: 6th International Conference on Education and New Learning Technologies, Barcelona, Spain, 7-9 Jul 2014. EDULEARN, 2014. Dostupné z:
https://www2.warwick.ac.uk/fac/sci/dcs/people/research/csrmaj/daniel_onah_edulearn14.pdf

successfully completing the whole run.[48] They were are able to pick and choose its fragments or watch the video lectures to gain the knowledge but they do not complete the assessments or engage with the MOOC further. Although the Completion rates are often discussed as an important metrics, their overall values of the research and MOOC evaluation remains doubtful because of the changing learners motivation. Moreover, MOOCs does not have any penalization for not completing the course or have no time restrictions, outside of the payed-for 'Signature Track' program.

While this type of studying is hard to measure in terms of the student´s performance, Coursera report shows that the students motivated by educational outcomes have generally higher completion rate than those who enroll for other purposes. [49]

3.2 Producer

Outside of the provider, another crucial subject involved in the MOOC's creation is the producer, who handles perhaps the most important questions of content, quality, and delivery. Some producers are driven by the motivation to further the 'OER continuum' and the MOOCs gain traction simply by being a part of that OER evolution.[50] Other papers often cite the marketing motivation and a possibility to strengthen their brand's global presence and gain advantage of accessing new prospective students that would be

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[48] CAREY, Kevin., *Pay No Attention to Supposedly Low MOOC Completion Rates*. In: EdCentral [online]. December 12, 2013 [cit. 2016-06-01]. Dostupné z: http://www.edcentral.org/pay-attention-supposedly-low-mooc-completion-rates/

[49] COURSERA*, Learner Outcomes in Open Online Courses 2015*, [online]. Coursera.com , ©2015 [cit. 2016-06-01]. Dostupné z: http://www.slideshare.net/Coursera/coursera-impact-revealed-learner-outcomes-in-open-online-courses

[50] HOLLANDS, Fiona., TIRTHALI, Devayani*., Why Do Institutions Offer MOOCs?* In: *The Official Journal of the Online Learning Consortium*, Vol. 18, No. 3 [online] ©2014 [cit. 2016-06-01]. Dostupné z: http://olj.onlinelearningconsortium.org/index.php/olj/article/view/464/116

motivated to enroll and pay tuition to the actual institution.[51] The motivation to spread the research is also among the most prevalent.[52]

While the operational side of the MOOC is in the hands of a provider, the producer - the actual institution of higher education and more specifically the teams of teachers, their teaching assistants and on-campus students play an important part in the development of the individual MOOCs. The OERs created for the courses - video lectures, written materials, animation, graphs and model situations are coming directly from the faculties and institutions that are signed under each of the courses.

Barbara Oakley, creator of one of the Coursera's most successful MOOC *Leaning How to Learn*, which boast almost 1 million students over the course of over less than 2 years belongs among the most vocal supporters of the movement. Believing that the benefits of MOOCs largely exceeds their draw-backs.[53]

The desire to further the pedagogy and study the MOOC 'behavior' also lead pedagogues to create MOOCs about MOOCs. These courses are for example *Foundations of Virtual Instruction* (University of California, Irvine) or *iMOOC102: Mastering American e-Learning* (The State University of New York.)

Most MOOC courses have a combination of a short video lectures, usually from 8 to 20 minutes long, supported by additional written materials, and required as well as voluntary reading. The course's run - usually 5 to 8 weeks, is being unveiled gradually and student have 7 days to study the materials provided, to engage in a discussion on an online discussion boards and complete the weekly assignments. The discussion boards are

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[51] YUAN, Li., POWELL, Stephen., *MOOCs and Open Education: Implications for Higher Education: A white paper* [online]. CETIS, ©2013 [cit. 2016-06-01]. Dostupné z: http://publications.cetis.org.uk/2013/667

[52] Ulster University*, MOOCs and Open Learning at Ulster University Final Report* [online]. Ulster, ©2015 [cit. 2016-06-01]. Dostupné z: http://addl.ulster.ac.uk/docs/0006_DraftMOOCReportLrg.pdf

[53] OAKLEY, Barbara., *Why Virtual Classes Can Be Better Than Real Ones* In: Nautilus [online] October 29, 2015 [cit. 2016-06-01]. Dostupné z: http://nautil.us/issue/29/scaling/why-virtual-classes-can-be-better-than-real-ones

moderated by university staff and teaching assistants and by MOOC students themselves and often serve as an additional learning environment.

The course producer also decides on the type of assessment that would form the MOOCs requirements. In the virtual learning environment, many of the traditional types of assessments such as the oral presentation are not technologically possible to implement because of the online environment and the scale of some MOOC. To deal with the different setting, the MOOC usually have a combination of the multiple choice tests, essays and projects to submit gradually during the run of the course. The tests are automatically graded by the computer but the essays, projects and in some cases even short videos are peer-assessed, meaning that for each submitted work, the students are required to review and grade at least two other essays. [54] This system assures that in the end, each work has two independently assigned marks that are then used to create an average. This type of peer-grading is at the current stage of development perhaps the only ways to assure that everyone is given some form of feedback on their work, but the quality of the feedback remains variable. Advocates for peer-grading often cite the learning outcomes of the experience of grading someone else's work.[55] The reported studies also show the difference between the grades that would be given by the professor and the actual peer-assigned grades was in most cases marginal.

The low completion rates issue, as mentioned above, poses only a marginal problem to the MOOC providers and generally does not reflect its overall educational impact. However, a study done by the Ulster University among their teaching staff shows two other concerns being raised. Firstly it is the question regarding the additional workload, it would

[54] SUEN, Hoi Ki., Peer Assessment for Massive Open Online Courses (MOOCs) In: *The International Review of research in Open and Distributed Learning* , Vol. 15, No. 3 [online] ©2014 [cit. 2016-06-01]. Dostupné z: http://www.irrodl.org/index.php/irrodl/article/view/1680/2904

[55] LU, Ruiling., BOL, Linda., A Comparison of Anonymous Versus Identifiable e-Peer Review on College Student Writing Performance and the Extent of Critical Feedback In: *Journal of Interactive Online Learning*, Vol. 6, No. 2 [online] ©2007 [cit. 2016-06-01]. Dostupné z: http://www.ncolr.org/jiol/issues/pdf/6.2.2.pdf

require to put together and teach a MOOC and secondly the questions of financing those runs and eventual re-runs were also of a great concerns.[56]

3.3 Learner

The MOOC students are perhaps the most crucial part of any virtual education platform. After the development of the more interactive version of the Web 2.0 the endless new possibilities to share and distribute knowledge created a basis for a whole generation of lifelong learners.

One of the MOOC's main objective is that it promotes openness and access to anyone and anywhere. This is a contrasting idea that draws attention of a diverse group of learners actively search to gain knowledge. As Bonk notes on the effects of digital revolution of learning: "The Web therefore becomes a place where learners are empowered … the power of choice is what sets the Web of learning apart from other forms of learning. With opportunities to make personal decisions related to their explorations and potential online discoveries, learners develop a sense of ownership and self-directedness." [57] Direct involvement of receiving participants of the educational system and the demand they are creating is viewed as perhaps the biggest argument in favor of supporting new trends in education, such is the MOOC.

The polls among the MOOC students show that the learners usually come from a very different social and cultural backgrounds. The culturally diverse group of participants as well as the promoted interdisciplinarity in their different approaches mean, that the communities sharing their research and experiences could prove to be a significant arguments in favor of MOOC participation.

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[56] Ulster University, MOOCs and Open Learning at Ulster University Final Report [online]. Ulster, ©2015 [cit. 2016-06-01]. Dostupné z: http://addl.ulster.ac.uk/docs/0006_DraftMOOCReportLrg.pdf

[57] BONK, Curtis J., *The World Is Open: How Web Technology Is Revolutionizing Education*. 1st ed., San Francisco: Josses-Bass, 2009. p. 35.

The Coursera Learner Outcomes survey show that 58% of learners participating in Coursera MOOCs in 2015 identified as male, and 42% identified themselves as female. When asked about their level of education 9% reported to have doctorate degree, 37% master degree, 32 % bachelor degree, 11% high school diploma and 11 % other. [58]

The self-directed nature of the MOOCs engage different levels of responses in the participants, producing numerous studies classifying them according to their behavior. The Kizilzec study for example describes four different groups of participants: *completers, auditors, samplers,* and *disengaged learners.* The Completers, being the most dedicated ones, are motivated by the vision of completion and generally aim to engage with every aspect of the MOOC. The auditors focus mostly on watching the video lectures and do not care about the assessment completion, when it is either too difficult or too irrelevant to their interests. The third type of learner is the sampler, who generally enrolls into the course without a clear motivation to commit to the workload, and after sampling the MOOC offerings they either commit to the course of leave. The last type of learner is the disengaged learner who shows a sign of committing to the MOOC at the beginning of the course but later either disappears or works only partially. To conclude the study and the various types of learner's level of engagement and their overall experience during the study, the paper concludes in saying that "the binary models which operate inly by PASS/FAIL models of completion does not seem to work for MOOC."[59]

The previously mentioned low completion rates are therefore not telling about the entirety of the students experience during and after the MOOC. Another set of data published in 2014, after the two years of running the edX platform by the Harvard University

[58] COURSERA, *Learner Outcomes in Open Online Courses 2015,* [online]. Coursera.com , ©2015 [cit. 2016-06-01]. Dostupné z: http://www.slideshare.net/Coursera/coursera-impact-revealed-learner-outcomes-in-open-online-courses

[59] KIZILZEC, R. F., PIECH, C. SCHNEIDER, E., Deconstructing disengagement: analyzing learner subpopulations in massive open online courses. In: *Proceedings of the Third International Conference on Learning Analytics and Knowledge,* pp. 170–179., New York, USA, Dostupné z: http://web.stanford.edu/~cpiech/bio/papers/deconstructingDisengagement.pdf

and the MIT, shows that out of the 200 000 of participants completing the survey "39 percent self-identified as a past or present teacher; 21 percent of those teachers reported teaching in the course topic area."[60] This data show that educators themselves can benefit from a being a student of the MOOC.

[60] DEVANEY, Laura., *4 major MOOC findings – and where to go from here.* In: eCampus News [online] April 3, 2015 [cit. 2016-06-01]. Dostupné z: http://www.ecampusnews.com/top-news/harvard-mit-mooc-392/

4 Chapter 4

Following the relative obscurity of the pre 2010 era, the MOOC movement became a major player in design of the future of education. The following analysis considers what consists the MOOC vision and takes a closer look at some of its major claims as well as several concerns raised about their place in the education system. The points for analysis were drawn from the thesis's main literature sources and cover the most frequently mentioned issues regarding the MOOC development and function - both as a virtual learning environment and the technology, disrupting the higher education.

Additional insight comes from the authors own experience with studying several MOOC in the years 2013-2015. The attended Coursera MOOCs were *Learning How to Learn: Powerful mental tools to help you master tough subjects* (University of California, San Diego), *The Art of Teaching History: A Global Conversation for Secondary Educators* (Rice University), *Think Again: How to Reason and Argue* (Duke University) and *Western Civilization: Ancient and Medieval Europe* (Arizona State University) provided by edX.

4.1 Benefits of MOOC

When The New York Time's journalist Laura Pappano proclaimed the year 2012 to be "The Year of The MOOC," she has met mostly with understanding among the informed public.[61] In 2012 the MOOC phenomenon was on the verge of a breakthrough and began to fulfill the meaning behind the *M* in MOOC, which stands for 'massive.' A surge of enthusiastic learners and many new partnerships with prestigious universities and corresponding media attention.

The camp of supporters, interested in the MOOC and their development and come from a great variety of fields of human endeavor. The advocates are well dispensed among the NGOs such as the William and Flora Hewlett Foundation, institutions such as UNESCO, national governments and universities, and visionaries such as Bill Gates.

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[61] PAPPANO, Laura*., The Year of the MOOC*. In: The New York Times [online]. November 2, 2012 [cit. 2016-06-01]. Dostupné z: http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html

4.1.1 Openness and Knowledge Commons

While the notion of the knowledge commons is a sound of a distant future, many initiatives and organization like the UNESCO operate under the presumption that the education is not be viewed as a privilege but a human right.[62] This certainly can be easily applied to and understood in the context of the elementary education, the higher education is a bit more divisive topic. The question of intellectual rights when it comes to the academia and tenure is a complex one and usually very case-specific.

OER and the OCW initiatives often sidestep the problematics in order to create a common pool of knowledge, with the aim make education more accessible and fair held above the legal specifications. Some institutions of higher education, such as the aforementioned MIT make their work part of the public domain for years and without any fears of duplication or misuse. Other still puts in place rigorous policies made to protect the intellectual owner's property and maintain the institution's position among the elite.

The difference in these two approaches does indicate the differences in policies as well as the understanding of the problematics. Regarding the MOOC's legal statute, an interesting point against the OER has been raised by insisting that the open nature of OER's can often lead to mistake and that the internet is famously knows for copying and multiplying any mistakes within seconds and spiraling them out of the reach. To this argument an OER supporter David Wiley highlights the power of and importance of cross-disciplinary collaboration "Creating an open education infrastructure unleashes the talent and passion of people, who want to solve education problems but lack the time to reinvent the wheel and rediscover the fire in the process."[63]

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[62] UNESCO. The Right to Education. *Unesco.org* [online]. ©2016 [cit. 2016-06-01]. Dostupné z: http://www.unesco.org/new/en/right2education

[63] WILEY, David., *The MOOC Misstep and the Open Education Infrastruture* In: BONK, Curtis J., LEE, Mimi M., REEVES, Thomas M., REYNOLDS Thomas H., *MOOCs and Open Education Around the World*. 1st ed., New York: Routledge, 2015. p.11.

4.1.2 Flat Hierarchy

Many MOOCs navigate the organizational structure by implementing a flat hierarchy throughout the entire course. The creators and teaching assistants have their profiles within the network's social platform and actively participate in both general discussions and in threads under the lecture videos but given that the number of enrolled students sometimes comes in tens of thousands, they rely heavily on enthusiasm of the course's participants in self-moderating the discussion and helping slower students grasp the material. By giving the same access rights to everyone, the course benefits from democratic discussion, yet the environment stays under control of the course creators and administrators.

A flat hierarchy is generally said to promote better collaboration, group projects and produce innovation through diversity. When where everyone's voice has the same value, the best ideas are succeed through their natural appeal rather than through their respective place in the course hierarchy. The teaching and learning community itself is a new episode in democratizing knowledge and shifting the focus from teacher centered to student centered education.

4.1.3 Shortness of Duration

The typical MOOC duration is from 5 to 8 weeks, with each week starting a new subtopic and unveiling the new learning materials. Along the course's duration, assignments such as ofter presented as a downside but Paul Kim stresses the Vygotsky's ideas of the role of the zone of proximal development (ZPD) being a functional model to use when teaching the MOOC.[64] The short duration has proven to be an advantages for a project based learning and had positive impact of the amount of volunteers. During the run of the course, there were participants offering to help disadvantaged learners - by translating subtitles, creating social media groups or offering tutoring. When the course lasts only one or two months - they are more likely to become a truly committed volunteers because most of them are simultaneously university students with busy schedules or already working full-

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[64] KIM, Paul., CHUNG, Charlie.,*Creating a Temporary Spontaneous Mini-Ecosystem through a MOOC* In: BONK, Curtis J., LEE, Mimi M., REEVES, Thomas M., REYNOLDS Thomas H., *MOOCs and Open Education Around the World*. 1st ed., New York: Routledge, 2015. p. 160.

time. When the course duration would be for example 6 months or even unlimited - the volunteer rates would likely be smaller due to the commitment being too demanding and time consuming.[65] The positive benefits of shorter duration is also linked to lower levels of stress in participating students.

4.1.4 Minimal Costs

Due to the rising costs of formal education and simultaneous decrease of the value, students get from such investment, many are turning towards some alternative means of getting the education they need. The free nature of MOOCs is one of the key positives of the initiative and underlines the MOOC's proclaimed openness. The payed-for alternatives offered as a part of some provider's more 'exclusive' programs (for example the Coursera Signature Track) are still only a voluntary option and do not currently compromise the overall experience or the idea of education without economic barriers.

What need to be addressed is the problem of digital literacy and access to computers and working internet connection in the still developing parts of the world such as Sub-Saharan Africa of Latin America, where the access to MOOC is not currently absolutely equal to the access in regions such as Western Europe, yet the numbers of digital literacy among adults are rising rapidly and many organizations like the UNESCO are addressing the problem.

The learner's monetary involvement or lack of is not the only benefit of the MOOC. The study shows that the MOOC development reportedly costs between 39 000$ to 325 000$ according to the use of advanced technologies such as animation or the number of participating lecturers.[66] An one of the most successful Coursera MOOCs - *Learning How*

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[65] KIM, Paul., CHUNG, Charlie.,*Creating a Temporary Spontaneous Mini-Ecosystem through a MOOC* In: BONK, Curtis J., LEE, Mimi M., REEVES, Thomas M., REYNOLDS Thomas H., *MOOCs and Open Education Around the World*. 1st ed., New York: Routledge, 2015. p. 164

[66] HOLLANDS, Fiona., TIRTHALI, Devayani., Why Do Institutions Offer MOOCs? In: *The Official Journal of the Online Learning Consortium*, Vol. 18, No. 3 [online] ©2014 [cit. 2016-06-01]. Dostupné z: http://olj.onlinelearningconsortium.org/index.php/olj/article/view/464/116

To Learn cost, according to the professor Oakley, only around 5000$ and was largely shot in her own basement.[67] This example proves that the money invested in the course do not guarantee its success and that the effectiveness and popularity is a variable dependent on numerous factors from the topical focus to the presentation and even sympathies towards the lecturers.

4.2 Challenges of MOOC

To present a balanced overview of the problematics, several points has been raised to tame the general excitement over the MOOCs. Among the most frequent are: the hyperbole of expectation connected with any new technology and lacking sound foundations, the lack of pedagogy and the worry of elitism behind the courses. Since MOOC are the most prevalent type of the course and most likely to be encountered by any learner, this analysis will mainly address the concerns associated with them.[68]

4.2.1 Hype

The amount of press coverage in the newspapers such as The New York Times, the Wall Street Journal or The Atlantic has been massive between the years 2012 and 2014.[69] Some educators have raised the question of a Hype Cycle, a popular theory created by American technology specialist company Gartner to analyze the discourse on the adoption

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[67] OAKLEY, Barbara., *Why Virtual Classes Can Be Better Than Real Ones* In: Nautilus [online] October 29, 2015 [cit. 2016-06-01]. Dostupné z: http://nautil.us/issue/29/scaling/why-virtual-classes-can-be-better-than-real-ones

[68] HABER, Jonathan., *MOOCs: The MIT Press Essential Knowledge series*. 1st ed. Massachusetts: MIT Press, 2014.

[69] MAGUIRE, David*., The 'hype cycle' of Moocs and other big ideas* In: Times Higher Education [online] January 9, 2014 [cit. 2016-06-01]. Dostupné z: https://www.timeshighereducation.com/comment/opinion/the-hype-cycle-of-moocs-and-other-big-ideas/2010206.article

of any new and cutting edge technology.[70] They describe several phrases in evolution and the lifespan of any new technology and highlight points such as the 'Peak of Inflated Expectations' followed by a rapid 'Disillusionment.' After a while the technology reaches the 'Plateau of Productivity,' describing most accurately its real market value. Such theory can be applied to the MOOC as well, since the 2012 Hype Cycle clearly culminated and some more recent studied attempt to re-address many issues with a bit more distance. As one of the creators of the first MOOC and in many ways the ambassador for the movement - George Siemens admits "from the perspective of early 2015, this stage of MOOC intoxication now embarrasses. The promised transformation of higher education failed to arrive."[71]

4.2.2　Lack of Effective Pedagogy

One of the interesting criticism of MOOCs says that "MOOCs are literally built to cater to the attention span of a distracted, multitasking teenager who pays attention in cycles of ten to fifteen minutes."[72] David Brooks in his article *'Campus Tsunami'* believes that colleges are now pouring money into the MOOCs to re-brand the bad reputation of online education.[73] By having a working framework of the MOOc and in partnership with an affluent provider such as Coursera or FutureLearn, they sidestep the notion that online pedagogy has previously met with mostly mixed results. While there is a fundamental difference between the MOOC and any OERs the problem with lack of effective pedagogy still stands.

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[70]GARTNER, *Gartner Hype Cycle*, [online]. Gartner Research, ©2015 [cit. 2016-06-01]. Dostupné z: http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp

[71] SIEMENS, George.,*The Role of MOOCs in the Future of Education*. In: BONK, Curtis J., LEE, Mimi M., REEVES, Thomas M., REYNOLDS Thomas H., *MOOCs and Open Education Around the World*. 1st ed., New York: Routledge, 2015. p. xiv

[72] BADY, Aaron., *The MOOC Moment and the End of Reform* In: The New Inquiry [online] 2013 [cit. 2016-06-01]. Dostupné z: http://thenewinquiry.com/blogs/zunguzungu/the-mooc-moment-and-the-end-of-reform/

[73]BROOKS, David., *The Campus Tsunami*. In: The New York Times [online] February 3, 2012 [cit. 2016-06-01]. Dostupné z: http://www.nytimes.com/2012/05/04/opinion/brooks-the-campus-tsunami.html

The substitution of the student-teacher interaction and depth of reliance on the digital environment and social networking can harm the overall experience according to some experts. In the world with the abundance of automatization and technology, the university's role as a perpetrator of real-life social interaction should not be regarded as obsolete.

The problems with effective pedagogy are more complex but the worry partly comes from using outdated theories to a very recent movement and observing the traction created by that practice.

4.2.3 Elitism and the Problem of Hegemony

The concerns regarding the elitist practices have been raised even before the MOOC became a thing, with the creation of the OpenCourseWare project, established jointly by the Harvard University and the MIT. Critics have raised the question of "the two academic giants simply anticipating the growing dominance of globalized higher education markets and thus were further securing their global brand."[74] The question of brand building and marketing thought MOOC has been often cited as an additional motivation even by the proponents of the movement.[75] The critics of such practice highlight the harmful effects of such practice on the already highly competitive academic environment. The obsession with publishing, research and rankings are often being discussed in negative terms and the additional involvement in competitive MOOC could be the last straw for many experienced educators.

Another worrisome practice mentioned is the status of 'star' professors. The faculty of the San Jose State University has published and open letter addressed to one of

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[74] RHOADS, Robert. A., MOOCs, High Technology, and Higher Learning. 1st. ed. Baltimore: John Hopkins University Press, 2015. p. 17.

[75] Ulster University, MOOCs and Open Learning at Ulster University Final Report [online]. Ulster, ©2015 [cit. 2016-06-01]. Dostupné z: http://addl.ulster.ac.uk/docs/0006_DraftMOOCReportLrg.pdf

such celebrities - proffessor Michael Sandel of the Harvard Law School.[76] The celebrity status of professor Sandel is well known only very few such professors can sell out concert halls for lectures and are being invited to speak on the topics of morality, justice, and global markets all around the world. The letter of the Philosophy Department raises questions about the influence of Sandel, as a member of elite and highly influential institution and social group on their students, often coming from non-white neighborhoods and disadvantaged backgrounds. Some vocal critics accuse even describe such domination of the elite universities as a "form of cultural colonialism."[77]

4.2.4 Involvement of the Private Sector

Many additional fears concerning the implementation of a larger scale e-learning program is the uncertainty of who the actual benefactor is. Suggestions has been made about the MOOCs great impact on high school and college students in terms of self-motivation and lesson planning as well as the promotion of the importance of lifelong learning. Still many critics warn about the possibly unhealthy involvement of the private sector in this area of the academia. This point concerns mostly the for-profit companies like Udacity or Coursera and the presence of investment money in their portfolio. The question of 'Why would an investor or a venture capitalist want to invest into MOOC and what gains could he reasonably expect?' is an interesting notion that highlights the need for a clearer system of funding the educational programs from public money. Although it is generally agreed upon that the students could benefit from the direct involvement of their possible future employees. The problem of possible headhunting happening in the MOOC's lists of enrolled students without their prior permission or knowledge or hidden advertising being part of any educational material rightly raises hair of the heads of many educators and students alike.

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[76] Philosophy Departement of San Jose State University, *An Open Letter to Professor Michael Sandel From the Philosophy Department at San Jose State U*. In: The Chronicle of Higher Education [online] May 2, 2013 [cit. 2016-06-01]. Dostupné z: http://chronicle.com/article/The-Document-Open-Letter-From/138937/

[77] RHOADS, Robert. A., *MOOCs, High Technology, and Higher Learning*. 1st. ed. Baltimore: John Hopkins University Press, 2015. p. 104.

Conclusion

The emergence the MOOC movement and other forms of recent synchronous and asynchronous e-learning bring a continuation of the notions of openness and greater accessibility of education into the current age. The thesis follows an active student's perspective on the MOOC phenomenon and its most important aspects and presents an analysis of the the MOOC as an educational technology between the years 2012 and 2015. Given the rapid evolution of the technology enhanced learning, it is unlikely that the evolution of MOOC will stop in the near future.

The thesis is aimed as an introduction into the MOOC and e-learning problematics. Because of the MOOCs relative novelty in the Czech Republic, the work introduces the topic and the relevant pedagogy at the beginning and sets the MOOC phenomenon into the context of digitalization and knowledge economy of the 21st century. The following analytical part covers then covers the operational structure by describing three of the MOOCs major elements - the course's provider, producer and learner and the most significant aspects of implications of each of the parties' involvement. Extensive research has been done into the motivation of students and the problematics of the completion rates of the MOOCs, the outcomes of the research shows that while the completion rates (less than 10% on average, across the platforms) looks grave, the education as well as real life impact of MOOC participation does not correlate with the results. Many learners who do not complete the assignments are motivated by gaining knowledge rather that earning certificates. While the general motivation behind the MOOC's providers and creator´s involvement seems to be a combination of the desire to teach masses and promote their brands, the learners motivation offers a ground for additional research.

Recognizing the complex organizational and legal structure of the MOOCs, the thesis describes only three of its major elements in the form of a course's provider, producer and the learner. By presenting available data on the course's levels of completion and the demographic of its learners' the thesis presents a clear overview of the MOOC problematics and the theories of its impact of each of the three involved parties.

To provide a further insight into the problematic, the second part of the analysis presents a short study on four of the greater benefits of MOOC, chosen after careful consideration from the available literature and contrasts them with four heavily discussed problems of the MOOC implementation. Both the benefits and the challenges has been given the same space and weight and due to its relevance are being judged independently and not compared.

The further research could be made into the negative aspects of MOOC's virtual environment on the real-life campus experience and the traditional role of a university as an educational as well as social experience. The possibilities and ground for further research are many. An interesting project-based analysis concerning the MOOC implementation could use the OERs during the flipped classroom style of teaching and observe the educational outcomes of such practice.

The relative novelty of the MOOCs allows for a great number of educated guesses and speculations about their potential and long term effects on education systems, the academia and the new generation learners. The changing needs of global economies and state's governments currently appear to have aligned with the public demand for a fairer and more equal access to education - given the scale of the problem, the MOOC can play a certain role in the answer to that problem.

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