Exploring the Experiences of Instructors Teaching Massive Open Online Courses in Tourism and Hospitality: A Mixed Methods Approach

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Summary

Massive Open Online Courses (MOOCs) have existed as a disruptive educational phenomenon for nine years. Grounded in the roots of distance education, open education, Open Educational Resources, and OpenCourseWare, MOOCs have now survived various critics and have continued growing globally. Reports about MOOCs in both the press and scholarly publications began to grow significantly in 2013 (Sánchez-Vera, Leon Urrutia, & Davis, 2015; Zancanaro & Domingues, 2017) and, since then, more and more researchers have joined the discussions, developing them to explore various new topics. To contribute to the literature of MOOC studies, this doctoral thesis begins with an in-depth analysis of the background, history, growth, and vision, and proposes a tentative definition of MOOCs. Meanwhile, by conducting bibliometric research to review MOOC studies conducted between 2015 and 2017, this thesis fills in the gap that has existed due to a lack of systematic reviews of MOOC literature since 2015.

The results of the bibliometric research summarised the relevant MOOC research into nine categories, including learner focused, commentary and concepts, case reports or evaluations, pedagogy, curriculum and design, course object focused, provider focused, technology, systematic review of literature, and learning analytics and big data. They also suggested a limited amount of provider focused research, which became the research interest and focus of this thesis.

In the centre of the Europe, Swiss universities have marched forward in the MOOC movement, together with other over 550 universities (Shah, 2016) around the world. Università della Svizzera italiana (USI; Lugano, Switzerland), a Swiss public university, became a MOOC provider in 2015 and offered the first MOOC in the topic of eTourism: *eTourism: Communication Perspectives*. This doctoral thesis is closely related to this university-level initiative, which was dedicated to producing the first pilot MOOC at USI. Therefore, the cases chosen by this thesis are positioned in the discipline of tourism and hospitality.

The first MOOC with a large audience taught artificial intelligence in 2011 (Zancanaro & Domingues, 2017). Nowadays, MOOCs have broken the barrier of space and time to educate the masses in a wide range of subjects. However, the provision of MOOCs in the subject of tourism and hospitality did not appear until 2013, when two MOOCs from two American universities became available. In the past four years since these MOOCs were launched, the number of tourism and hospitality MOOCs available in the market has remained limited (Tracey, Murphy, & Horton-Tognazzini, 2016). This scarcity contradicts the fact that tourism and hospitality is the field that contributes the most to the employment of the global workforce. Pressing problems, such as high turnover,

seasonality, and new global challenges have urged for solutions to quickly training people working in this area to become available (Cantoni, Kalbaska, & Inversini, 2009). A call for more studies about tourism and hospitality MOOCs has emerged.

The combined reality of the lack of studies regarding MOOC providers, opportunities for first-hand experience of producing a tourism MOOC in a university, and the deficiency in both the research and practises of tourism and hospitality MOOCs has inspired the direction of this thesis in regard to exploring MOOC instructors' experiences, using cases in the field of tourism and hospitality. It cumulates six studies, using a mixed methods approach, to tackle the two main research objectives:

- To investigate at large the tourism and hospitality MOOC provisions between 2008 and 2015;
- To report the experiences of Università della Svizzera italiana (USI) when producing the eTourism MOOC.

In order, the first two studies in Chapter 3 of this thesis focus on tourism and hospitality MOOCs in general and produce a big picture context for the other four studies in Chapter 4. The first study proposes a conceptual framework through which to describe and analyse the course design of a MOOC and applies it to 18 tourism and hospitality MOOCs produced between 2008 and 2015. The second study then continues to interview six tourism and hospitality MOOC instructors, to describe their experiences and perspectives of teaching MOOCs.

After exploring a holistic view of the overall development of MOOCs in tourism and hospitality and gaining a deep understanding of the instructors behind these offerings, this thesis introduces the experiences of one single MOOC provider: Università della Svizzera italiana (USI) in Chapter 4. It first introduces its overall implementation process (Study 3), and further elaborates three phases of this process: how it selected a suitable MOOC platform at the beginning (Study 4); how it assessed learner engagement in the MOOC (Study 5); and, eventually, how it evaluated the performance of the MOOC (Study 6).

This thesis was written mainly from the perspective of eLearning, with the intention of benefiting its community of scholars and practitioners. It has contributed to the literature by developing a framework with which to review MOOCs (in Study 1), the implementation process of producing MOOCs (in Study 2), practical review schema of MOOC platforms (in Study 4), the MOOC Learner Engagement Online Survey (in Study 5), and how to use the Kirkpatrick model to evaluate MOOCs (in Study 6). These conceptual frameworks and experiential tools can benefit future researchers and practitioners.

Meanwhile, due to its intimate connection with the field of tourism and hospitality, by directly using its cases, the research outputs of the six studies can also benefit the tourism and hospitality education and training sector as a reference for further action.

To my family in China and Switzerland

Without their love, this thesis would not exist.

Acknowledgements

When I graduated from primary school in Cendou village, a fishing area of Fuqing city, Fujian province, in South East China, I was 12 years old. My favourite Chinese literature teacher, Mr Houen Lin, gifted me a notebook. On the first page of it, I saw the following poem, which depicted his expectations and blessings for my future:

海到无边天作岸，山登绝顶我为峰。
（林则徐，清代）
An immense sea takes the sky as its shore. A brave soul tops the peak as his height.
(Zexu Lin, Qing Dynasty)

In 2017, when finishing up my doctoral thesis in Lugano, Switzerland, I turned 31 years old. When looking back at the poem that I had received 19 years ago, I felt my heart soar with joy and gratitude.

This doctoral degree is probably the last station of the whole education train that can be ridden. Standing at the finishing line of being a student, I would love to thank all the teachers who have encouraged me to be an independent learner and a good person. They include Mrs Huizhen Chen, Mr Hou'en Lin, Mr En'ming Lin, Dr Jingyan Lu, and my doctoral supervisor, Prof. Lorenzo Cantoni. [致敬我尊敬的老师们：陈惠贞老师，林厚恩老师，林恩明老师，陆静妍教授，和洛伦佐·康东尼教授。]

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Finally, I would like to thank my parents the most. Without their love and support throughout my life, I could not have walked so far away from where I began as a baby. Dad, Mom, you are forever my home base, no matter where I am. I am honestly blessed to be your daughter. [特致尊敬的父亲母亲: 没有你们无私的爱和支持，我无法成长为一个独当一面的人。]

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List of Publications

Lin, J., Cantoni, L., & Murphy, J. (In press). MOOCs on Tourism and Hospitality: A Review. *Journal of Teaching in Travel & Tourism*.

Lin, J., & Cantoni, L. (In press). Decision, Implementation, and Confirmation: Experiences of Instructors behind Tourism and Hospitality MOOCs. *The International Review of Research in Open and Distributed Learning*.

Lin, J., & Cantoni, L. (2018). Evaluate the MOOC Learner Engagement via an Online Survey. Manuscript in preparation.

Lin, J., & Cantoni, L. (2017) Assessing the Performance of a Tourism MOOC Using the Kirkpatrick Model: A Supplier's Point of View. In: Schegg R., Stangl B. (Eds.) Information and Communication Technologies in Tourism 2017 (pp. 129–142). Springer, Cham. DOI 10.1007/978-3-319-51168-9_10.

Lin, J., Cantoni, L., & Kalbaska, N. (2016). How to Develop and Evaluate an eTourism MOOC: An Experience in Progress, *e-Review of Tourism Research (eRTR)*, *7*:1-5

Lin, J., Kalbaska, N., Tardini, S., Decarli Frick, E., & Cantoni, L. (2015). A Journey to Select the Most Suitable MOOCs Platform: The Case of a Swiss University. In S. Carliner, C. Fulford & N. Ostashewski (Eds.), Proceedings of EdMedia 2015--World Conference on Educational Media and Technology (pp. 273-283). Montreal, Quebec, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/p/151294/.

List of Acronyms

Acronym	Full Name
MOOC(s)	Massive Open Online Course(s)
HEI/HEIs	Higher Education Institution(s)
ICT/ICTs	Information and Communication Technology/Technologies
OCI	Open Content Initiative
OCW	Open Courseware (Can also refer to Opencourseware project at MIT)
OER	Open Educational Resource
T&H	Tourism and Hospitality

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CHAPTER 1.
INTRODUCTION

Chapter 1. Introduction

This chapter is in four sections. First, it introduces the concept of MOOCs, covering its ancestors, history of growth, and underpinning vision, and proposes a definition for MOOCs. This clarifies the fundamental concept studied by this thesis. Second, it applies bibliometric methodology to summarise the literature published between 2015 and 2017, which identifies the research gap in the current research of MOOCs. Third, it explains the importance of MOOCs to tourism and hospitality education and training. Fourth, it introduces the research context, objectives, and questions of this thesis.

1.1 Massive Open Online Courses (MOOCs)

It has been widely accepted that, prior to a careful scientific research plan, it is critical to define the involved concepts of a study so that "a system of propositions capable of explaining a finite amount of phenomena" (McLeod & Pan, 2005, p. 26) can be developed. A concept is defined as "abstractions communicated by words or other signs that refer to common properties among phenomena" (Singleton Jr & Straits, 1999, p. 554).

The Massive Open Online Course (MOOC) is a global and fast developing educational phenomenon but is an ill-defined term due to various challenges. For instance the phenomenon is still an emerging field (De Waard et al., 2014) and a futuristic trend that has not yet attained a degree of maturity (Atiaja & Proenza, 2016). Terminology is always tricky when trying to describe a new disruptive technology (Conole, 2014). Other reasons include the proliferation of platforms and the diversity of MOOCs (Atiaja & Proenza, 2016). Inadequate definitions have triggered discussions among researchers and it was found to be common that many existing pieces of literature often avoid a detailed explanation of the definition of the MOOC.

The effort to define the MOOC as a trendy concept will benefit both research and practical fields by proposing a better understanding of the concept in its essence, as well as its characteristics, propositions, and other core values. This research therefore starts with an effort to define the concept of the MOOC by reviewing and reflecting on the existing literature. It examines the MOOC as a concept by linking it to the background of distance education and Open Content, reviews and analyses the MOOC concepts discussed in the literature, and offers a new perspective with which to define the MOOC, based on the previous two efforts.

1.1.1 MOOCs and Their Precursors

The MOOC is not an independent educational phenomenon that grew out of a vacuum, but a modern evolution of online education and distance learning (Dodson, Kitburi, & Berge, 2015; Kennedy, 2014), in order to provide learning opportunities for a large number of learners.

Table 1. Intertwined Development of Distance Education and Technologies

Before 1960: Early age of distance education		**1960s to 1970s: Computer-assisted distance education**	
1728	The first recorded occurrence of distance learning began in Boston, USA.	**1960s**	CBT (computer based training), such as PLATO (Programmed Logic for Automatic Teaching Operations), which is a CBT network, was invented.
1840s	The first modern form of distance education was made available via mail by Sir Isaac Pitman.	**1966**	CAI (computer assisted instruction) in schools began.
1874	Institutionally sponsored distance education began.	**1969**	The Open University was founded.
1892	The term “distance education” was first used.	**1970**	The computer mouse and GUI (graphical user interface) were invented.
1920s	The first teaching machine was developed by Sidney Pressey; the rapid spread of film followed.	**1975**	The first personal computer, Altair 880, was invented.
1930s	The rapid spread of radio occurred.	**1960s to 1970s**	Early experiments with the internet began.
1937	The first electronic digital computer was built.		
1948	The first program to run on a computer was created.		
1950s	Radio courses faded away.		
1951	The first computer for commercial use was introduced.		
1953 to 1956	B. F. Skinner developed “programmed instruction”.		
1957	The beginning of machine learning.		

1980s to early 2000s: Web-based distance education		**2000s to present: Open and social distance education**	
1987	The cable television network, *Mind Extension University*, enabled 30,000 students to learn via television.	**2001**	Wikipedia was created, along with the Creative Commons license.
1989	The web was invented.	**2002**	MIT's OCW initiative began; the term "Open Educational Resources" (OER) was first adopted at UNESCO's 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries.
1990	Commercial internet service emerged; the first digital native was born; the first web browser was developed.	**2003**	The LAMS (Learning Activity Management System) foundation was developed.
1993	The first fully virtual university in the world, Jones International University (JIU) in the US, was established.	**2004**	Facebook was founded.
1995	The first fully virtual university in Europe, the Open University of Catalonia (UOC) in Spain, was established.	**2005**	YouTube was founded.
1994	The term "learning object" was coined.	**2006**	iTunes U, Khan Academy, and Twitter were founded.
1995	The ARIADNE foundation was developed.	**2008**	The first MOOC, *Connectivism and Connective Knowledge*, was born.
1997	The MERLOT (Multimedia Education Resource for Learning and Online Teaching) project began.	**2011**	The OCW Consortium was founded.
1998	The Open Source movement started.	**2012**	The year of the MOOC: edX, Coursera, and Udacity were founded.
1999	eLearning as a term was used for the first time; Moodle started to evolve; the Open Course Ware (OCW) movement started; JIU became the first fully online university in the US to be accredited by the Higher Learning Commission.	**2013**	The first for-credit MOOC by Udacity and San Jose State University began.
Late 20th century	A culture of open knowledge, open source, free sharing, and peer collaboration emerged.	**2014**	MOOC numbers: 400+ universities, 2,400+ courses, 16-18 million students; the OCW Consortium evolved to be the Open Education Consortium.
2000	Businesses started adopting eLearning.	**2015**	MOOC numbers: 550+ universities, 4,200+ courses, 35 million students; the Global Freshman Academy by edX and Arizona State University was founded.
		2016	MicroMasters by edX with universities began.

In the year 1728 (Table 1), distance education started to train people beyond geographical reach, when Caleb Phillips, an instructor in Boston, Massachusetts, offered lessons to understudies through lessons sent week after week (Xia Education, 2016). Four development phases of distance education can be identified:

- Before the 1960s: the early age of distance education;
- 1960s to 1970s: computer-assisted distance education;
- 1980s to early 2000s: web-based distance education;
- 2000s to present: open and social distance education.

The development of the personal computer and the internet has brought distance education to every possible person with the support of various kinds of hardware and software. In 1998, the open source movement picked up the speed of generating open access content on the internet for the public. The Creative Commons license, proposed in 2001, became the worldwide accepted standard for Open Content licensing. The idea of openness was first applied to the field of computer science and then rapidly spread to other areas. Since the late 1990s, MIT has experimented with putting materials associated with its credited courses on the web for free (Daniel, 2012). In 1999, the OpenCourseWare (OCW) movement started. The year of 2002 turned out to be a milestone for such efforts, with the emergence of the MIT OCW initiative and Open Educational Resources (OER) as a critical topic at UNESCO's 2002 Forum. In 2008, when Dave Cormier and Bryan Alexander participated in *Connectivism and Connective Knowledge*, they proposed the term "MOOC" to describe this exciting new pedagogy and educational online format. Along with social media development and involvement, the MOOC is rapidly gaining a reputation among the public and has become a buzzword in the field of distance education.

The Commonwealth of Learning indicates that MOOCs are a means of facilitating the efficient creation, distribution, and use of knowledge and information for learning by taking advantage of freely available online resources (Daradoumis et al., 2013). To better understand the relationship among the three key closely related concepts that existed prior to the MOOC – namely, Open Content, OER, and OCW – this research proposes a mindmap to position the MOOC by relating it to these concepts (Figure 1). Open Content refers to any content, with any possible format online, that can be directly accessed by the public, such as a website, a video on YouTube, or a business document template. If added with a specific educational purpose, which grants it an educational mission, the Open Content turns into OER, for example, a series of statistics tutorial videos on YouTube to educate the public about statistical knowledge. If OER are somehow organised in the structure of a course, with a chain of educational activities and a clear syllabus and assessment proposal, it becomes OCW. With additional elements such as assessment activities, course interactions, and accreditation with credits or certificates, OCW eventually becomes a MOOC. OCW makes raw materials for teaching and learning openly

available online; MOOCs seek to go one step further by providing an online version of a complete course, with video instruction, online quizzes and forums to encourage student engagement, virtual office hours, during which professors engage with students, and graded assignments (using software or peer students to carry out the grading), to evaluate whether or not students are learning from the course (Butler, 2012).

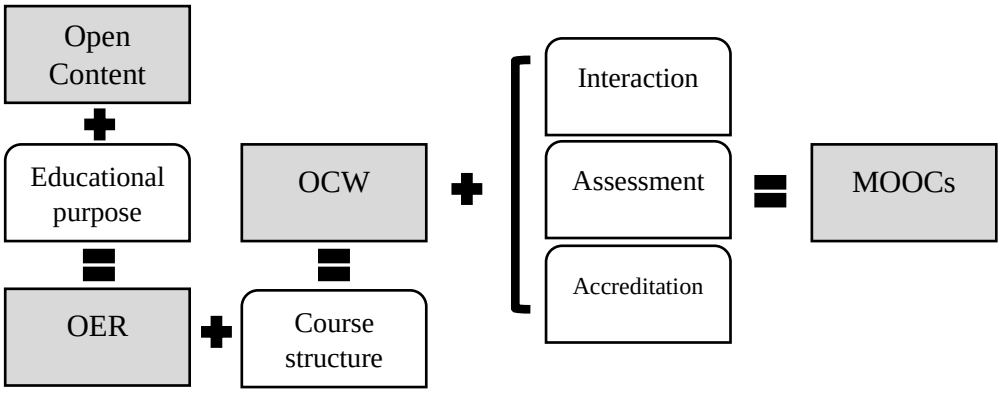


Figure 1. A Relationship Equation of MOOCs, Open Content, OER and OCW

The idea of relating MOOCs to Open Content, OER, or OCW is not new. MOOCs are characterised by: 1) open technology and open software for educational purposes; 2) Open Content and Open Educational Resources; and 3) open knowledge, in which participants and facilitators openly share educational practices (Fini, 2009). Andersen and Ponti (2014) define MOOCs as structured and organised OER in the form of a course with participation from educators or organisers. Ozturk (2015) stated that the Open Educational Resources Movement (OERM), advocating for free access to resources for learning, teaching, and research, underpins the pedagogical design of MOOCs. Rory McGreal, the co-editor of the IRRODL journal, once wrote an editorial article about the relationship between OER and MOOCs. He commented: "The two are irrevocably connected: MOOCs, originally based on OER and other free content, have expanded from the OER movement and have been assembled or linked (by students and/or instructors) to form full courses" (McGreal, 2015, p. i). Piedra, López, Jorge, and Tovar (2015) also state that MOOCs are the continuation of the trend of openness, innovation, and the use of technology to provide learning opportunities for large numbers of leaners, after OER. On the other hand, OCW and Open Social Learning were suggested to be the basis, during the last decade, for the appearance of the first MOOCs in institutions of higher education (Cordero, Jordan, Sanabria-Codesal, & Torregrosa, 2015; Atiaja & Proenza, 2016). As a further step from OCW, MOOCs not only have a whole set of materials for online learners to use to conduct self-regulated learning but, most importantly, they add the element of people into knowledge creation and sharing. Martinez (2014) distinguished the differences between OCW and MOOCs in regard to six aspects, as shown in Table 2. Nowadays, MOOCs have

also continued the effort of OCW to reach more countries around the world and to provide a way of connecting instructors and learners across a common topic or field of discourse (Comeau & Cheng, 2013).

Table 2. Differences between OCW and MOOCs (Martinez, 2014)

OpenCourseWare	**MOOC**
Static	Dynamic
Always accessible	Accessible when the course is open
Without assessment	With assessment
Without accreditation	With accreditation
Individual	Collaborative
Copyleft	Copyleft?

1.1.2 MOOCs: From Craddle to Growth

In 2008, as displayed in Figure 2, Stephen Downes and George Siemens from the University of Manitoba launched the course, Connectivism and Connective Knowledge (CCK08), which hosted 25 fee-paying students and 2,200 nonpaying online students (Daniel, 2012). It was called a Massive Open Online Course, a MOOC for short, by Dave Cormier and Bryan Alexander (Zancanaro, Nunes, & Domingues, 2017). The MOOC, for the first time, became a reality.

In a YouTube video, *What is a MOOC?*, Dave Cormier (2011) narrated his understanding of a MOOC as a course that is open, participatory, distributed, and supporting life-long networked learning. The concept is divided into five aspects in his understanding.

- Course: It has facilitators, course materials, participants, and start and end dates. It is not a school and not only an online course, but a way to connect, collaborate, and engage in the learning process. It is more like an event, attracting people who care about a topic, to discuss it and work together.
- Open: Whole contents are designed and operated in an open way for people to read, reflect, and comment on. The course is accessible. The course can be participated in without paying. The work done during the course is shared by everyone who is taking it.
- Participatory: Participants become part of the course by engaging with other people's work. One of the outcomes of the course is the networking with other participants.
- Distributed: The course is networked with different channels and there is no fixed way to navigate through it. It all depends on the participants' individual paces and self-regulated paths.

- A step forward to life-long learning, involving independence, self-pacing, and authentic networking.

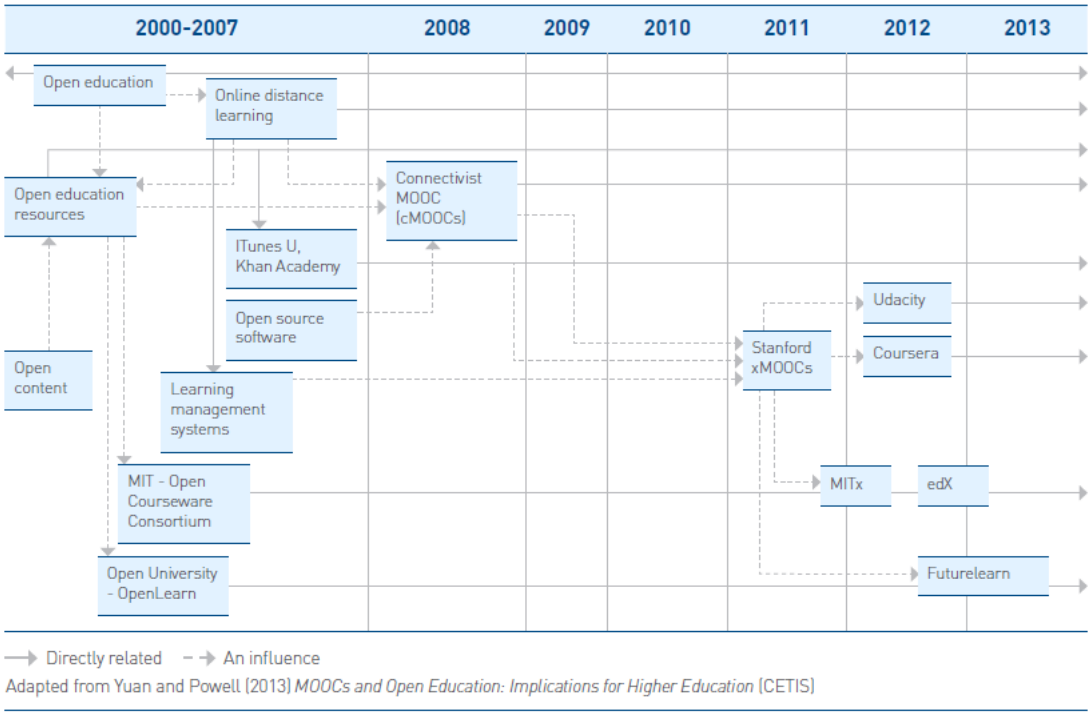


Figure 2. Timeline of MOOC Developments (Universities UK, 2013)

Bryan Alexander was interviewed in 2013 by Educause (http://www.educause.edu) and shared his ideas about the future of MOOCs (http://bit.ly/2vzpitp). He mentioned that the MOOC is related to big data, in that they both provide learning analytics and global classes with international participants. Three potential visions of the MOOC's future were proposed as: a lot of hype and bubbles which pop into nothing (e.g., Second Life); central to and an evolution of higher education; relevant only to science subjects and not contributing to humanities subjects as much.

Between 2008 and 2011, the term "MOOC" referred to so-called cMOOCs. The "c" stands for the learning theory of connectivism. A learning theory is something that can help us think about how and why change in learning happens (Smith, 1999). Connectivism is considered to be a successor to the learning theories of behaviourism, cognitivism, and constructivism (Siemens, 2004). However, there is still space for further arguments to be made about connectivism as a learning theory, a pedagogical view, or something else (Saadatdoost, Sim, Jafarkarimi, & Hee, 2015).

Siemens and Downes describe a network structure in regard to learning in which there are nodes (e.g., ideas or communities) and ties among these nodes. The starting point of

learning in connectivism happens in a learning community when knowledge is triggered by a learner who connects to the community and feeds information into it (Kop & Hill, 2008). Principles of connectivism include (Siemens, 2004, quoted in Bell, 2011):

- Learning and knowledge rest in a diversity of opinions;
- Learning is a process of connecting specialised nodes or information sources;
- Learning may reside in non-human appliances;
- The capacity to know more is more critical than what is currently known;
- Nurturing and maintaining connections is needed to facilitate continual learning;
- The ability to see connections between fields, ideas, and concepts is a core skill;
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities;
- Decision-making itself is a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow, due to alterations in the information climate affecting the decision.

The attention of the press and investors was not attracted to MOOCs until 2011, when Sebastian Thrun and Peter Norvig of Stanford University developed the MOOC *Artificial Intelligence (CS221)*, in which there were 160,000 subscribers from 190 countries (Iqbal, Zang, Zhu, Chen, & Zhao, 2014, quoted in Zancanaro & Domingues, 2017), of whom 23,000 completed the course with an informal accreditation (Alevizou, 2015). The design of this MOOC used conventional directed instruction in the context of formal postsecondary educational institutions, which was then famous as the xMOOC (Kennedy, 2014). In xMOOCs, as explained by Stephen Downes (2013a), "the origin of the 'x' is the use of 'x' in things like 'TEDx' or 'MITx' to indicate programmes that aren't part of the core offering, but which are in some way extensions". The differences between cMOOCs and xMOOCs have been discussed in many articles and are summarised by Admiraal, Huisman, and Pilli (2015), as shown in Table 3 below.

Table 3. Differences of Features between xMOOCs and cMOOCs (Admiraal, Huisman & Pilli, 2015)

Basic features	**xMOOCs**	**cMOOCs**
Learning theories	Cognitive behaviorist	Networking connectivist
Teaching approach	Objective oriented	Construction oriented
Learning approach	Transfer of information	Sharing of knowledge between participants
Interaction	Limited interaction	Student-student, student-content, student-instructor
Student role	Receivers, follow the instructions in video-based format, complete the assignments, quizzes and exams	Creators, contributors through blog posts, tweets, or discussion forms
Teacher role	The authority who is responsible to create the content, assignments, quizzes and exams deliver the lesson	Co-learner, create content and shape goals by working collaboratively with other learners
Content	Subject compelled	Participant compelled
Assessment	Multiple-choice tests, quizzes, computer-marked assignments, peer-review with the help of rubrics	No formal assessment, informal from knowledgeable participants
Teaching materials	Lecture videos, text-based readings, slides, practice exercises, audio files, urls to other resources, and online articles	Social media; wikis, blogs, social networking sites (Facebook, Twitter, Google+), learning management systems (Moodle), Student-created videos and exercises

The year of 2012, also described by the New York Times Magazine as the Year of the MOOC (Pappano, 2012), marked the uprising of the "Big Three" (Lentell, 2014) of MOOC platforms: Coursera, edX, and Udacity. Udacity was then replaced by the English platform, FutureLearn, which was supported by the Open University (OU), the largest academic institution in the UK and a world leader in flexible distance learning. FutureLearn had a breakout year in 2015 and has become the third largest MOOC provider in the world (Figure 3). The number of MOOC platforms keeps growing as more competitors enter the market; they include but are not limited to iversity, OpenLearning, Udemy, Open2Study, OpenupEd, EMMA, Alison, Miriada X, versal, Xuetang X, Guokr MOOC Academy, FUN, and Canvas.net.

Figure 3. Big Three MOOC Platforms before and in 2015

Along with the development of commercial MOOC platforms, the underlying pedagogy of MOOCs has gradually evolved from connectivism to cognitivism-behaviourism. This pedagogy shifted gradually and led the change in the dominant type of MOOCs in the market to encompass more xMOOCs (Sánchez Gordón & Luján Mora, 2014; Daniel, 2012).

By 2015, the total number of MOOCs offered worldwide reached over 4,200, which involved more than 550 universities and attracted 35 million learners (Shah, 2016). As previously mentioned, these MOOCs were distributed among different MOOC platforms. Among them, Coursera still offered the largest number of MOOCs (35.6%), followed by edX (18.1%) and Canvas.net (6.92%).

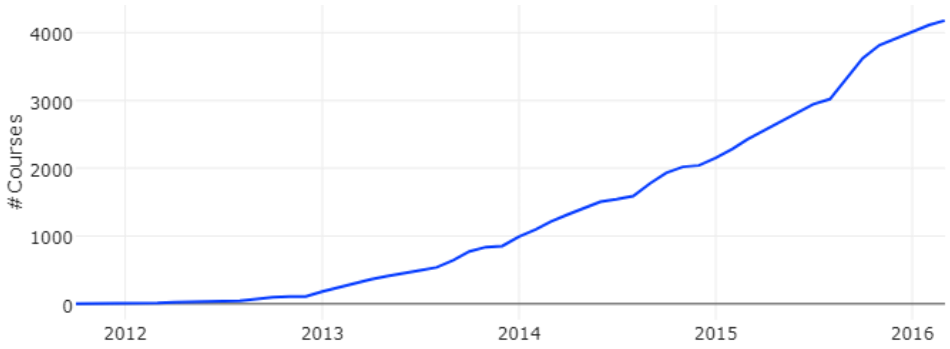


Figure 4. Growth of MOOCs' Number (Shah, 2016)

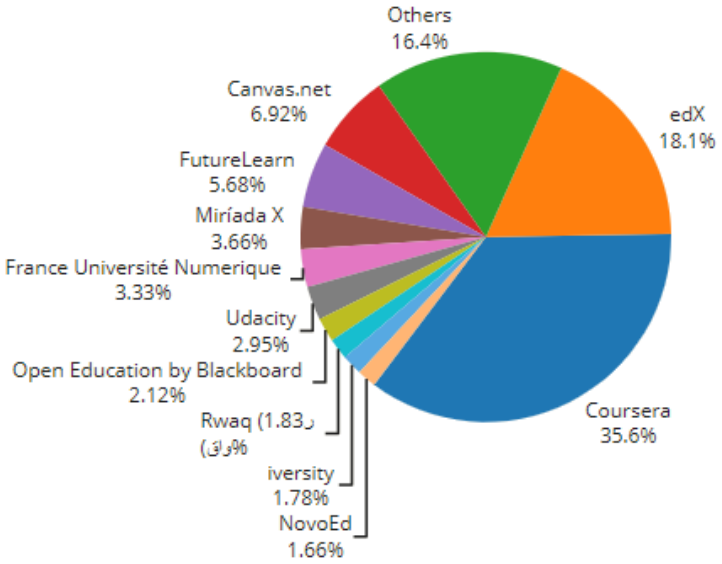


Figure 5. MOOCs' Distribution by Platform (Shah, 2016)

Over 100 Specialisations, Nanodegrees, and XSeries credentials were created and made available in 2015. The number was expected to more than double in 2016 (Shah, 2016). For example, by 2015, Coursera provided the Statement of Accomplishment for learners who successfully complete course requirements, the Verified Certificate for learners who seek formal recognition under a signature track, and the Specialisation Certificate for learners who successfully complete a group of related courses. OpenLearning provides both free badges and free certificates of participation. Canvas Network does not have a built-in tool to generate certificates according to the learning progress of participants. Yet, some MOOC instructors have decided to implement a third-party open-source badge generating service, such as badgr (http://info.badgr.io/). EdX offers honour code certificates of achievement, verified certificates of achievement, and XSeries certificates of achievement. The iversity platform offers the Statement of Participation and the Certificate of Accomplishment.

MOOCs have been successfully applied in a wide variety of disciplines in quite a balanced way. However, a study by Ryan, Horton-Tognazzini, and Williams (2016) yielded only 30 MOOCs in the field of hospitality and tourism, which accounted for just 0.6% of the total available MOOCs. Such a scarcity also inspired the direction of this thesis in regard to studying MOOCs in the field of tourism and hospitality. This direction is important because MOOC research tends to focus on the disciplines of education, information technology, and computer science (Bozkurt, Keskin, & De Waard, 2016). Therefore, more multidisciplinary, interdisciplinary, and cross-disciplinary MOOC studies are essential to study digital learning from diverse lenses (Veletsianos & Shepherdson, 2015).

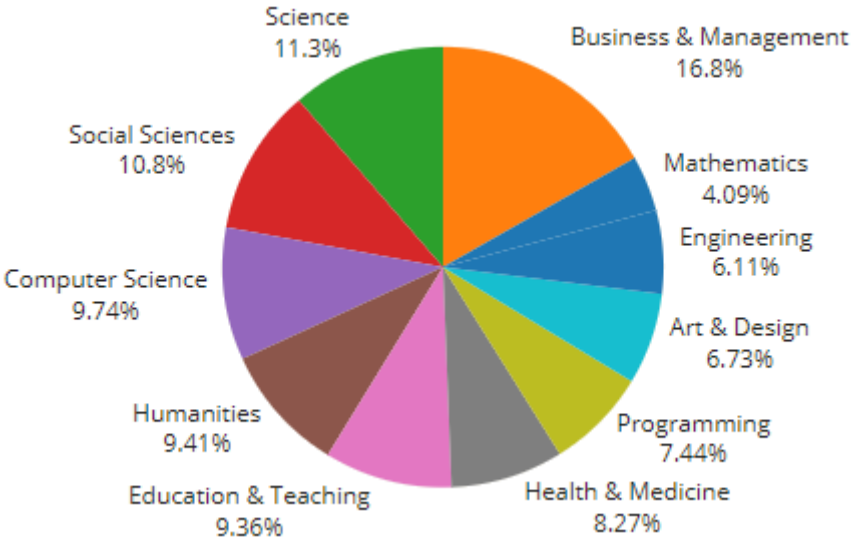


Figure 6. MOOCs' Distribution by Discipline (Shah, 2016)

1.1.3 Vision behind MOOCs

According to MastersPortal.edu (MastersPortal, 2017), the average tuition fee for a bachelor's degree in Europe for an EU/EEA student is around 5,133 CHF per year and 9,809 CHF per year for students outside the EU/EEA. For a master's degree in Europe, EU/EEA students pay approximately 5,817 CHF a year and non-EU/EEA students pay about 11,600 CHF. These numbers are high, but they are not as extortionate as in the United States. Harvard University charges almost 59,681 CHF per year, Yale University 47,746 CHF, and the University of California, Los Angeles (UCLA) 13,180 CHF (Coughlan, 2016). These massive tuition fees not only frustrate Western families but also Eastern societies. A survey of 18,523 people in China showed that most people (86.1%) think that college tuition fees are too expensive. As employment situations become more and more critical, this problem has aroused greater concern among the public (China.org.cn, 2007). In other words, to obtain a higher level of knowledge through formal university curricula nowadays, learners have to part with a significant amount of money.

Democratisation and equality of higher education have been argued for by many scholars but have not yet been achieved (Evans & McIntyre, 2014). Aaron Swartz, in his Guerrilla Open Access Manifesto, opposes the privatisation and commodification of knowledge by identifying information as a power that embodies the scientific and cultural heritage of humans; this knowledge should not be monopolised by a handful of private corporations (Ozturk, 2015). Anant Agarwal, the CEO of edX (a MOOC platform founded by Harvard and MIT), claimed that there is a globalist vision associated with MOOCs, in

regard to making education borderless, gender-blind, race-blind, class-blind, and financially blind (Agarwal, 2013; Sparke, 2017). In the literature, MOOCs are described as "revolutionary" and "disruptive". MOOCs being an influential agent of education democratisation could be reflected in the following aims.

- To provide unique educational outreach opportunities, including educational opportunities focused on attitudinal and social change in regard to social topics (Carver & Harrison, 2013).
- The philosophy of openness and the absence of access restrictions to these courses, beyond the obvious need to have available the necessary devices, could help knowledge reach places where education provision fails to meet demand (Rizvi, Donnelly, & Barber, 2013).
- To attract students who were underserved in traditional classroom settings (Schmid, Manturuk, Simpkins, Goldwasser, & Whitfield, 2015).
- Heterogeneous participation with low or zero costs imposed on end users (Don, Alias, & Ohshima, 2015).
- Breaking the dependence of education on time and distance; class enrolment becoming open for more of the populace, regardless of educational background (Xiao & Pardamean, 2016).
- Using technology to improve quality and challenge educators to strive for more creative and empowering forms of open online learning (Toven-Lindsey, Rhoads, & Lozano, 2015).

As the "Single Most Important Experiment in Higher Education" (Weissmann, 2012), MOOCs call for a global scale in regard to attracting the public's attention and participation in open courses, which are designed and operated by elite universities from around the world. In MOOCs, learners do not have to enrol in an elite university to attend its professor's classes; equality is finally accessible to anyone in the world. Teachers are able to share their expertise and passion in their fields with thousands of learners who are highly motivated to learn from them. Teachers can also experiment with different didactic strategies among their learners (see Figure 7). Universities might enhance their reputations by gaining networking benefits and better engaging part-time and distance students, alumni, and local employers (Annabi & Wilkins, 2016), reducing the cost of higher education, exploring new business models, and increasing shared services (Jansen & Schuwer, 2015).

Traditional strategies	Hybrid strategies	Online strategies
Lecture	Case study	Self-directed learning
Discussion	Mentorship	Collaborative learning
Project	Small group work	Forum

Figure 7. Instructional Strategies Applied in Online Education (Weissmann, 2012)

As an evolving phenomenon, MOOCs also often face criticism. Critics often stress low rates of enrolment, retention, and completion, alongside the apparent corporate nature of a great deal of MOOC provision (Baggaley, 2013; Naidu, 2013; Zutshi, O'Hare, & Rodafinos, 2013), unorthodox course designs (Lentell, 2014), high costs, poor outcomes, a lack of overall satisfaction (Zemsky, 2013), the absence of human connections and student-teacher interactions (Deale, 2015), difficulties motivating or identifying participants (Atenas, 2015), not reaching disadvantaged individuals, and even contributing to increasing educational inequalities (Kalz et al., 2015).

1.1.4 Definition of MOOCs

For the research purpose of identifying and comparing the definitions of MOOCs in the literature, a total of 84 MOOC related publications from 2008 to 2016 were included by using the keywords "Massive Open Online Course" and "MOOC" to search electronic databases including ScienceDirect, Wiley Online Library, ProQuest Sociology Database, and Google Scholar. The inclusion criteria are: (1) The publication includes a definition of MOOCs; and (2) the publication is written in English. These publications cover 41 journal articles, 20 conference papers, 11 project reports, four blog articles, five theses, and three book chapters.

In the 84 publications, MOOC concept discussion texts were manually retrieved from each publication and compiled in one document. An inductive content analysis was adopted and implemented to analyse the compiled document of MOOC concepts. Content analysis is a research method for making replicable and valid inferences from data in their contexts, with the purpose of providing knowledge, new insights, a representation of facts, and a practical guide to action (Krippendorff, 1980). According to Lauri and Kyngäs (2005), if there is not enough former knowledge about a phenomenon or if this knowledge is fragmented, the inductive approach is recommended. The inductive content analysis process includes open coding, coding sheets, grouping, categorisation, and abstraction.

A tree of the MOOC concept debate (four main categories, 10 generic categories, and 28 subcategories), as displayed in Figure 8, was constructed to visualise the results.

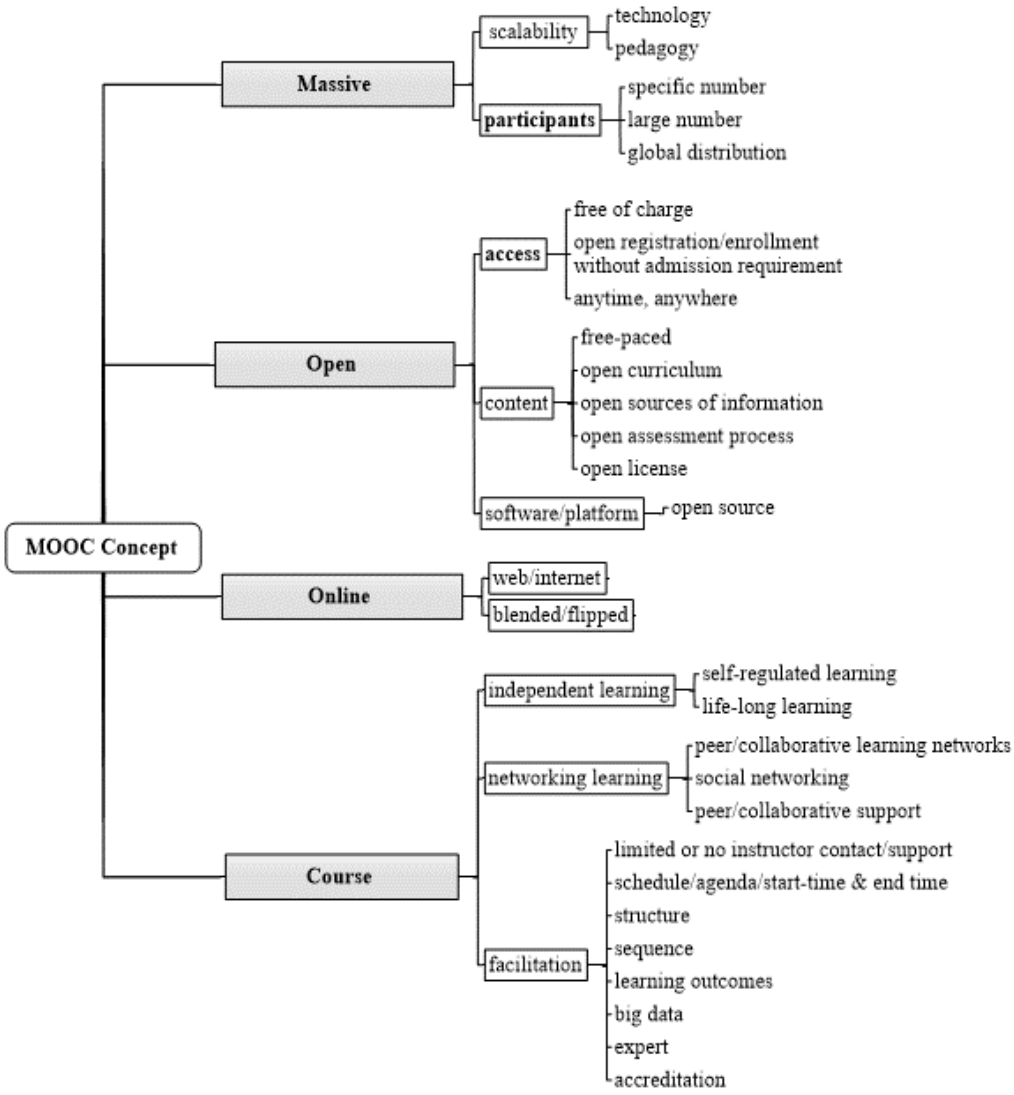


Figure 8. A Tree of MOOC Concept Debate

Massive. Researchers nowadays share a common understanding regarding the first letter, signifying "massive", in the MOOC acronym, which indicates the scalability of this educational format, besides a large number of participants. The scalability is reflected in both technology and pedagogy. The former refers to the capacity of the platform to host an indefinite number of participants (Grainger, 2013; Belleflamme & Jacqmin, 2016), while the latter represents the scope of the course activities, which can be scaled up without causing major disruption and at a negligible marginal cost (Hollands & Tirthali, 2014c) to any of the components within it. When

it comes to the number of participants in a MOOC, it can be either a specific number (Morgado et al., 2014) or a large number (Atiaja & Proenza, 2016; Yousef, Chatti, Schroeder, & Wosnitza, 2014), which is a vague concept (Atiaja & Proenza, 2016), or a global distribution of the participating audience, which emphasises the worldwide usage of the MOOC (Aparicio & Bacao, 2013).

Open. The openness of the MOOC concept is explained in three aspects (as shown in Figure 8). First, open access is usually interpreted as free of charge (Yousef, Chatti, Schroeder, & Wosnitza 2014); open registration/enrolment without any admission requirements or prerequisites (Atiaja & Proenza, 2016; Chew, 2015; Masters, 2011; Sánchez Gordón & Luján Mora, 2014); or the fact that it can be accessed at any time, anywhere, without time and space limitations (Arnold, 2012; Jansen & Schuwer, 2015). Second, the openness of the contents of MOOCs (Masters, 2011) enables learners of different levels to selectively study the contents at their own paces (Anderson, 2013). The open curriculum enhances the learning flexibility of participants and there is also transparency for users in regard to the information sources related to the course contents. Unlike the way in which they are a compulsory element of traditional courses, exams, when they exist in a MOOC, are often an optional opportunity, which is explained from the beginning. Contents are also developed and used under the open license, to encourage knowledge distribution and modification for non-profit purposes. Third, the open-sourced software and platforms (Masters, 2011; Sánchez Gordón & Luján Mora, 2014) mean that anyone can obtain the source code without being prohibited from further using, adjusting, or developing the code. However, MOOCs nowadays are criticised for not being "open" because, for example, a MOOC typically cannot be downloaded as a whole package to be transferred or the learning assets cannot be reused or modified for specific purposes (Matkin, 2013).

Online. The online element of the MOOC concept reaches the highest degree of agreement among different studies. Most definitions agree that the delivery of MOOCs is via the internet (or the web or remotely), although some researchers also argue that MOOCs do not necessarily need to be completely online (Anderson, 2013; Bates, 2012) because learners from the same area can actually meet up, which might lead to a blended learning mode. Some universities nowadays also adopt flipped classrooms (Viswanathan, 2012) to combine the content of MOOCs with a present class teaching process.

Course. When defining the course characteristics of a MOOC, three themes are identified: independent learning, networking learning, and facilitation. Independent learning is the self-directed education process that an individual learner goes through with little or no supervision. The two most mentioned concepts around independent learning within MOOC definitions are self-regulated learning (Cabiria, 2012; McAuley, Stewart, Siemens, & Cormier, 2010; Romero & Usart, 2014) and life-long

learning (Chew, 2015; Grainger, 2013; Hayes, 2015; Siemens, 2013). Three components are important in self-regulated learning: first, students' metacognitive strategies for planning, monitoring, and modifying their cognition; second, students' management and control of their efforts in the classroom's academic tasks; third, the actual cognitive strategies that students use to learn, remember, and understand the materials (Pintrich & De Groot, 1990). Life-long learning can simply be considered as the pursuit of knowledge, skill, attitude, and wisdom throughout a person's life. According to the UNESCO Institute for Life-Long Learning (2010), as written in the document of the Belém Framework for Action, "the role of life-long learning is critical in addressing global educational issues and challenges. Life-long learning 'from cradle to grave' is a philosophy, a conceptual framework and an organising principle of all forms of education, based on inclusive, emancipatory, humanistic and democratic values; it is all-encompassing and integral to the vision of a knowledge-based society" (pp. 5-6).

Networking learning is a second important theme in the definition of MOOCs. It features three aspects: (1) peer/collaborative learning networks (De Waard, 2015), which encourage learners to communicate and collaborate with their peers to reflect on their learning, and build upon provided knowledge to generate new learning; (2) social networking (Bujak, Baker, DeMillo, & Sandulli, 2012) refers to the possibility of networking with other learners; and (3) peer/collaborative support (Lebron & Shahriar, 2015) is the support that a learner receives from other participants concerning problems encountered or shared in the MOOC.

A third important theme is facilitation in a MOOC. An often-mentioned characteristic of MOOCs is the limited/no instructor contact or support through the course of study (Lebron & Shahriar, 2015). Some scholars suggest that the MOOC is a time based educational event that follows a fixed schedule with a start and an end time (Masters, 2011; Siemens, 2013). Several studies agree that, to be defined as a course, a MOOC should usually have a structure (Stevens, 2013; Bento, 2014) and a sequence (Bento, 2014; Grimmelmann, 2014; Klobas, Mackintosh, & Murphy, 2014), and organise learning contents and activities according to a specific order, guided by the proper pedagogy. Learning outcomes (Clow, 2013; Lukeš, 2012; Siemens, 2013) are another element that is often mentioned in the effort to define a MOOC by describing its components or processes. Big data and learning analytics (Jones & Regner, 2015) enable instructors, who are usually renowned experts in their particular fields (Atiaja & Proenza, 2016; McAuley, Stewart, Siemens, & Cormier, 2010), to monitor the overall learning taking place within the courses and provide proper feedback when possible. Unlike other offline or online education programmes that offer official accreditation to the students, MOOCs do not usually offer academic

credit but can provide rewards such as a participation certificate or an informal badge (Belleflamme & Jacqmin, 2016; Sa'don, Alias, & Ohshima, 2014).

After a summative and reflective review of some existing definitions of the MOOC in the literature, the following definition is proposed:

> *A Massive Open Online Course (MOOC) is a new development of distance education mainly achieved by self-regulated learning and social interaction, initiated from the effort of Open Education, with the support of diversified digital media, the internet, and electronic devices, to reach the purpose of global mass education for free.*

In this definition, "massive" is considered more as a term that is purpose-driven rather than result-driven. It conveys the educational purpose of cultivating global mass education to encourage life-long learning.

"Open" represents the scope of Open Education, which aims to break the barriers set by time, space, copyright, technology, and formal prerequisites, among others. It is part of the open movement.

"Online" connects: (1) the digital media, which is created, viewed, distributed, modified, and preserved on digital electronic devices; (2) the internet or web, which is the global computer network that links multiple devices worldwide; and (3) personal electronic devices, including desktop computers, laptops, and mobile devices (such as smartphones). It concerns the whole idea of digitalising contents and sharing them via the internet to different receivers enabled by various device types.

"Course" becomes a term to describe MOOCs as a newly developed delivery method of distance education, which to some degree still holds the shape of a regular in-presence course. However, it emphasises the importance of self-regulated learning and social interactions in the achievement of this educational delivery format.

1.2 Researches on MOOCs

1.2.1 Bibliometric Methodology

It is believed that a coherent research agenda is needed to understand how we should design and develop learning for the future. We must first take stock of what we know and what has been well researched (Siemens, Gašević, & Dawson, 2015). To better understand the state of the art of MOOC research, bibliometric research was conducted to review the extant scientific literature, in order to identify indicators that can portray the development of this area, following the methodology recorded in the study of Zancanaro and de Souza Domingues (2017). The research process contained three phases with seven stages, as illustrated in Figure 9.

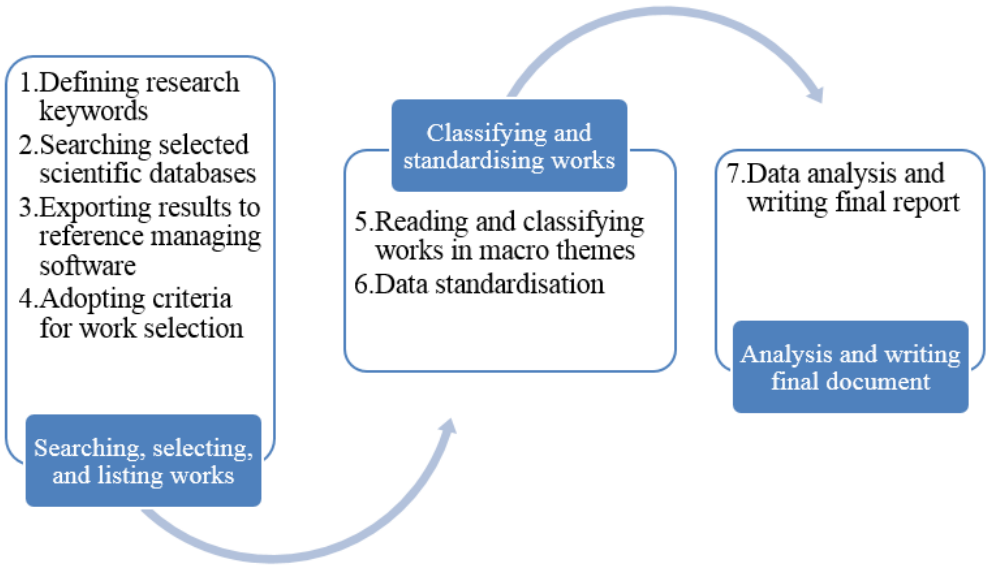


Figure 9. *Process of the Research Procedures*

Stage 1: Defining research keywords

The words "MOOC" and "Massive Open Online Course" and their plural forms "MOOCs" and "Massive Open Online Courses" were used as keywords to search for relevant literature.

Stage 2: Searching scientific databases

A total of seven electronic databases and five key journals in eLearning were used, which included: Scopus, ISI web of knowledge, ProQuest, JSTOR (education titles), IEEEXplorer, Wiley Online Library, Taylor&Francis Online, the British Journal of Educational Technology, Distance Education, the American Journal of Distance Education, the International Review of Research in Open and Distributed Learning, and the Journal of Online Learning and Teaching.

As shown in Table 4, a total of 519 relevant pieces of literature were identified out of 9,520 results with duplications removed, which was due to overlaps between databases and journals. A total of 446 were from databases and 73 were from journals. The follow-up literature review was mainly based on this pool of publications.

Table 4. Number of Relevant MOOC Literature

Database	**Results**	**Included**
Scopus	604	222
ISI web of knowledge	307	119
ProQuest	235	7
JSTOR (education titles)	754	2
IEEEXplorer	30	10
Wiley Online Library	485	27
Taylor&Francis Online	6825	59
SUB-TOTAL	*9240*	*446*
Journal	**Results**	**Included**
British Journal of Educational Technology	39	8
Distance Education	77	16
American Journal of Distance Education	21	4
International Review of Research in Open and Distributed Learning	112	33
Journal of Online Learning and Teaching	31	12
SUB-TOTAL	*280*	*73*
TOTAL	**9520**	**519**

The number of scholarly articles about MOOCs is increasing year after year (Figure 10). More researchers started to investigate MOOCs between 2012 and 2013, right after the first widely recognised cMOOC, *Artificial Intelligence (CS221)*, was established. This steep increase in the number of publications on the topic of MOOCs had been previously noticed by both the press and social media (Sánchez-Vera, Leon Urrutia, & Davis, 2015), as well as by scholarly publications (Zancanaro & Domingues, 2017).

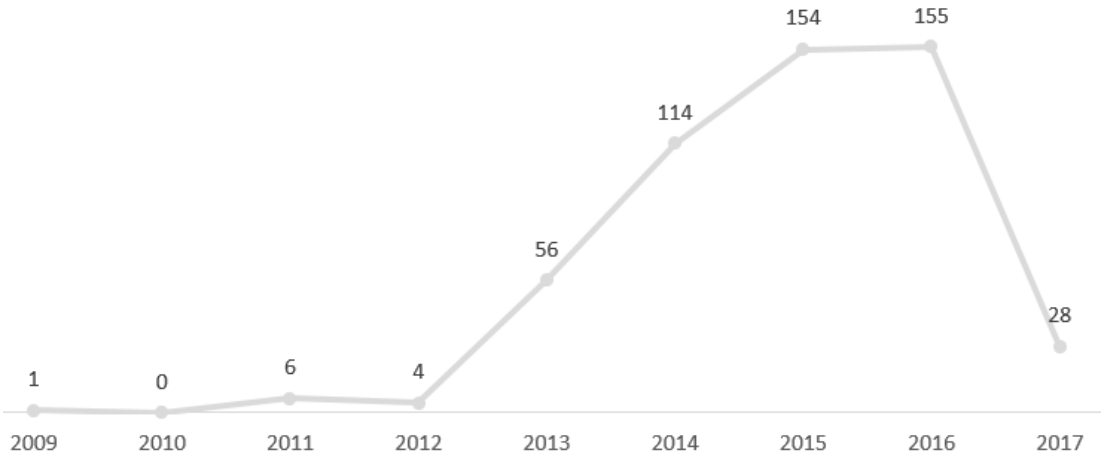


Figure 10. Number of Journal Articles in Studying MOOCs by Year (01/2009 – 03/2017)

Stage 3: Exporting results to the reference managing software

Mendeley software (www.mendeley.com) was used to organise the literature discovered (Figure 11).

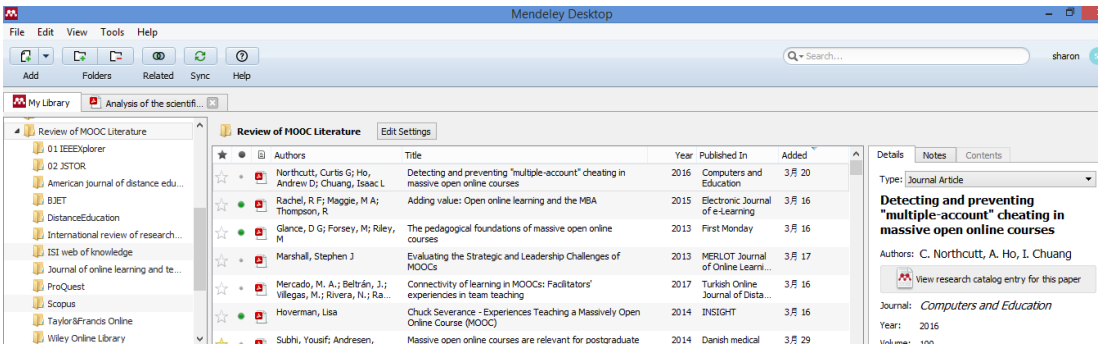


Figure 11. Literature Organized in the Mendeley Software

Stage 4: Adopting criteria for work selection

When a publication met the following criteria, it was considered relevant: (1) published in a scholarly journal; (2) published between 2008 and 2017; (3) written in English; (4) investigated MOOCs in the context of higher education; (5) studied MOOCs as the main topic; and (6) full text available.

Stage 5: Classifying works in macro-themes

To help the theme classification process, the previous meta-analysis of literature on MOOCs was examined to extract usable pre-coding themes as a basis. See details in Section 1.2.2.

Stage 6: Data standardisation

The results from different databases had different formats and Mendeley could not proficiently process the grouping of themes; thus, the process of data standardisation was dealt with using Microsoft Excel 2016 (Figure 12). The standardisation process takes time but is essential for the bibliometric study (Zancanaro & Domingues, 2017).

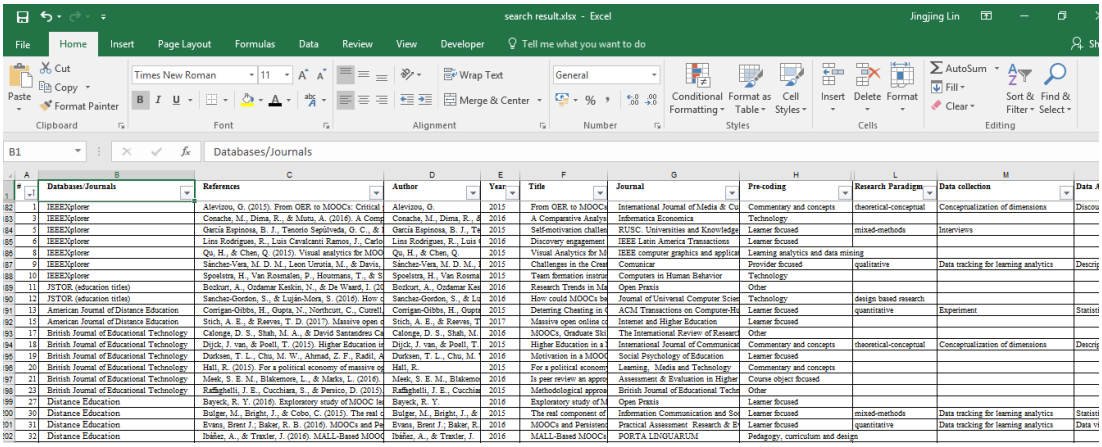


Figure 12. Screenshot of Excel Interface

Stage 7: Data analysis and writing the final report

Based on the macro themes, the literature was interpreted in the final report.

1.2.2 Systematic Review of MOOC Studies

A handful of scholars conducted systematic reviews of the literature of MOOC studies, as summarised in Table 5 below. According to Bandara, Miskon, and Fielt (2011), whose work was based on an analysis of past meta-literature review papers, pre-coding of the target content is important for an effective and efficient literature review. Several studies classified MOOC studies based on emerging themes during the literature review process. For example, the very first synthesis review of MOOC studies was conducted by Liyanagunawardena, Adams, and Williams (2013) and was based on 45 peer reviewed papers published between 2008 and 2012. It identified eight themes of MOOC research. Four more systematic review studies of MOOCs were carried out in 2014. Gašević, Kovanović, Joksimović, and Siemens (2014) analysed 28 research proposals funded by the MOOC Research Initiative (MRI) and the Gates Foundation, and found five themes of research. Ebben and Murphy (2014) divided MOOC research into two main phases: (1) cMOOCs, Engagement and Creativity (2009 to 2011/2012), and (2) xMOOCs, Learning Analytics, Assessment, and Critical Discourses about MOOCs (2012 to 2013).

Table 5. Systematic Review of MOOCs' Studies: A Summary (2013 – 2017)

Study	Research questions/aims	Analysis method	Coverage of review	Results
Liyanagunawardena, Adams, and Williams (2013) ***[General]***	The first effort to systematically review literature relating to MOOCs. The aim is to locate and analyse MOOC related academic literature to provide an understanding of developing research areas, methods applied in research, and topics lacking in published research.	Followed the search effort by Gao, Luo, and Zhang (2012), and Williams, Terras, and Warwick (2013).	From 2008 to 2012 45 peer reviewed papers.	They identify eight themes apparent in MOOC scholarship, which include: (1) introductory (explaining aspects of MOOCs); (2) concept (discussion of threats and opportunities regarding MOOCs in higher education); (3) case studies; (4) educational theory (pedagogical approaches used); (5) technology (discussion of hardware and software used); (6) participant focused (discussion of participants' experiences); (7) provider focused (discussion of course creators and leaders); and (8) other. Most MOOCs studied were cMOOCs.
Gašević, Kovanović, Joksimović, and Siemens (2014) ***[General]***	Investigated: (a) the themes in MOOC research emerging in MRI proposals; (b) research methods commonly proposed for use in the proposals submitted to the MRI initiative; (c) demographic (educational background and geographic location) characteristics of the authors who participated in the MRI initiative; (d) most influential authors and references cited in the proposals submitted in the MRI initiative; and (e) the factors that were associated with the success of the	Conventional and automated content analysis methods; citation network analysis methods.	28 research proposals funded by the MOOC Research Initiative (MRI) and the Gates Foundation.	Main research themes that could form a framework of future MOOC research include: (1) student engagement and learning success; (2) MOOC design and curriculum; (3) self-regulated learning and social learning; (4) social network analysis and networked learning; and (5) motivation, attitude, and success criteria.

	proposals accepted for funding in the MRI initiative.			
Kennedy (2014) ***[Specific]***	Which frameworks ground research in MOOCs? What types of research methods and questions have been applied to MOOCs? What are the characteristics associated with MOOCs, as reported in research published in scholarly journals?	Frameworks by Onwuegbuzie, Leech, and Collins (2012); Eisenhart (1998); Boote and Beile (2005); and Maxwell (2006).	From 2009 to 2012 Six peer reviewed journal articles.	This review of research explores characteristics associated with MOOCs. Three key characteristics are revealed: varied definitions of openness; barriers to persistence; and a distinct structure that takes the form of one of two pedagogical approaches.
Ebben and Murphy (2014) ***[General]***	Examines the initial phase of MOOC scholarship (2009 to 2013) and offers an analysis of these empirical studies that conceptualises themes in MOOC scholarship and locates them within a chronological framework.	Inductive analysis by Silverman (2011).	From 2009 to 2013 25 peer reviewed journal articles in English.	Two key phases of scholarship regarding MOOCs are identified. Phase One: connectivist MOOCs, engagement and creativity, 2009 to 2011/2012. Themes include the development of connectivism as a learning theory, and technological experimentation and innovation in early cMOOCs. Phase Two: xMOOCs, learning analytics, assessment, and critical discourses about MOOCs, 2012 to 2013. Themes include the rise of xMOOCs, the further development of MOOC pedagogy and platforms, the growth of learning analytics and assessment, and the emergence of a critical discourse about MOOCs.
Hew and Cheung (2014) ***[Specific]***	To summarise the accumulated state of knowledge concerning the main motivations and challenges of using MOOCs, as well as to identify issues that have yet to be fully	(1) Searched for empirical based articles in electronic databases. (2) Snowballing searches on the papers cited in some of the articles. (3) Articles were classified by the method	Until July 2013 Regarding the use or experiences of MOOCs of academic	All articles relied on some forms of self-reported data, such as personal reflections or questionnaire surveys. In addition, some articles relied on log data, such as students' posts in discussion forums for their analysis. No article reported the use of the experimental or quasi-experimental research design. Many of the articles

	addressed or resolved in this respect.	of constant-comparative espoused by Glaser (1965).	leaders, instructors, or students.	described the experiences of students who enrolled in a particular MOOC or the instructors teaching the course. Sub-themes for student perspectives were: motives for signing up for MOOCs, attitudes toward MOOCs, and challenges of learning in MOOCs. Sub-themes for instructor perspectives were: reasons for offering MOOCs, how instructors try to engage students, and the challenges of teaching MOOCs.
Sangrà, González-Sanmamed, and Anderson (2015) ***[General]***	Following the study by Liyanagunawardena, Adams, and Williams (2013), which analysed publications from the first five years of MOOC delivery, this article looks at studies that focus on MOOCs established between 2013 and 2014.	Procedures from Liyana, Gunawardena, Adams, and Williams (2013); criteria from Fink (2010).	From 2013 to September 2014 228 journal articles of empirical studies of MOOCs.	A total of 11 categories of research development in MOOC studies: (1) The role of social networks in teaching and learning. (2) Testing pedagogical strategies. (3) Student engagement and motivation. (4) Machine learning/modelling research. (5) Natural language processing. (6) Human-computer interaction. (7) Personalised/adaptive learning. (8) Comparing hybrid courses with traditional ones. (9) Developing data standards and a common platform for data mining. (10) Institutional objectives and consequences for the higher education system. (11) Cultural and accessibility issues.
Veletsianos and Shepherdson (2015) ***[Specific]***	To examine the disciplinary distribution, composition, and changes over time of MOOC research, with the following research questions:	Two steps: A search strategy, followed by a forward referencing search strategy and a reference list search strategy.	2013 to February 2015 63 peer reviewed empirical	MOOC research published between 2013 and 2015: (1) was mostly conducted by researchers affiliated with the disciplines of education and computer science; (2) was far from monolithic; (3) had a greater representation of authors

	What are the disciplinary backgrounds of the authors who published empirical MOOC research from 2013 to 2015? How does the disciplinary distribution of the authors who published MOOC research from 2013 to 2015 compare to that of the submissions to the MRI reported by Gašević et al. (2014)? Is the 2013 to 2015 empirical research on MOOCs more or less interdisciplinary than was previously the case?		studies published as journal articles, conference proceedings, or in the Educause review.	from the field of computer science than in the past; and (4) showed a trend toward being more interdisciplinary than MOOC research published from 2008 to 2012. Our results also suggest that empirical research on xMOOCs may be more interdisciplinary than research on cMOOCs.
Raffaghelli, Cucchiara, and Persico (2015) ***[Specific]***	To explore the methodological approaches most commonly adopted in scholarly literature on MOOCs published during the period between January 2008 and May 2014.	Systematic literature review.	January 2008 to May 2014 60 scholarly journal papers in four scientific databases and one eLearning journal.	The study identified nine categories of research aims (literature review, technological tools for MOOCs, learning processes in MOOCs, designs for learning in MOOCs, MOOC pedagogy, MOOCs for institutional development, contribution of MOOCs to educational theory, teaching processes in MOOCs, methodological approaches to studying in MOOCs), six dimensions of research paradigms (theoretical-conceptual, mixed-methods, quantitative, qualitative, design based research, unclear), 11 dimensions of data collection methods (conceptualisation of dimensions, surveys, design experiments, data tracking for learning analytics, electronic corpus/artefacts, quasi or controlled experiments, virtual ethnography, interviews, focus groups,

				document collection, social network formation), nine dimensions of data analysis methods (description of dimensions, descriptive statistics, thematic/discourse analysis, statistical correlation, multimodal analysis, documental analysis, data visualisation based on learning analytics, other inferential statistics, factor analysis), six research types (desk research, descriptive-exploratory, descriptive case studies, intervention case studies, intervention design experiments, intervention random experiments). Agreement with Ebben and Murphy (2013), who identified two periods in MOOC research: a first phase of enthusiasm and experimentation followed by a more critical and objective form of research oriented toward the exploration of strategies to improve access to and innovation in higher education.
Saadatdoost, Sim, Jafarkarimi, and Hee (2015) ***[Specific]***	To present a structural literature review of MOOC research from the perspective of information systems and to provide information that can form the basis of further information systems studies.	Three-phase method proposed by Fielt et al. (2013), which follows recommendations by Levy and Ellis (2006) and Vom Brocke et al. (2009) in regard to exploring and interpreting literature review findings.	32 papers.	Pre-coding scheme for information systems literature reviews included: definitions, objectives, characteristics, historical analysis, reported success factors, reported issues/failures, research methods, theories, future work, and the contexts of reported studies. The definition, types, covered theories, and issues were summarised. The issues mentioned in MOOC research included sustainability, quality assurance,

				pedagogy, participants, dropout rates, and community knowledge.
López-Meneses, Vázquez-Cano, and Román (2015) ***[General]***	Analyse MOOCs' scientific impact in two of the most prestigious scientific databases: WOS (Journal Citation Reports) and Scimago (Scopus).	To quantify from a bibliometric approach the MOOC scientific production in the form of articles in JCR and Scopus, according to the following variables: total number of published papers, number of received citations, major citable journals, average citations per year, name, country, institutional affiliation of the most cited author, and articles' methodological approaches. To analyse the keywords to establish the thematic and conceptual implications of them, in order to better understand the MOOC movement.	2010 to 2013 159 journal articles.	Most published articles are concentrated in 2013. The increase in the number of citations of articles since 2010 is significant but continues to have a low incidence rate. This still represents a low rate in regard to the dissemination of informative articles on MOOC network literature. The USA accounts for half of all citations received, followed by the UK, Australia, Canada, and Spain. Other countries are far behind. American universities are the most representative of the MOOC movement, followed by European, Canadian, and Oceania universities. The main body of research focused on theoretical reflections and essays. MOOC research is still at an early stage and the efforts made to date focus more on the field of informatics than on scientific and academic contexts. Analysis by networks of abstract and keywords shows that the most relevant values are concepts related to materials or instruments used: video and educational resources, educational learning experience, environment, design, and evaluation.
Calonge and Shah (2016)	Analyse the literature highlighting the use of MOOCs as a means to reduce	Systematic qualitative literature review (Tranfield, Denyer, and	October 2015 to January 2016	The mismatch between potential employers and their ability to hire new graduates with relevant skills is a growing

[Specific]	the mismatch in graduate skills.	Smart, 2003; Alasuutari, Bickman, and Brannen, 2008).	13 reports and news articles, and three journal articles.	global problem. MOOCs are utilised through collaborations by corporations, MOOC platform providers, and higher education institutions.
Bozkurt, Keskin, and De Waard (2016) ***[General]***	To present research trends emerging from MOOC theses and dissertations published from 2008 to 2015.	Systematic review approach: (1) a comprehensive search in multiple academic databases; and (2) a document analysis was used to collect data, followed by a content analysis.	From 2008 to 2015 51 theses and dissertations.	MOOC research is generally derived from education, engineering, and computer science, as well as from information and communication technology related disciplines. Qualitative methodology linked to a case study research model is most common and the theoretical/conceptual backgrounds are usually related to distance education. Remarkably, nearly half of the studies didn't benefit from any theoretical or conceptual perspectives. Most MOOCs studied were cMOOCs.
Veletsianos and Shepherdson (2016) ***[General]***	To address gaps in the scholarly understanding of MOOCs. Presents a comprehensive picture of the literature by examining the geographic distribution, publication outlets, citations, data collection and analysis methods, and research strands of empirical research focusing on MOOCs during this time period. Five research questions are addressed:	Literature discovery searches by three people. Summoned search engine. Google Scholar search (until 200th result). Searched two stand-alone libraries (EdITLib Digital Library and the Educause Library). Followed the forward referencing process by Gao, Luo, and Zhang (2012), by using Google Scholar. Conducted a completeness search (as	From January 2013 to January 2015 183 empirical studies published in peer reviewed journals, conference proceedings, or Educause review, or published or available	We summarise the most salient of these themes: distinctions between cMOOCs and xMOOCs, impacts of MOOCs on education, demographics of MOOC users, and challenges for MOOCs. Addressed five specific gaps that we identified in our examination of the current scholarly literature: geographic distribution, publication outlets, citations, data collection and analysis methods, and research strands. Results demonstrate that: (a) More than 80% of this literature is published by

	How is empirical MOOC research geographically distributed? Is empirical MOOC research usually published in journals or conference proceedings? In which journals and conference proceedings is MOOC research currently being published? Which empirical MOOC studies are cited the most? What data collection methods and data analysis methods are used in empirical studies of MOOCs? What are the research strands of empirical MOOC research?	opposed to a discovery search).	online as in press.	individuals whose home institutions are in North America and Europe; (b) a select few papers are widely cited, while nearly half of the papers are cited zero times; and (c) researchers have favoured a quantitative if not positivist approach to the conduct of MOOC research, like the collection of data via surveys and automated methods. While some interpretive research was conducted on MOOCs in this time period, it was often basic and the minority of studies were informed by methods traditionally associated with qualitative research (e.g., interviews, observations, and focus groups). Analysis shows that there is limited research reported on instructor related topics, and that even though researchers have attempted to identify and classify learners into various groupings, very little research examines the experiences of learner subpopulations.
Zancanaro and de Souza Domingues (2017) ***[General]***	To map the scientific literature on MOOCs until December 2014 in order to identify: a) the main authors and the institutions to which they are affiliated; b) the theoretical basis of such studies; c) the classification of research in macro-themes; and d) the references most used by the authors.	Bibliometric research: 1) searching, selecting, and listing the works; 2) standardising and classifying them; and 3) data analysis and writing the final document.	Until December 2014 294 journal articles and conference proceedings' papers published in English, Spanish, and Portuguese.	Nine themes were coded: Evaluation; Target public; Analysis and research; Business models; Conceptual aspects; Types of study; Design and technology; Learning theories; Others.

In 2015, five systematic reviews of MOOCs were added to the literature. Sangrà, González-Sanmamed, and Anderson (2015) came up with 11 themes of MOOC research development.

Among the 14 meta-analysis review studies, two types emerged (Table 6). The first type is the general meta-analysis, which aims to analyse the included literature in order to expose common patterns or trends in the publications concerning the whole body of MOOC studies. The second type is the specific meta-analysis, which aims to analyse the literature from a specific angle (e.g., the discipline or methodology used), instead of exposing an overall picture of MOOC studies.

Table 6. Studies of General and Specific Meta-Analyses

Studies of general meta-analysis	**Studies of specific meta-analysis**
Liyanagunawardena, Adams, and Williams (2013) Gašević, Kovanović, Joksimović, and Siemens (2014) Ebben and Murphy (2014) López-Meneses, Vázquez-Cano, and Román (2015) Sangrà, González-Sanmamed, and Anderson (2015) Bozkurt, Keskin, and De Waard (2016) Veletsianos and Shepherdson (2016) Zancanaro and de Souza Domingues (2017)	Kennedy (2014) Hew and Cheung (2014) Veletsianos and Shepherdson (2015) Raffaghelli, Cucchiara, and Persico (2015) Saadatdoost, Sim, Jafarkarimi, and Hee (2015) Calonge and Shah (2016)

While the first synthesis study of MOOC literature was by Liyanagunawardena, Adams, and Williams (2013), which analysed publications between 2008 and 2012, the second such synthesis study was by Sangrà, González-Sanmamed, and Anderson (2015) and it examined MOOC studies published between 2013 and 2014. Two recent synthesis studies were found in 2016, but they either focused on results from dissertations or theses (Bozkurt, Keskin, & De Waard, 2016), or only included extant literature published prior to January 2015 (Veletsianos & Shepherdson, 2016). Therefore, a more updated review of the MOOC literature is needed to explore publications between 2015 and 2017. A total of 337 journal articles published between January 2015 and March 2017 were read and analysed (see Figure 10).

1.2.3 Research Topics of MOOCs

The pre-coding scheme adopted in this study was modified from the results of Liyanagunawardena, Adams, and Williams (2013). It is illustrated below in Table 7.

Table 7. Pre-Coding Scheme: Categories and Summaries of Research Topics

Category of research topics	**Summary of the category**
Commentary and concepts	No empirical evidence or practices involved; this type of study focuses on explaining aspects of MOOCs, discussing threats/opportunities, and other concepts. It is a subjective expression mainly based on desk research.
Case reports or evaluations	Reports or evaluates different practices of MOOCs as direct participants or providers.
Pedagogy, curriculum, and design	Pedagogical approaches used in the MOOCs; different types of designs proposed or applied.
Technology	Software and hardware used.
Learner focused	Course learners.
Provider focused	Institutions and course creators or leaders.
Course object focused	Different elements' or objects' functions or performance in the MOOCs, such as social media, forums, and videos.
Learning analytics and big data	Course generated data; web log data from MOOC platforms in particular.
Review of literature	Review and summarization of either scholarly publications or press publications about MOOCs.

The pre-coding scheme was applied to the 337 journal articles, by reading the titles, abstracts, keywords, and, in several cases, the complete works, to categorise the research topics of MOOC studies published between 2015 and 2017. The distributions of articles by year and by topic are presented below in Figure 13. Several articles were assigned to more than one category (that is why the total number of articles added to 358 instead of 337). The most investigated topics were: learner focused; commentary and concepts; case reports or evaluations; pedagogy, curriculum, and design; and course object focused. The less frequently investigated topics were: learning analytics and big data; review of literature; technology; and provider focused.

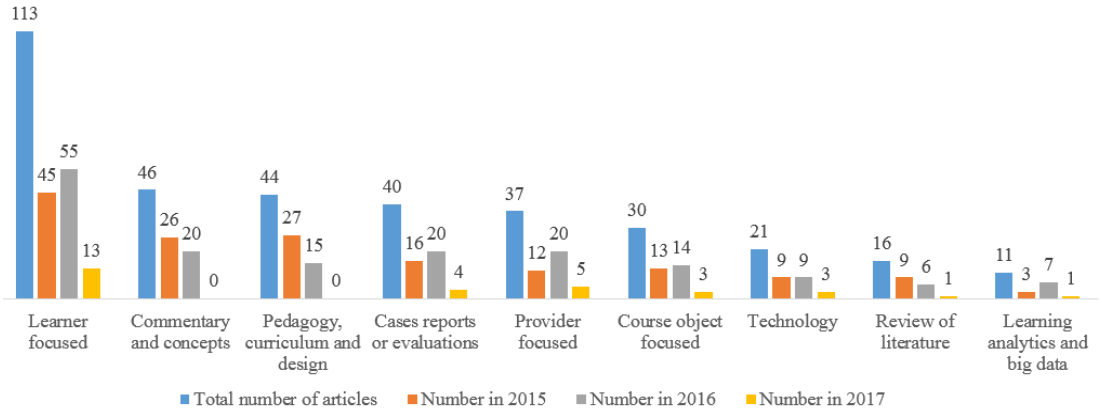


Figure 13. Number of Articles Distributed by Research Topic and Published Year

Learner focused. It was found that, in line with previous studies (e.g., Liyanagunawardena, Williams, & Adams, 2013), a large number of studies continued to focus on MOOC learners, which accounted for 30.4% of the articles in the reviewed pool. Among the scholarly articles that studied learners' perspectives, the most researched topics were learner motivation (e.g., Bulger, Bright, & Cobo, 2015; Salmon, Pechenkina, Chase, & Ross, 2016; Durksen, Chu, Ahmad, Radil, & Daniels, 2016), engagement (e.g., Hew, 2016; Moskal, Thompson, & Futch, 2015; Rodrigues, Ramos, Silva, & Gomes, 2016; Sinclair & Kalvala, 2016), course performance (e.g., Alario-Hoyos, Muñoz-Merino, Pérez-Sanagustín, Delgado Kloos, & Parada, 2016; De Barba, Kennedy, & Ainley, 2016), and retention/dropout/persistence (e.g., Gomez-Zermeno & Aleman De La Garza, 2016; Kim, Yang, Bae, Min, Lee, & Kim, 2017; Xing, Chen, Stein, & Marcinkowski, 2016).

Commentary and concepts. Besides reporting about learners in MOOCs, a significant number of scholars shared their ideas about MOOCs, mainly based on the desk research approach. The topics covered under this category varied from MOOCs and their umbrella concepts (e.g., Gaskell, 2016; McGreal, 2015; Power & Coulson, 2015), possible impacts in specific disciplines (e.g., McNamara, 2015; Sementelli & Garrett, 2015), business models (e.g., Daniel, Vázquez Cano, & Gisbert, 2015; Porter, 2015), addressing educational inequality and underserved groups (e.g., Literat, 2015; Schmid, Manturuk, Simpkins, Goldwasser, & Whitfield, 2015), relating to the context of higher education (e.g., Atiaja & Proenza, 2016; Kaplan & Haenlein, 2016), to European perspectives toward MOOC development (e.g., Deimann & Vogt, 2015; Dijck & Poell, 2015; Schuwer et al., 2015).

Cases reports or evaluations. The reports on MOOC provisions were found in different subjects, including medical studies (e.g., Hossain et al., 2015), astronomy (e.g., Impey et al., 2015), chemistry (e.g., Leito, Helm, & Jalukse, 2015; O'Malley, Agger, & Anderson, 2015), business management (e.g., Rachel, Maggie, & Thompson, 2015),

robotics (e.g., Corke, Greener, & Philip, 2016), religion (e.g., Zagano, 2016), engineering (e.g., Jao, 2016), English language (e.g., Erwen & Wenming, 2017), and information literacy (e.g., Huang, Li, & Zhou, 2016). Regardless of the subjects in question, one common argument among scholars is the extent to which MOOCs are effective as a method of educational delivery, compared to other formats. Within an experiment context, 48 students reported that the MOOC they were engaged with was no better for them compared with self-paced learning using an online learning module, in regard to increasing knowledge, confidence, or satisfaction (Hossain et al., 2015). However, the element of social interaction with peer learners within the course, through forum discussions, or outside the course, through social media, has been considered effective and beneficial (Impey et al., 2015). When implementing the on-campus curriculum, MOOCs were effective in supporting learning (Soffer & Cohen, 2015; Muñoz-Merino et al., 2017).

Pedagogy, curriculum and design. MOOCs are often described as disruptive or revolutionary in the history of education. However, the pedagogy underpining MOOCs is not innovative, especially after the year 2011, when xMOOCs started taking the lead in the market. A survey of 106 participants confirmed this statement, with 84.9% of respondents considering MOOCs not pedagogically innovative (Armellini & Rodriguez, 2016). The pedagogical tools used in 24 MOOCs also reflected that pedagogical practises currently used in MOOCs tend toward an objectivist-individual approach, with some efforts to incorporate more constructivist and group-oriented approaches (Toven-Lindsey, Rhoads, & Lozano, 2015). As described, in a MOOC, the medium is still lectures, but snappy ones, which last eight to 12 minutes and are delivered by the most famous professors in the field (Hlinak, 2016). The most frequently found MOOCs are equipped with key features, such as video lectures, quizzes, homework, discussion boards, and a final exam. Meanwhile, some innovational design trials related to teaching via MOOCs are still ongoing. For example, the hybrid pedagogical model proposed by Fidalgo-Blanco, Sein-Echaluce, and García-Peñalvo (2016), which involved cooperation among MOOC participants to introduce new resources through social networks and the integration of these resources with previous teacher materials, was reported to double the completion rates among participants, compared with other MOOCs without such a design on the same platform. On a more practical level, Warburton and Mor (2015) presented 20 design patterns as a scaffold for developers to use when building a MOOC, which responded to problems from six main categories: structure, orientation, participation, learning, community, and management. These patterns are: fishbowl, provocative questions, chatflow, sparking forum participation, sharing wall, drumbeat, crowdbonding, six minute videos, see do share, knowing the story, bring them along, scaffolded MOOC, checkpoints, adjacent platforms, MOOC legacy, know your audiences, bend don’t break, facilitating large groups induction, and engendering teamwork.

Course object focused. Three course objects were studied the most among the selected articles (from 2015 to March 2017), namely, peer assessments, forum discussions, and videos. (1) *Peer assessements*. MOOCs did not invent peer assessments but made intense use of them as a substitute for instructor evaluation and to automate the process (Johnston, 2015). However, such automation hides concerns from students about the quality of feedback from their peers (Meek, Blakemore, & Marks, 2016) and the trivial scoring rubric provided by the course (Johnnston, 2015), which was proven to have an influence on the ability of learners to provide good quality feedback (Ashton & Davies, 2015). Due to this limitation, it was suggested that peer assessments should be used as assessment for the learning purpose instead of assessment of the learning outcome (Admiraal, Huisman, & Pilli, 2015). (2) *Forum discussions*. The correlation between forum participation and learner engagement was reported in the previous study. When a learner is proactively participating in forum discussions in a MOOC, it is highly possible that he or she becomes more engaged. However, it is also possible for the discussion to be dominated by some learners and, when these people leave, the discussion activities in a forum tend to cease (Zhang, Skryabin, & Song, 2016). Another issue is the chaos and information overload in the forums (Wise, 2015). (3) *Videos*. Widely recognised as the main textbooks in MOOCs, videos have grown to be the dominant delivery medium of knowledge. The quality of videos to some degree influences the student engagement level with the videos (Diwanji, Simon, Märki, Korkut, & Dornberger, 2015). Some scholars have examined the video styles (Santos-Espino, Afonso-Suárez, & Guerra-Artal, 2016). Others have observed video watching behaviours (Brinton, Buccapatnam, Chiang, & Poor, 2016). Another study found a correlation between video teaching and better final exam grades and suggested that MOOC instructors should give video lectures serious thought, in order to increase the effectiveness of their courses (Evans & Cordova, 2015).

Provider focused. The studies related to provider perspectives and experiences continue to remain scarce. This will be discussed in detail in the forthcoming Section 1.2.4.

Technology. Concerning the technologies used to support MOOCs, existing studies focused on exploring and reporting different designs, development, and evaluation of software, rather than hardware, applied in MOOC contexts. The most studies were found in regard to different software that could serve different purposes, such as team forming (Spoelstra, Van Rosmalen, Houtmans, & Sloep, 2015), auto-correction for assessment (Corbi & Burgos, 2015), semantic technologies support (Piedra, López, Jorge, & Tovar, 2015; Zhuhadar, Kruk, & Daday, 2015), multimedia annotation (Monedero-Moya, Cebrián-Robles, & Desenne, 2015), gamification (Borras-Gene, Martinez-Nunez, & Fidalgo-Blanco, 2016), and collaborative filering, which is a technique used by recommeder systems (Pang, Jin, Zhang, & Zhu, 2017). Besides different independent tools, some scholars have shared their experiences of designing or developing a whole platform for supporting MOOCs. Cirulli, Elia, Lorenzo, Margherita, and Solazzo (2016) presented

a MOOC platform for building entrepreneurial behaviour and competencies. Chunwijitra, Junlouchai, Laokok, Tummarattananont, Krairaksa, and Wutiwiwatchai (2016) proposed a framework to adopt OER in MOOCs to sustain the offerings of MOOCs. The third type of studies were about evaluating MOOC platforms (Funieru & Lazaroiu, 2016; Zancanaro, Nunes, & Domingues, 2017).

Learning analytics and big data. Such comprehensive data related to learning behaviour has become available for analysis because of MOOCs. However, studies dedicated to the possibility of using such big data to help improve learning designs and learner behaviours are very few. It was assumed that, although the data are precious, they are also large, complex, and heterogeneous, and the end users of the analytic systems have little or no knowledge of data mining techniques (Qu & Chen, 2015). But the need for interpreting scattered information from diverse sources of data in distance education settings is obvious (Myller, Suhonen, & Sutinen, 2002). Thus, some scholars have even suggested that, because of the large amount of data involved in a MOOC, the best way to analyse these data is to use simple and clear visualisation methods (Maté, De Gregorio, Cámara, Trujillo, & Luján-Mora, 2016).

Systematic review of literature. Three main types of review can be found in the literature. First, a systematic review of scholarly publications, as summarised above in Table 5 and Table 6. Second, a review of publications in public media, such as newspapers, magazines, and blogs. For example, Zhang, Perris, Zheng, and Chen (2015) studied the public response to MOOCs in China by analysing the Sina Weibo data that made reference to MOOCs. Kovanović, Joksimović, Gašević, Siemens, and Hatala (2015) identified the most important themes and topics in MOOC related mainstream news reports. Selwyn, Bulfin, and Pangrazio (2015) used content and discourse analysis methods to examine how understandings of MOOC related changes were presented in US, UK, and Australian newspapers. Metcalfe and Sastrowardoyo (2016) collected over 100 MOOC related articles from newspapers and magazines in a six-month period in 2013 and demonstrated how to construct a sense-making framework with which to think about these innovative systems from the perspective of formulating government policy. Third, a review of existing MOOCs in a specific discipline or subject, as can be found in studies by Ryan, Horton-Tognazzini, and Williams (2016) in the fields of tourism and hospitality, or by Zhan, Fong, Mei, Chang, Liang, and Ma (2015) in the field of sustainable education.

1.2.4 MOOC Studies of Providers

Aligned with the results of the systematic analyses by Liyanagunawardena, Williams, and Adams (2013), and Sangrà, González-Sanmamed, and Anderson (2015), the extant literature on MOOCs published prior to March 2017 continued to highlight the participant perspective, which left a dearth of information regarding provider perspectives on MOOCs.

This section shares the synthesised knowledge of MOOC provider studies, after a thorough review of the relevant publications between 2015 and 2017.

MOOC provider studies can be divided into four layers, as illustrated in Figure 14: (1) instructor self-report studies; (2) studies of instructors as a group; (3) from the perspective of institutions; and (4) from the perspective of a country or continent. The first two layers focusing on the experiences of individual providers were labelled as micro-level studies, while the other two layers focusing on organisational units or on vast regions were labelled as macro-level studies.

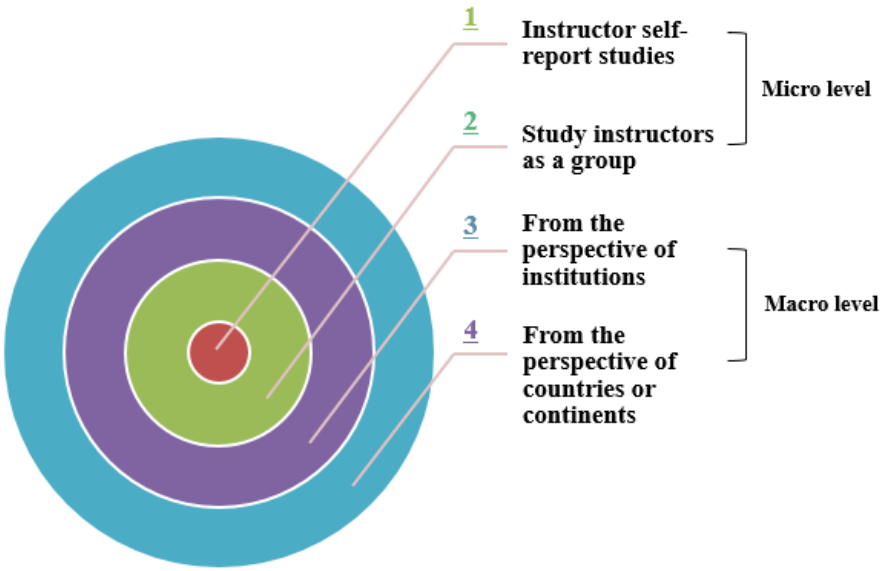


Figure 14. Four Layers of MOOC Providers' Studies

Instructor self-report studies. Together with the increasing number of MOOCs, more and more instructors involved in the provision process started to report in scholarly publications their own experiences of designing and implementing MOOCs. In this layer of studies, rather than understanding MOOCs as a general phenomenon, authors instead presented cases of practices. For instance, Sánchez-Vera, Leon Urrutia, and Davis (2015) reported their web science MOOC hosted on the FutureLearn platform in 2013, and elaborated that they had assigned over 25 staff members in the content creation and development process and 10 PhD students as online facilitators in the forum discussion process. The Carpe Diem MOOC produced in Australia, which adopted the Carpe Diem learning design process to enable professional development among teachers globally, attracted 1,426 participants and initiated institutional collaborations within them (Salmon, Gregory, Don, & Ross, 2015).

Study instructors as a group. When a high enough number of instructors began experiencing MOOCs, it became important to understand them as a group. For instance, Deale (2015) explored hospitality and tourism educators' knowledge, use, and perceptions of MOOCs, particularly in hospitality and tourism education, by surveying 144 educators globally. Evans and Myrick (2015) followed a mixed methods approach to survey a total of 162 professors, in order to better understand how instructors perceived MOOCs. Nascimbeni and Burgos (2016) interviewed a number of leading experts in the field of OER and Open Education and concluded that a strong relation exists between the use of open approaches and the networking and collaboration attitude of university teachers. Mercado, Beltrán, Villegas, Rivera, and Ramírez (2017) analysed 135 facilitators in cMOOCs and xMOOCs to explore the strategies they used to enhance learning connections, how they encountered challenges, and the required skills in such experiences. Annabi and Muller (2016) used the Diffusion of Innovations (DOI) theory to explore MOOC adoption within the United Arab Emirates by approaching 20 instructors in two institutions through semi-structured interviews and a focus group.

From the perspective of institutions. When facing MOOCs, institutions see new possibilities in branding, new needs for professional development, and a new potential source of student enrolment. Kiers (2016) shared experiences of developing and delivering MOOCs over years at the Delft University of Technology and highlighted that MOOCs had helped to shift the attention of the faculty from research to teaching. It had offered new opportunities to renew approaches to teaching, faculty training and promotion, and quality assurance system within the institution. Ospina-Delgado, Zorio-Grima, and García-Benau (2016) investigated 151 universities from 29 countries that offered MOOCs through four MOOC platforms (Udacity, Coursera, edX, and MiríadaX), and found that prestige is a significant factor in influencing the supply of MOOCs among universities. Most MOOCs were offered by public universities and over half were from the US.

From the perspective of countries or continents. The first attempt to conduct a comparative study of institutional MOOC strategies in Europe and the US (Jansen, Schuwer, Teixeira, & Aydin, 2015) was realised through an online survey responded to by 67 European higher education institutions from 22 European countries. Their results showed the more promising potential of MOOCs' growth in Europe than in the USA and that MOOCs are becoming mainstream in Europe. In the context of Asia, Malaysia became the first country in the world to implement government-initiated MOOCs for all public universities by investing significantly for all public universities to offer MOOCs, under the 2016-2020 Eleventh Malaysia Plan (Don, Alias, & Ohshima, 2015).

1.3 MOOCs for Tourism and Hospitality (T&H) Education

ELearning surfaced in 1999 and started benefiting the business sector in 2000 (Pappas, 2012). With one of the highest levels of skill shortages and staff turnover (HEFCE, 1998),

the tourism and hospitality industry decided to implement eLearning strategies for various reasons. Training is usually a critical success factor for the T&H industry but it is also expensive and time-consuming (Boisevert, 2000). The industry notably faces seasonality and, with it, an enormous number of employees with limited time for training or education (Murphy et al., 2016). Hence, distance training can give them the freedom to upgrade skills, polish knowledge, enhance social networks, and seek further career potentials without leaving a physical job.

From the eLearning provider's perspective, eLearning helps to cut travel costs, increase the efficiency of content delivery, and make it easier to scale up and reach a larger audience at a negligible marginal cost. Despite all these benefits, scant attention has been paid to the role that eLearning already plays and can play in the sphere of tourism and hospitality education (Cantoni, Kalbaska, & Inversini, 2009).

A review of the existing literature related to eLearning in T&H suggested that studies related to MOOCs are scarce. A brief keyword search on Google Scholar (March 12, 2016) yielded the following results: "MOOCs" (47,500), "MOOCs & tourism" (801), and "MOOCs & hospitality" (545). In the existing literature, only a few MOOC studies focus on tourism and hospitality (Benckendorff et al., 2015; Deale, 2014, 2015; Murphy et al., 2013, 2014; Ryan, Horton-Tognazzini, & Williams, 2016; Tracey, Murphy, & Horton-Tognazzini, 2016; Zhan et al., 2015). This dearth of MOOC information contrasts with the fact that the tourism and hospitality industry generates significant wealth and employment opportunities. For instance, in 2014, the world tourism industry contributed: 9% of GDP, one out 11 jobs, US$ 1.5 trillion in exports, 6% of the world's exports, and 1,133 million international tourists (UNWTO, 2015).

There has been a long debate regarding the ways in which tourism and hospitality education needs to fundamentally change in regard to the nature of what is taught and how it is taught (Sheldon, Fesenmaier, Woeber, Cooper, & Antonioli, 2008). In other words, educators and researchers must thoroughly consider the curriculum offered and its design.

1.3.1 Curriculum and Four-stage Evolution

The term "curriculum" has no agreed upon definition but, in education, it broadly refers to "all the learning which is planned and guided by the school, whether it is carried out in groups or individually, inside or outside the school" (Kelly, 1999, pp. 3-6). Multifarious definitions often include aims, objectives, teaching content, teaching strategies, assessment methods, and other components of learning and teaching in classrooms.

Over the last century, curricula have evolved through four stages: objective-approach curricula (1930s to 1940s), discipline-centred curricula (1950s), student-centered curricula (1970s), and teacher-professionalism curricula (1990s) (Wang, Ayres, & Huyton, 2010). The MOOC phenomenon, to some degree, blends these four stages by, for instance,

designing a suggested path of learning with an entry and an exit, incorporating a variety of subjects, providing analytic data to monitor and improve the course quality, shaping star lecturers on the internet, and inspiring more to follow. MOOCs enhance distance education on a grand scale in the international online education context. Teachers are highly involved in the full process as instructional designers, instructors, facilitators, communicators, and reviewers.

1.3.2 Curriculum Internationalisation

Curriculum designs for learners of various nationalities and cultural backgrounds require curriculum internationalisation, which involves "designing a curriculum that meets the needs of an international student body and prepares students to work effectively in international and multicultural contexts" (Sangpikul, 2009). This consideration meets the need of preparing and equipping students for the challenges of globalisation and highlights the way in which globalisation is now part of education, with the fast development of MOOCs.

Four levels of curriculum internationalisation relate to tourism and hospitality (Sangpikul, 2009): (1) infusing international dimensions into existing courses, by adding international contexts to courses or by assigning research projects involving international or multicultural contexts; (2) adding international/multicultural courses to the curriculum, by offering courses involving multiple countries or by adding international courses or by adding language courses; (3) offering a degree in international hospitality and tourism management; and (4) developing joint programmes with foreign universities. In its essence, tourism and hospitality education needs internationalisation and MOOCs can provide such elements by involving multicultural learners on a global scale, with multiple forms of linguistic support available when needed.

1.3.3 Vocational or Liberal?

It is vital to balance the vocational and liberal aspects of tourism and hospitality education in order to produce a well-rounded learner. However, rooted in technical training schools in Europe to prepare trained workers, tourism curricula have long focused on specific occupational skills. A content analysis of coursework offered in tourism degrees (Busby & Fiedel, 2001) confirmed this phenomenon and indicated a strong vocational focus with relatively little emphasis on sociological or philosophical issues.

This trend is gradually shifting. To link specific sociological issues to pedagogy in tourism and hospitality is becoming a burgeoning demand. More and more educators and industry practitioners in the field of tourism and hospitality are becoming aware of the deeper interconnectedness among education, industry, and society. They appear to agree that "this perception that education is to suit only the employment requirements of the industry may not be the most effective or desired purpose of a college education, nor

provide qualified individuals as contributors as both tourism professionals and thoughtful participants in a global society" (Inui, Wheeler, & Lankford, 2006, p. 31). The schools' role of enhancing employability, Litteljohn and Watson (2004) argued, involves more than just providing students with a skill base; it is about educating them in regard to the appropriate attitudes and aspirations to guide their career trajectories and industry visions. Tourism and hospitality education has to go beyond the practical details of the discipline and encourage students to think critically about the future of the industry, encouraging them to develop self-awareness, motivation, imagination, and creativity (Ettenger, 2009).

To consider both the vocational and liberal elements of a programme in tourism and hospitality education, the curriculum framework for philosophic practitioners (Table 8) proposed by Tribe (2002) provides a useful structure with which to classify and analyse the content of curricula in the field of tourism and hospitality. The framework has two dimensions and four quadrants. The first dimension, "ends of the curriculum", relates to the focus of the curriculum (vocational or liberal). The second dimension, "stance of the curriculum", relates to how the curriculum promotes engagement with these ends (reflection or action). "Reflection" is a mode of study that takes place in the mind, while "action" is a mode of expression that takes place in the tourism world (Tribe, 2002). The four quadrants include vocational action, reflective vocational, reflective liberal, and liberal action.

Table 8. The Curriculum Framework for Philosophic Practitioners, Adapted from Tribe (2002)

Ends / **Stance**	***(Vocational education)*** **Vocational**	***(Liberal education)*** **Liberal**
Reflection	Reflective Vocational	Reflective Liberal
Action	Vocational Action	Liberal Action

A curriculum framed to the left of this framework emphasises vocational education. Under this focus, tourism is viewed as a phenomenon that should be organised and managed in a way that brings profit to T&H businesses and satisfaction to the paying tourist or clients (Lewis, 2004). Thus, a view of the wider phenomenon of this field, embracing the critical and ethical, is possibly lost.

A curriculum that focuses on liberal education is framed to the right of the framework. A liberal curriculum first introduces a holistic understanding of T&H as a phenomenon beyond simply being an industry. It ensures that the student's knowledge range of the subject is broad and coherent, encompassing an understanding of different cultural, societal, environmental, and economic issues in general. Second, it encourages students to adopt a critical perspective on the knowledge gained. Third, a liberal curriculum seeks

emancipation from the taken-for-granted ideology within which T&H operates (Lewis, 2004)

1.4 Research Context, Objectives and Questions

1.4.1 The Research Context

For higher education institutions, building and maintaining a brand serves to attract and retain students, faculty members, and partnership opportunities with other institutions, funders, alumni, and other relevant stakeholders (Hollands & Tirthali, 2014c). Now, with the tremendously fast development of MOOCs, more and more universities are employing them as a vehicle to showcase programmes, specialties, and research capabilities. The cross-institutional recognition of credits has started to merge, which means that students could nowadays possibly study at many institutions, complementing their educational experience with multiple campuses across multiple borders in multiple modes and languages. Some institutions grant credits for all learning validated by other recognised institutions. This movement also provides a global infrastructure to support life-long learning. Taking this concept a step further into more altruistic reasons for knowledge sharing, higher education has the opportunity to satisfy its most fundamental reason for being: everyone, regardless of their gender, socioeconomic background, or circumstances, has access to quality education.

From late 2012 onwards, Swiss universities have started to offer some MOOCs. The École Polytechnique Fédérale de Lausanne (EPFL) can be counted as the most active Swiss university investing in MOOCs. Prior to June 2017, it has offered, in total, 73 MOOCs, including 43 on Coursera and 30 on edX. Other higher education institutions in Switzerland have begun to deliver MOOCs as well; in particular, the University of Geneva (25 MOOCs on Coursera), the University of Lausanne (four on Coursera), the University of Zurich (four MOOCs on Coursera), and ETH Zurich (eight MOOCs on edX).

In 2014, Università della Svizzera italiana (USI, Lugano, Switzerland) decided to join the market and become a MOOC provider. The initiative started a university-level project to design and develop two pilot MOOCs for USI, including *eTourism: Communication Perspectives* (www.etourismmooc.ch) and *"All'eterno dal tempo", La Commedia di Dante* (http://bit.ly/2sw0aDl).

The author was employed to work as the project manager of the MOOC production team and acquired the opportunity to follow the complete process of producing the first MOOC, *eTourism: Communication Perspectives*, at USI. Meanwhile, the doctoral studies of the author were also based on the development of this project.

1.4.2 The Research Objectives

This doctoral research contains three levels of objectives (Figure 15), namely, at the MOOC level, at the tourism and hospitality MOOC level, and at the USI eTourism MOOC level.

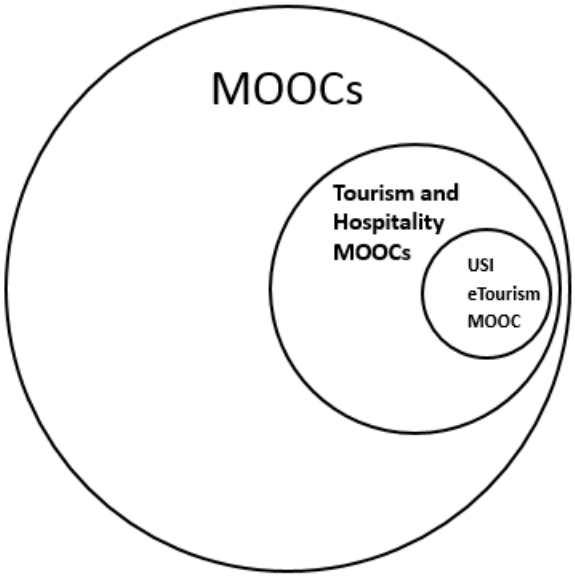


Figure 15. Three Levels of Research Objectives

MOOCs level. On a theoretical level, this thesis summarises the concept of MOOCs and proposes a tentative definition of MOOCs, which could contribute to the current way in which the MOOC is ill-defined. Another objective of this level is to systematically review the literature about MOOCs published between 2015 and 2017, which could resolve the lack of holistic views of MOOC studies after 2014.

Tourism and hospitality MOOCs level. There is limited practice and research in regard to tourism and hospitality MOOCs. To develop the adoption of MOOCs and the implementation of MOOCs in the field of tourism and hospitality, it is critical to have a panoramic view of the current development and studies about tourism and hospitality MOOCs. On this level, the main objective of this study is to explore the offerings of MOOCs in the field of tourism and hospitality by inspecting their course designs and involved instructors' experiences of implementation. This attempt could contribute to tourism and hospitalities education by exploring the characteristics and experiences of pioneering tourism and hospitality MOOCs on a global scale.

USI eTourism MOOC level. This level of objective aims to provide research feedback and support for the project. It summarises the project process, shares production experiences, measures learner engagement, and evaluates overall performance. It

interprets the data from the MOOC, *eTourism: Communication Perspectives*, into research outputs and suggestions.

1.4.3 Research Questions

The thesis adopts a cumulative structure, which combines different publications over the doctoral study process to formulate integrated writing. A total of six studies were conducted over three years, resulting in four journal articles (one published, one accepted, two to be submitted) and two published conference papers. These six studies are the major research outputs of the USI eTourism MOOC project and were compiled as the main body of this doctoral thesis.

The main research questions answered by the six studies are:

- RQ1. What are the development statuses, commonalities, and differences among the offerings of tourism and hospitality MOOCs?
- RQ2. How did pioneer instructors implement MOOC innovation in tourism and hospitality?
- RQ3. How did a MOOC provider implement a MOOC in the case of the *eTourism: Communication Perspectives* MOOC?
  - RQ3.1. What is the implementation process of the *eTourism: Communication Perspectives* MOOC?
  - RQ3.2. How can MOOC platforms be compared to decide where to host a university's MOOC?
  - RQ3.3. How can the engagement level of a MOOC be measured?
  - RQ3.4. How can the performance of a MOOC be evaluated adopting the Kirkpatrick model?

CHAPTER 2.
RESEARCH METHODOLOGY

2.1 Mixed Methods Research Design

This doctoral thesis adopted a mixed methods research design. The use of mixed methods was found to be the most popular among MOOC research (Gašević, Kovanović, Joksimović, & Siemens, 2014), even though the mixed methods research design is relatively new in the social and human sciences as a distinctive research approach. It stems from 1959, when Campbell and Fisk used multiple methods to study psychological traits – although their methods involved only quantitative measures. Their work prompted others to begin collecting multiple forms of data, such as observations and interviews with traditional surveys. The design usually combines or integrates qualitative and quantitative research and data in a research study. Qualitative data tends to be open-ended without predetermined responses, while quantitative data usually includes closed-ended responses, such as those found in questionnaires (Creswell, 2014).

There are different models of mixed methods found in the social sciences (Creswell, 2014), which include three main types of primary models and three types of advanced models.

Primary models:

- **Convergent parallel mixed methods.** The researcher collects both forms of data at roughly the same time and then integrates the information into the interpretation of the overall results.
- **Explanatory sequential mixed methods.** The researcher first conducts quantitative research, analyses the results, and then builds on the results to explain them in more detail with qualitative research. It is considered explanatory because the initial quantitative data results are explained further with the qualitative data.
- **Exploratory sequential mixed methods.** The researcher begins with a qualitative research phase and explores the views of participants. The data are then analysed and the information is used to build a second, quantitative phase. The qualitative phase may be used to build an instrument that best fits the sample under study, to identify appropriate instruments to use in the follow-up quantitative phase, or to specify variables that need to go into a follow-up quantitative study.

Advanced models:

- **Embedded mixed methods.** This design nests one or more forms of data (quantitative or qualitative or both) within a larger design (e.g., a narrative study, an ethnography, an experiment).

- **Transformative mixed methods.** This design is used to incorporate elements of the convergent, explanatory sequential, or exploratory sequential approaches within a social justice framework to help a marginalised group of people.
- **Multiphase mixed methods.** In this design, researchers conduct several mixed methods projects, sometimes including mixed methods convergent or sequential approaches, and sometimes including only quantitative or qualitative studies in a longitudinal study with a focus on a common objective for the multiple projects. This form of research is popular in the evaluation or programme implementation fields, in which multiple phases of the project are conducted over time. These projects may go back and forth between quantitative, qualitative, and mixed methods studies, but they build on each other to address a common programme objective.

Considering that this doctoral thesis was based on and cumulated by research outputs generated over the process of the project of the eTourism MOOC at USI, the thesis followed the multiphase mixed methods design (as illustrated in Figure 16), which suits the development of the multiple phases of the project between 2015 and 2017.

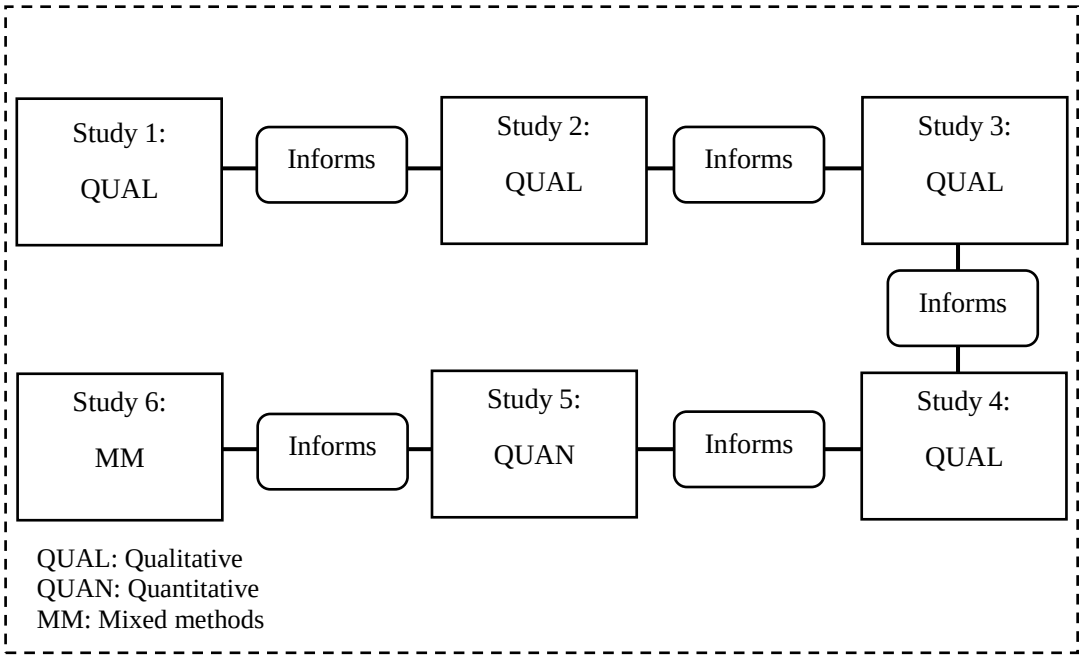


Figure 16. Multiphase Mixed Methods

The overall research design can be found in Table 9, as shown below.

Table 9. Research Design

Research Questions					
RQ1	***RQ2***	***RQ3***			
What are the development statuses, commonalities, and differences among the offerings of tourism and hospitality MOOCs?	How did pioneer instructors implement MOOC innovation in tourism and hospitality?	How did a MOOC provider implement a MOOC in the case of the *eTourism: Communication Perspectives* MOOC?			
		RQ3.1 What is the implementation process of the *eTourism: Communication Perspectives* MOOC?	***RQ3.2*** How can MOOC platforms be compared to decide where to host a university's MOOC?	***RQ3.3*** How can the engagement level of a MOOC be measured?	***RQ3.4*** How can the performance of a MOOC be evaluated adopting the Kirkpatrick model?
Research Design					
Multiphase Mixed Methods					
Studies *(already published papers; * accepted paper)***					
#1	***#2 ****	***#3 *****	***#4 *****	***#5***	***#6 *****
MOOCs on Tourism and Hospitality: A Review	Decision, Implementation, and Confirmation: Experiences of Instructors behind Tourism and Hospitality MOOCs	Overall Implementation Process of the eTourism MOOC	A Journey to Select the Most Suitable MOOC Platform: The Case of a Swiss University	Evaluating MOOC Learner Engagement via an Online Survey	Assessing the Performance of a Tourism MOOC Using the Kirkpatrick Model: A Supplier's Point of View
Theoretical Foundation					
-	Diffusion of Innovations (Rogers, 2003)	-	-	-	Four Level Evaluation Model (Kirkpatrick, 1975)
Research Approach					
Qualitative	Qualitative	Qualitative	Qualitative	Quantitative	Mixed Methods
Strategies of Inquiry					
Case Studies	Case Studies	Case Studies	Case Studies	Survey Research	Multiphase Mixed Methods
Data Collection					
Web Content Mining	Semi-Structured Interviews	Participant Observation; Project Documents	Web Content Mining	Surveys	Surveys; Interviews; Learning Data from the MOOC Platform
Data Analysis					
Content Analysis	Content Analysis	Content Analysis	Content Analysis	Frequencies Analysis	Frequencies Analysis; Content Analysis
Contributions					
A Framework to Review MOOCs	The Implementation Process of Producing MOOCs	Applying the Implementation Process of Producing MOOCs	Practical Review Schema of MOOC Platforms	MOOC Learner Engagement Online Survey	Providing an Overall Approach to Evaluating MOOCs

2.2 Case Studies

In this thesis, the most adopted methodology is case studies. While the first two research questions were mainly answered by adopting multiple case studies methodology, the third research question was tackled with by following single case study methodology.

A case can for instance refer to an individual, an institute, an experience, an action, or an event. Case studies are one research strategy that is widely used in various disciplines, including psychology, anthropology, sociology, political science, education, business, etc. It is defined as "a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information and report a case description and case-based themes" (Creswell, 2006, p.73).

The explorative qualitative research, with this thesis as an example, often needs to face criticism such as theory, validity, and reliability. The conventional view perceived a case or a case study as no value because it is believed that it is too description, subjective, and has no means to genrealize the results to a meaningful large scale. Scholars once argued that case studies were only an exploratory tool for the exploratory phase of an investigation, surveys and histories were for the descriptive phase, and experiments were for the explanatory or causal inquiries phase (Yin, 1994).

Considering case studies imcapable of generalizing its results, or as only useful for generating hypotheses, are just two out of five common misunderstandings summarized by Flyvbjerg (2006), which additionally include: (a) the context-independent knowledge values more than context-dependent knowledge, (b) case study is subjective and carries biases of the researcher, and (c) it is difficult to summarize and develop general propositions and theories out of case studies. In his highly cited work, *Five misunderstandings about case-study research*, Flyvbjerg (2006) continued to explain and correct the above five misunderstandings and suggested that "a scientific discipline without a large number of thoroughly executed case studies is a discipline without systematic production of exemplars, and that a discipline without exemplars is an ineffective one" (p. 1).

The discriminative attitudes developed towards case studies were heavily influenced by long-lasting preferences of the scientific community in other research methods such as experiments and surveys, which provide more controllable variables and more validitable results. However, by comparing different research strategies, Yin (1994) listed different situations that call for more suitable methods (experiment, survey, archival analysis, history, case study) to answer the raised scientific inquiries. These situations included the type of research question, the extent of control over the event, and the degree of focuse on contemporary agaist historical events. He continued to address that research questions of

"what" (what happened), "how" (how did it happen?) and "why" (why did it happen) are more exploratory and likely to lead to using case studies, experiments, or histories. When dealing with "how" and "why" questions, histories study the dead past that is beyond control, experiments manipulate behaviors in comtemporary events directly and systematically, while case studies examine contemporary events where the relevant behaviors cannot be manipulated. Using some overlapping techniques with histories, case studies enjoy stronger power to access wider range of evidences, such as documents, artifacts, intervivews, observations, and even some informal manipulation in participant-observations.

Over years, the misunderstandings of case studies are beging gradually cleared partically because more and more researchers are seeing the limitations of quantitative methods concerning providing in-depth explanations of the problems. The case studies method has now attained routine status as a viable method for doing education research (Gulsecen & Kubat, 2006; Yin, 2004). It was concluded that case studies research "allows the exploration and understanding of complex issues and can be considered a robust research method particularly when a holistic, in-depth investigation is required" (Zainal, 2017).

The decision of using case studies method in multiple studies covered by this thesis was based on the considerations as follows:

- Research questions are mainly "what" and "how" questions.
- Research samples are various across these studies, including for instance MOOC platforms, MOOCs as courses, and MOOC instructors. They are all well suited as independent cases.
- MOOCs are contemporary events, and behaviors related to MOOCs can fall under the research scope of case studies.
- A holistic and in-depth study is needed to explore and understand the development and behaviors inside the under-researched tourism and hospitality MOOCs, of which the purpose can be well served by case studies method.
- Multiple data sources are found in these studies: Web contents, semi-structured interviews, MOOC project participation experiences, project archival documents. To retrieve and use these diverse data, case studies are a good match.

CHAPTER 3.
TOURISM AND HOSPITALITY MOOCS

This chapter is constructed by two separated studies, aiming to investigate the overall development statuses of tourism and hospitality MOOCs and the experiences of those providers behind them.

Study 1:

Lin, J., Cantoni, L., & Murphy, J. (In press). MOOCs on Tourism and Hospitality: A Review. *Journal of Teaching in Travel & Tourism*.

Chapter 3. Tourism and Hospitality MOOCs

3.1 MOOCs on Tourism and Hospitality: A Review

Abstract: Massive Open Online Courses (MOOCs) have grown significantly and globally in less than ten years. However, practices and research in tourism and hospitality MOOCs remain nascent. This study proposes the MOOC Components Framework with six groups of course components: scaffolding, lectures, networking, collaboration, assessment, and affirmation. Drawing on this framework and a case study method, the study analyses 18 tourism and hospitality MOOCs from higher education institutions. The results highlight that: tourism and hospitality MOOC offerings lack diversity; the forum is the preferred communication tool; social media are comparatively underused; the discontinuity of MOOC instructors needs attention; and finally, little multilingual support is available.

Keywords: Massive Open Online Courses; MOOCs; tourism; hospitality; case studies

Introduction

As a trendy online education development, Massive Open Online Courses (MOOCs) surfaced in 2008 when University of Manitoba's (Canada) course, *Connectivism and Connective Knowledge*, went online; over 2,000 people from around the globe enrolled and took the course for free (Leontyev & Baranov, 2013). This inaugural MOOC was innovative in using connectivism pedagogy and became the first prototype of a "cMOOC", which encouraged participants to learn from making connection with others and to contribute knowledge in the community. The rise of MOOC platforms, such as *Coursera*, *edX* and *Udacity* in 2012, shifted the pedagogy of connectivism to cognitivism and behaviorism. This shift popularized the "xMOOC" format, using interactive media and texts to emphasize individual learning rather than learning from peers.

By 2015, MOOCs had reached over 4,200 offerings from more than 550 universities and comprised 35 million learners (Shah, 2016). Yet MOOCs remain an ill-defined term due to challenges such as being an emerging field (De Waard et al., 2014) and a futuristic trend that has yet to mature (Atiaja & Proenza, 2016). Terminology is tricky when trying to describe a new disruptive technology (Conole,

2014). Other definitional challenges include a proliferation of platforms and MOOC diversity (Atiaja & Proenza, 2016). Summative and reflective reviews of MOOC definitions lead to the following proposed definition. A Massive Open Online Course is a distance education development mainly achieved by self-regulated learning and social interaction, initiated from the open education effort, with the support of diversified digital media, the internet, and electronic devices, to provide free global mass education (Lin, 2017).

Besides the difficulty of defining MOOCs, MOOC-related research seems in the initial exploration phase and primarily in the education, information technologies and computer science disciplines (Bozkurt, Keskin, & De Waard, 2016). More MOOC research in multidisciplinary, interdisciplinary and cross-disciplinary fields, such as in Tourism and Hospitality (T&H), is essential to add promising ground for studying digital learning (Veletsianos & Shepherdson, 2015).

T&H industries contribute significantly to global employment but constantly face challenges due to skills shortages, staff turnover, seasonality and training (Ryan, Horton-Tognazzini, & Williams, 2016). By opening higher education courses to the public, MOOCs have the potential to remedy the burgeoning tension for fast training in this field as well as help democratize T&H education (O'Mahony & Salmon, 2014). However, offering T&H MOOCs is a rarity. By 2015 there were 51 T&H MOOCs (in English), with 23 of them provided by higher education institutions. A 29 April 2017 search of the two leading MOOC platforms—*Coursera* and *edX*—illustrates that T&H is under-developed compared to other topics (Table 1).

Table 10/Table 1 (in Study 1). MOOCs of Different Subjects on Coursera and edX

Platform	**Keyword**	**# of results**	**Platform**	**Keyword**	**# of results**
Coursera	business	624	edX	business	373
	computer	501		computer	419
	history	167		history	201
	health	116		health	137
	physics	109		physics	181
	chemistry	20		chemistry	42
	literature	29		literature	68
	tourism	6		tourism	8
	hospitality	7		hospitality	7

Furthermore, the studies have yet to detail the overall development of these T&H MOOCs. Therefore, this study aimed to conduct a comprehensive review of the existing T&H MOOCs to benchmark their status and to shed light on the future development of other T&H MOOCs. The following questions guided the research process:

- How to examine MOOCs structurally?
- What is the status of T&H MOOCs across different MOOC platforms?

- What are the commonalities and differences among the T&H MOOCs?

Literature Review

As the "Single Most Important Experiment in Higher Education" (Weissmann, 2012), MOOCs are designed and operated mainly by universities from around the world and call for a global scale to attract the public's attention and participation in these free and open courses. From the MOOC providers' perspectives, MOOC instructors can share their expertise and passion in their fields with highly motivated learners at the scale of thousands to even tens of thousands. Instructors can also experiment with different didactic strategies. Universities might enhance their reputations through networking benefits, engage part-time and distance students, alumni, and local employers (Annabi & Wilkins, 2016), reduce the cost of higher education, explore new business models, and increase shared services (Jansen & Schuwer, 2015). Considering MOOCs' potential benefits and advantages, more and more instructors and universities are building different subject's MOOCs, including T&H MOOCs.

Until now, 16 publications (please see Table 2 below) across eight conference proceedings/reports, six journals, and two book chapters examined T&H MOOCs. The first T&H MOOC was *Tourism Industry Analysis*, offered on the *Canvas Network* platform by Professor Tadayuki Hara from the University of Central Florida in 2013. Hara, Moskal, Saarinen, and Instructure Sr (2013) reported their experience of teaching this MOOC and the general student performance. In the same year, another conference paper explored the adoption and diffusion of T&H MOOCs (Murphy, Williams, Ryan, Kalbaska, & Cantoni, 2013). Many studies afterwards were still in conferences, discussing topics such as student engagement (Weir, Dale, & Deery, 2014), democratization of T&H education (O'Mahony & Salmon, 2014), MOOC platforms (Lin, Kalbaska, Tardini, Decarli Frick, & Cantoni, 2015), development and evaluation (Lin, Kalbaska, & Cantoni, 2016; Lin & Cantoni, 2017), and blended learning (Murphy, Tracey, & Horton-Tognazzini, 2016). Six articles were in journals: Journal of Hospitality & Tourism Education (Murphy et al., 2014; Ryan, Horton-Tognazzini, & Williams, 2016), e-Review of Tourism Research (Lin, Kalbaska, & Cantoni, 2016), Journal of Teaching in Travel & Tourism (Deale, 2015; Marchiori & Cantoni, 2017), and The International Review of Research in Open and Distributed Learning (Lin & Cantoni, in press).

Among the journal articles, the research by Ryan, Horton-Tognazzini and Williams (2016) was the only review of T&H MOOCs' development. They provided a snapshot of current MOOCs in the broad T&H discipline through online searching and posting to the Tourism Research Information Network mailing list of more than 2,400 T&H academics and professionals. Their results summarized the following information from 30 T&H MOOCs: provider, course platform provider, its latest offer,

hours, weeks/modules and instruction language. However, this list lacked the detailed commonalities and differences among the T&H MOOCs.

Table 11/Table 2 (in Study 1). A Summary of Tourism and Hospitality MOOC Publications

Reference	Publication type
Hara, Moskal, Saarinen, & Instructure Sr (2013)	conference proceedings
Murphy, Williams, Ryan, Kalbaska, & Cantoni (2013)	conference proceedings
O'Mahony & Salmon (2014)	book chapter
Murphy, Horton-Tognazzini, & Williams (2014)	conference proceedings
Weir, Dale, & Deery, (2014)	conference proceedings
Murphy et al. (2014)	journal
Murphy, Kalbaska, Horton-Tognazzini, & Cantoni (2015)	conference proceedings
Lin, Kalbaska, Tardini, Decarli Frick, & Cantoni (2015)	conference proceedings
Deale (2015)	journal
Murphy et al. (2016)	book chapter
Lin, Kalbaska, & Cantoni (2016)	journal
Murphy, Tracey, & Horton-Tognazzini (2016)	conference proceedings
Ryan, Horton-Tognazzini, & Williams (2016)	journal
Lin & Cantoni (2017)	conference proceedings
Marchiori & Cantoni (2017)	journal
Lin & Cantoni (in press)	journal

Studies outside the T&H field often reviewed MOOCs of a specific subject or the overall design of MOOCs. For instance, Alario-Hoyos, Pérez-Sanagustín, Cormier, and Delgado-Kloos (2014) proposed a conceptual framework—MOOC Canvas—for supporting educators in the description and design of MOOCs, which was an early effort to shed light on the design of MOOCs. Liyanagunawardena and Williams (2014) collected a list of health and medicine MOOCs by searching MOOC platforms, emailing platform managers to obtain official records and searching two MOOC aggregator sites, *Class Central* and *MOOC List*. They reviewed 98 eligible health and medicine MOOCs, analysing and comparing elements across these offerings. Wong (2015) examined the pedagogic features of 32 education and math xMOOCs on four MOOC platforms—*Coursera*, *edX*, *FutureLearn* and *OpenLearning*. Zhan et al. (2015) collected information of 51 sustainability-related MOOCs. A similar effort resulted from interviewing eight University of Toronto MOOC instructors (Najafi, Rolheiser, Harrison, & Håklev, 2015). Table 3 below summarizes the MOOC components and categories reflected by above studies.

Table 12/Table 3 (in Study 1). Review MOOCs of Different Subjects

Reference	**# of Aspects**	**Categories**	**Components**
Alario-Hoyos, Pérez-Sanagustín, Cormier, and Delgado-Kloos (2014)	11	available resources	human, intellectual, equipment, platform
		design decisions	general course description, target learners, pedagogical approaches, objectives and competences, learning contents, assessment activities, complementary technologies
Liyanagunawardena and Williams (2014)	10	MOOC platforms, language, offering institution, number of instances, duration, time commitment, recognition, prerequisites, qualitative analysis and target groups	
Wong (2015)	6	course duration, teaching components, types of assessment, lesson flow, types of social interaction and instructors' participation in online discussion	
Zhan et al. (2015)	20	course goals, syllabi, content outlines, textbooks, reading materials, learning resource elements, pedagogical methods, projects, prerequisites, grading, course length, hours per week, language, subtitle, course level, number of instructors, instructor titles, instructor gender, institute and country	
Najafi, Rolheiser, Harrison and Håklev (2015)	8	learning components	video lectures, readings, guest speakers and external links
		assessment components	quizzes, self-graded assessments, peer-assessment
		communicative components	discussion forums

Inspired by the academic literature, this study developed the conceptual MOOC Components Framework, constructing six groups of course components to examine MOOCs in depth (Figure 1).

(1) **Scaffolding** components relate to the overall MOOC description, structure and support.

(2) **Lectures** components refer to the major MOOC teaching components.

(3) **Networking** components enhance course communication and foster an engaging and active learning community.

(4) **Collaboration** components require collaboration among involved parties.

(5) **Assessment** components test how well the learners have mastered the topics with: (a) formative assessment during the course to reflect learner development, and (b) summative assessment at the end of the course to evaluate course outcomes.

(6) **Affirmation** components encourage and reward the efforts of MOOC learners.

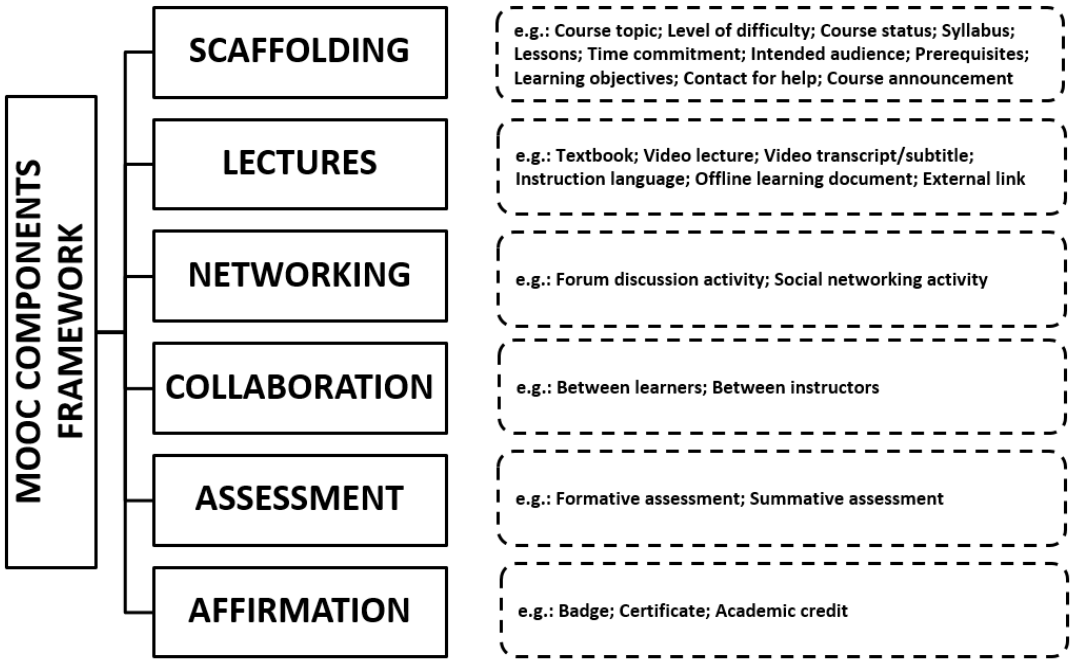


Figure 17/Figure 1 (in Study 1). A Framework to Review MOOCs: MOOC Components Framework

Methodology

This study adopted a multiple case studies approach, "a qualitative approach in which the investigator explores a bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information and report a case description and case-based themes" (Creswell, 2006, p.73). A variety of MOOC researches have used case studies to examine: strategic and leadership issues (Marshall, 2013), completion rates (Cisel, 2014), instructional design, instruction and pedagogy (Comer, Baker, & Wang, 2015), learning analytics (Clow, 2013), and blended learning and flipped classrooms (Firmin et al., 2014; Slomanson, 2014). This study considers T&H MOOCs as cases. The scientific inquiry followed the following steps.

Identify Higher Education Institution T&H MOOCs. From March to December 2015, four sources helped identify T&H MOOCs: (a) a MOOC aggregator site—*Class Central* (www.class-central.com), (b) the T&H MOOCs list on the IFITT website (www.ifitt.org/hospitality-and-tourismmoocs), (c) an online search of different MOOC platforms with keywords "tourism", "hospitality", "travel", "restaurant", "hotel" and "cooking", and (d) Google searches combining "MOOC" with the above keywords. The MOOC inclusion criteria were: (a) the start date was before December 2015, (b) accessible during the study analysis period, (c) free to enroll, (d) in English, and, (e) offered by a Higher Education Institution.

Enroll on MOOC platforms. After identifying the MOOCs for inspection, the authors created ad hoc learner accounts on the host platforms for course enrolment and data collection.

Collect, clean and analyse the data. Browse each MOOC to collect data of the components in the MOOC Components Framework. For information that was unavailable online, instructors of the MOOCs were contacted through email to request the details.

Each MOOC ultimately had its own complete "profile" detailing the six groups of course components. These profiles were read carefully and organised in a spreadsheet for descriptive analysis. (Figure 2).

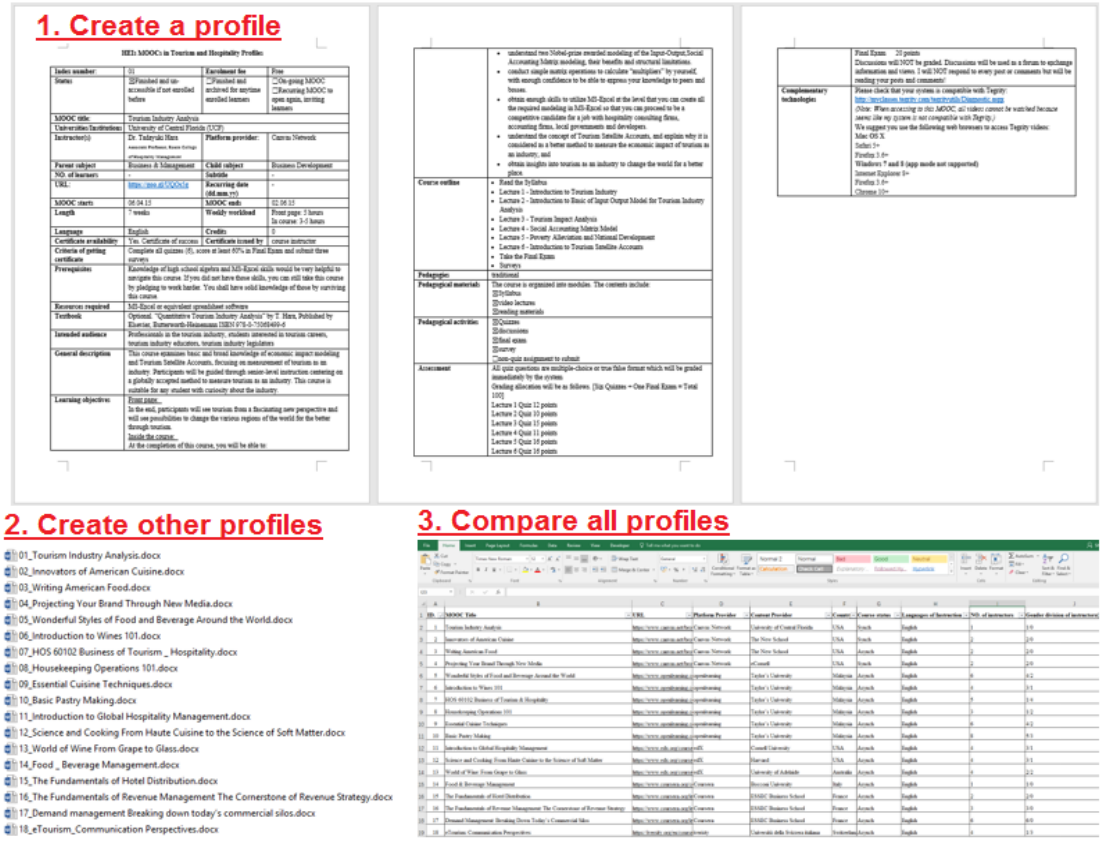


Figure 18/Figure 2 (in Study 1). Tourism and Hospitality MOOC Profiles: From Creation to Comparison

Results

A preliminary overview

Between 2008 and 2015, this study identified eighteen T&H MOOCs (Table 4). The first two T&H MOOCs surfaced in 2013: *Tourism Industry Analysis* from the University of Central Florida, and *Projecting Your Brand Through New Media* from eCornell. In 2015, eight universities deployed 16 additional MOOCs.

Five platforms—*Coursera*, *Canvas Network*, *edX*, *OpenLearning* and *iversity*—hosted these MOOCs. American platforms hosted 11 MOOCs. The Australian platform *OpenLearning* was the platform for all six MOOCs by Taylor's University in Malaysia.

Nine universities from six countries offered these MOOCs. Most universities were of relatively high impact in the university world ranking. Taylor's University was the only Asian university providing T&H MOOCs.

Forty-five unique instructors participated in these 18 T&H MOOCs, with thirteen instructors participating in more than one MOOC.

Using the component groups from the MOOC Components Framework—scaffolding, lectures, networking, collaboration, assessment, and affirmation—the following paragraphs share the main study results.

Table 13/Table 4 (in Study 1). Tourism and Hospitality MOOCs Provided by Higher Education Institutions

ID	MOOC Title	Content Provider	Platform Provider
1	Tourism Industry Analysis	University of Central Florida	Canvas Network
2	Writing American Food	The New School	
3	Innovators of American Cuisine		
4	Projecting Your Brand Through New Media	eCornell	
5	Wonderful Styles of Food and Beverage Around the World	Taylor's University	Open-Learning
6	Introduction to Wines 101		
7	Business of Tourism & Hospitality		
8	Housekeeping Operations 101		
9	Essential Cuisine Techniques		
10	Basic Pastry Making		
11	Introduction to Global Hospitality Management	Cornell University	edX
12	Science and Cooking: From Haute Cuisine to the Science of Soft Matter	Harvard University	
13	World of Wine: From Grape to Glass	University of Adelaide	
14	Food & Beverage Management	Università Bocconi	Coursera
15	The Fundamentals of Hotel Distribution	ESSEC Business School	
16	The Fundamentals of Revenue Management: The Cornerstone of Revenue Strategy		
17	Demand management: Breaking down today's commercial silos		
18	eTourism: Communication Perspectives	Università della Svizzera italiana	iversity

Scaffolding

Tourism or Hospitality MOOCs

There were more hospitality MOOCs (79%) than tourism MOOCs (16%) (Figure 3). Half the hospitality MOOCs were about cuisine/food/drink and one-fifth were about hotels. Tourism topics only appeared in three MOOCs: *Tourism Industry*

Analysis, *Business of Tourism & Hospitality*, and *eTourism: Communication Perspectives*.

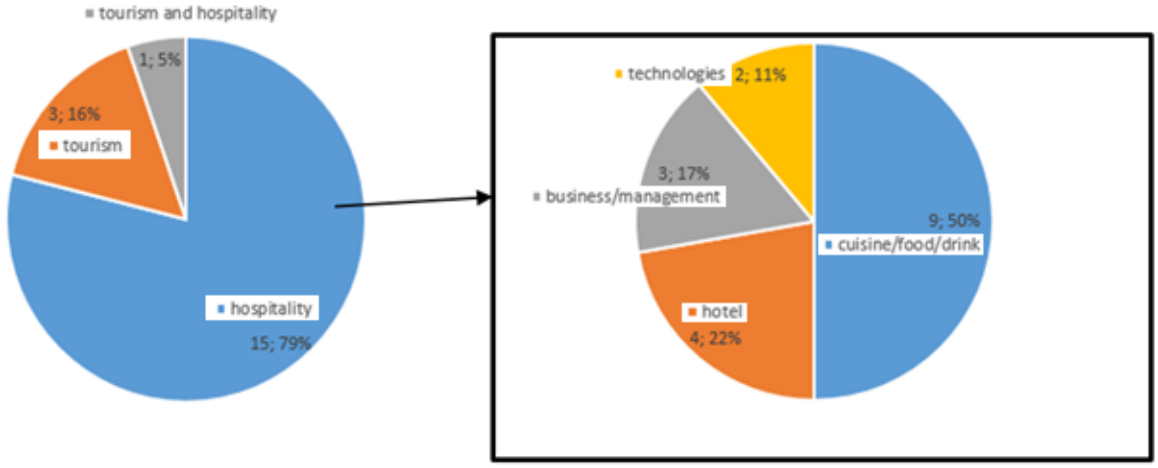


Figure 19/Figure 3 (in Study 1). Topic Distribution of Tourism and Hospitality MOOCs (2008 – 2015)

Learning objectives

Most MOOCs used descriptive paragraphs or bullet points to present learning outcomes, which were usually abstract and not measurable. As an exception, *Introduction to Global Hospitality Management* had good practices. Its learning objectives were a list of descriptors in the welcome page and also broken down into lesson-based objectives, which associated the completion of each lesson with measurable learning outcomes across the whole course.

Syllabus and lessons

Most T&H MOOCs (11 out of 18) provided a syllabus at the beginning of the course, formatted either based on the host platform's requirements or developed on their own. In either case, a detailed list or a description of course components was often available in the syllabus.

A MOOC usually contains a series of lessons in modules or weeks. The examined MOOCs had a total of 107 lessons, with an average of 5.9 lessons per MOOC. The number of lessons varied across MOOCs, from four to fourteen. Four- (7 of 18) and six-lessons (5 of 18) were the most adopted structures. In a typical MOOC, one lesson lasts for one week when it is active online, thus the popular course duration for T&H MOOCs was four or six weeks.

Learner requirements

While most MOOCs stated that they were for anyone, three MOOCs clearly specified the expected learners. For instance, one described the course as expecting: destination managers, people active in the tourism industry, policy makers, students (especially within T&H programs), academics and researchers.

Four MOOCs expressed the preferred learner skills and knowledge for better course engagement. For instance, *Tourism Industry Analysis* mentioned, "knowledge of high school algebra and MS-Excel skills would be very helpful to navigate this course. If you did not have those skills, you can still take this course by pledging to work harder" (http://bit.ly/2BUCuzG). Another MOOC *Science and Cooking: From Haute Cuisine to the Science of Soft Matter* noted that, "knowledge of high school physics and chemistry will be useful, but not required" (http://bit.ly/2BRcWTX).

Seven MOOCs suggested learners spend a certain number of weekly hours, usually from three to four, with the MOOC for a successful learning progress.

General communication

A direct contact, such as email, for learner support was rare among the examined MOOCs. On the contrary, every MOOC used course announcements for communications. Among them, five T&H MOOCs sent regular announcements on a weekly basis. The most active MOOC was *eTourism: Communication Perspectives*, with 21 announcements over eight weeks. Announcements serve different purposes such as welcoming learners, promoting events, guiding the assessment activities, announcing the opening of a new week's contents, summarizing and reflecting, etc. As for summarizing and reflecting, the *Introduction to Global Hospitality Management* instructors quoted learner contributions in the announcements, empowering the course management's one-way communication.

Course discontinuity

Eight MOOCs were ongoing; the ten other MOOCs were archived as self-paced courses. Among these archived MOOCs, three were recurring with active instructor participation and the other seven closed the enrolment and only allowed previously enrolled participants to access the archived content.

Lectures

Videos as textbooks

None of the 18 MOOCs required textbooks; videos replaced textbooks and became the MOOCs' main didactic tool. There was no preferred number of videos. For instance, *Science and Cooking: From Haute Cuisine to the Science of Soft Matter* had 194 videos, while *Housekeeping Operations 101* only had four (Figure 4).

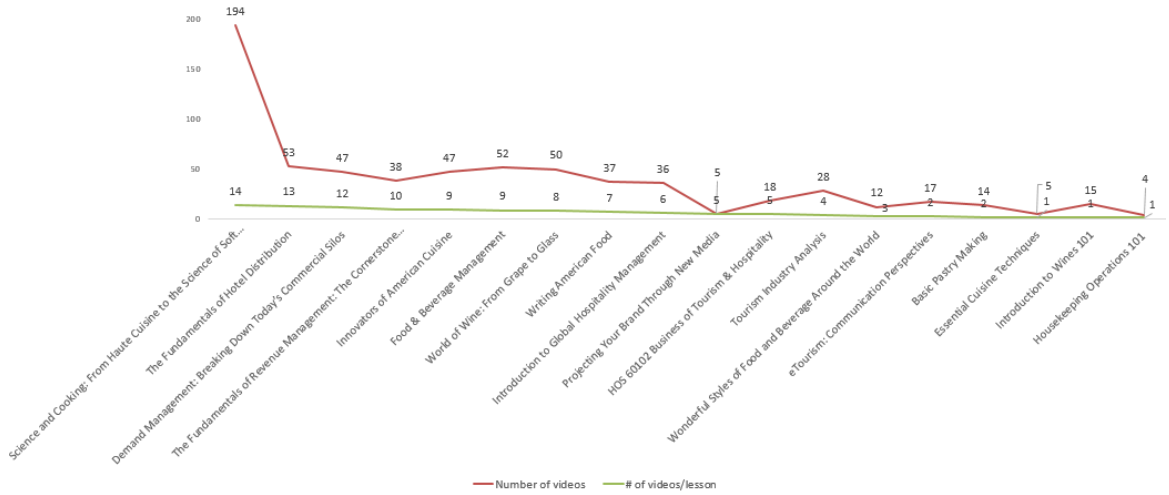


Figure 20/Figure 4 (in Study 1). Video Statistics for the 18 Tourism and Hospitality MOOCs

The videos displayed various common presentation styles. Following a list of video styles (Hansch et al., 2015) yielded thirteen video presentation styles across the 18 MOOCs: talking head, text-overlay, conversation, on location, animation, picture-in-picture, presentation slides with voice-over, demonstration, Udacity-style tablet capture, interview, recorded seminar, webcam capture and green screen (Figure 5).

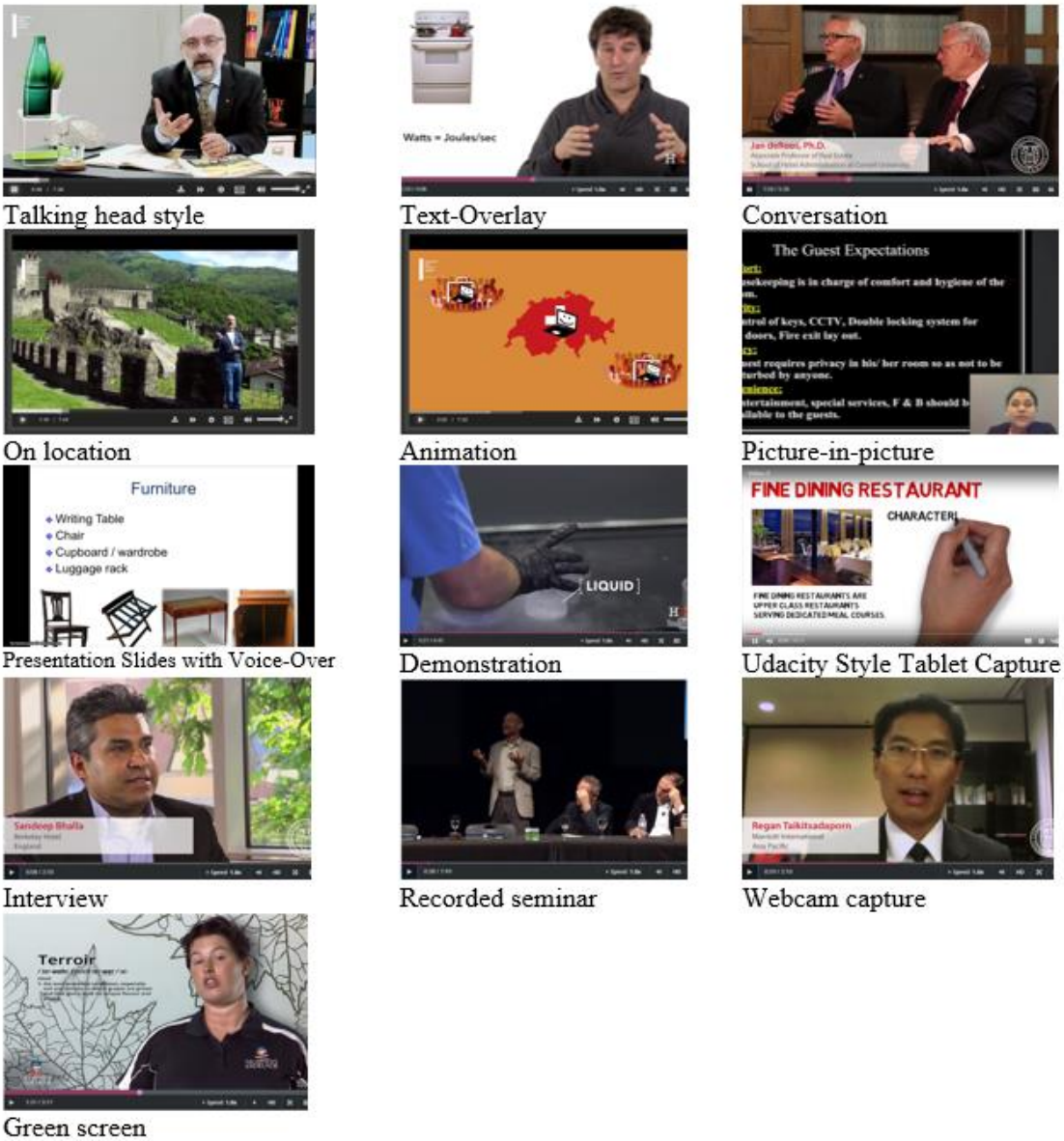


Figure 21/Figure 5 (in Study 1). MOOC Video Presentation Styles

Language and transcript/subtitle

All MOOCs used English as the instruction language and provided English subtitles/transcripts for each video. Only *Food & Beverage Management* provided subtitles in other languages: Italian, Spanish and Chinese.

Restricted study mode

All T&H MOOCs appeared to promote an online within-platform study mode, wrapping the learning experiences inside the host platforms, rather than an offline

outside-platform study mode. For instance, three MOOCs hosted on *Canvas Network* provided no reading materials for learners to download. Those few documents available for learners to study offline were usually reading materials in PDF, PPT, Word, Excel, or other file formats that supported downloading. Hyperlinks to external resources were as references or optional resources. For instance, *World of Wine: From Grape to Glass* listed external links to resources related to wine apps, wine books, wine sensory websites, and wine regions.

Networking

Forum discussion activity

The forum was the most adopted communication medium in these MOOCs. Six MOOCs had more than 1,000 forum posts: *Introduction to Wines 101*, *Basic Pastry Making*, *Introduction to Global Hospitality Management*, *Science and Cooking: From Haute Cuisine to the Science of Soft Matter*, *World of Wine: From Grape to Glass*, and *eTourism: Communication Perspectives*.

Social networking activity

Other communication channels included social networking tools such as Facebook and Twitter. Four MOOCs used social media. The instructor from *Tourism Industry Analysis* invited learners to friend him on Facebook. *Writing American Food* created a course Facebook page, albeit they closed this page after the completion of the course. *World of Wine: From Grape to Glass* developed two communities: The Wine101X Facebook page received 2,168 likes, while its Twitter account published 17 tweets and attracted 286 followers with 12 likes. The most active MOOC in cultivating social networking channels was *eTourism: Communication Perspectives*, with 970 Facebook group members and the number is still growing. The course hashtag *#eTourismMOOC* on Twitter received hundreds of tweets under this topic and at least 90 tweets by learners participating in the MOOC.

Collaboration

Considering the different MOOC stakeholders, collaboration can take place among learners (group work, peer review) and among instructors from the university or industry if invited.

Learner collaboration

The Fundamentals of Hotel Distribution was the only MOOC with collaborative assignments. This four-week MOOC had a weekly peer-review assignment. The learners submitted their assignments and then reviewed peers' submissions. As a collaboration activity among MOOC participants, this review was also an assessment

component. *Introduction to Global Hospitality Management* designed a wiki page in their MOOC but received no learner contribution.

Instructor collaboration

Two MOOCs were one-instructor-show courses; the other sixteen MOOCs had from two to eight instructors. Universities produced MOOCs on their own (15 out of 18) or with industry practitioners (three out of 18), leaving no record of inter-university collaboration to produce a shared T&H MOOC. Three MOOCs with industry practitioners as co-instructors included: *The Fundamentals of Revenue Management: The Cornerstone of Revenue Strategy*, *Demand Management: Breaking Down Today's Commercial Silos*, and *Essential Cuisine Techniques*.

Assessment

Formative assessment

Quizzes were a common formative assessment across the MOOCs, but the number of quizzes varied significantly. *Science and Cooking: From Haute Cuisine to the Science of Soft Matter* had 129 quizzes. The six Taylor's University MOOCs, on the contrary, had just 12 quizzes in total.

MOOCs had other types of formative assessment. *Introduction to Global Hospitality Management*, for example, had 17 case studies and two word-cloud activities. *Basic Pastry Making* used many "upload your work" assignments to encourage learners to display their cooking assignments. *Science and Cooking: From Haute Cuisine to the Science of Soft Matter* had three self-review assignments. Only one MOOC, *The Fundamentals of Hotel Distribution*, had peer-review assignments. Six MOOCs on the *OpenLearning* platform had 29 non-quiz formative assessments, such as puzzles, document submissions, project submissions, crosswords and dictionary activities.

Summative assessment

Three MOOCs arranged final exams: *Tourism Industry Analysis*, *The Fundamentals of Revenue Management: The Cornerstone of Revenue Strategy*, and *eTourism: Communication Perspectives*. Final exams were mainly multiple-choice questions, which required no manual grading. *Science and Cooking: From Haute Cuisine to the Science of Soft Matter*, however, implemented a final project in the course's closing two weeks.

Affirmation

MOOCs usually offer different affirmations to learners who complete the expected progress. For example, *Coursera* offers Statements of Accomplishment for successfully course completion courses, Verified Certificates for formal recognition

under Signature Track, and Specialization Certificates for completing a group of related courses. *Openlearning* provides both free badges and free Certificate of Participation to learners. *Canvas Network* has no built-in tool that generates certificates. Instructors usually provide a certificate that students can download upon completion of the course or the institution will send the certificate to students directly. *EdX* offers honour code certificates of achievement, verified certificates of achievement, and XSeries certificates of achievement. On *iversity*, before 2016 the statement of participation was free for learners who finished 80% of the course and the certificate of accomplishment required paying 49 Euros to purchase. However, starting from 2016, even the previously free statement of participation costs 29 Euros.

Eleven T&H MOOCs provided formal course certificates—four gave free certificates, whereas seven gave both free and paid certificates. The cost of paid certificates varied from 49 dollars/euros to 150 dollars. No provider granted any academic credit.

Discussions and Implications

Diversify the MOOC offerings

This study revealed a skewed distribution of T&H MOOCs across countries, universities and topics. First, US-based universities and platform providers led in offering T&H MOOCs, consistent with a previous study (Peters & Seruga, 2016). Second, the pioneer T&H MOOC providers were mainly highly-ranked universities. One major MOOC innovation is the ability to curate and deliver free content from top universities to the global masses (Ahn, Butler, Alam, & Webster, 2013). In return, MOOCs strengthen these top universities' reputation and possibly profit by selling certificates (Ozturk, 2015). Third, hospitality MOOCs outnumbered tourism MOOCs by four times, and over half the hospitality MOOCs were about cuisine/food/drink and hotels.

One implication of these findings is the need for diversity among MOOC providers. For instance, more universities from developing countries could join the market by sharing their expertise and enriching global conversations. Meanwhile, when considering producing a new MOOC, tourism related topics need more coverage to balance the imbalance between hospitality and tourism topics.

Level up and increase collaboration

All T&H MOOCs aimed for the beginner level of education, rather than for a medium level or advanced, professional audiences. As research verifies that most MOOC participants have higher education degrees, course content could target those holding academic degrees (Hara et al., 2013; Melicherikova & Piovarci, 2016). Hence,

for advanced audience seeking to enhance their topic or subject understanding, these basic T&H MOOCs could be less useful and disappointing.

By positioning themselves as basic educational courses, the design of individual xMOOCs has moved little beyond traditional pedagogical approaches of lecture-based formats (Breakwell & Cassidy, 2013). The T&H MOOCs often followed a similar pedagogy with common components such as video lectures, quizzes and discussion forums, consistent with another study's findings (Woodgate, Macleod, Scott, & Haywood, 2015). Little collaborative activity was in these MOOCs, such as peer-review or group projects.

Increasing MOOC learner collaboration is highly encouraged considering collaboration's educational benefits and social context. One way to improve student education is to promote mass collaborations, which could improve the MOOC experience and generate collective value from the combined hours and cognitive efforts invested in academic work (Sancho, 2016). Constructivists also argue that collaboration, communication and versatility are key student expectations today (Brailas et al., 2017).

Academic and industry collaboration should also increase. The T&H curriculum has long focused on occupational skills, though the trend is shifting gradually. T&H educators and industry practitioners are increasingly aware of education, industry and society's deep interconnectedness. Littlejohn and Watson (2004, p.412) argue that "the school's role of enhancing employability requires more than providing students with a skill base and educating them in appropriate attitudes and aspirations to guide their career trajectories and industry visions". T&H education must go beyond practical details and encourage students to think critically, while developing self-awareness, motivation, imagination and creativity (Ettenger, 2009).

Regarding fulfilling vocational and liberal education's public missions, the T&H MOOCs generally balanced these roles. However, increased collaboration between universities and industry practitioners would increase practical knowledge and cases, especially for the medium/advanced learners, and help cope with T&H's highly practical and evolving industries.

Discontinuity of MOOC instructors

A concern surfaced regarding the high discontinuity of instructors. Most T&H MOOCs were one-time events and afterwards instructors withdrew from them, often leaving upcoming learners unsupported. Scholars have widely discussed MOOC learner discontinuity in terms of dropout and retention rates (Gomez-Zermeno & Aleman De La Garza, 2016; Kim et al., 2017). However, the MOOC instructor discontinuity seems underestimated and under-researched. One reason for the high

instructor dropout rate possibly relates to MOOCs' requisite time and effort. A study estimated that "to create one hour's worth of MOOC video-lecture required three to ten hours of preparation" (Hollands & Tirthali, 2014, p.3), which was more time-consuming compared to traditional online courses. Future studies could conduct both quantitative and qualitative research regarding this phenomenon. In addition, MOOC institutional providers should be more aware of this potential problem and prepare to take over responsibility when necessary to ensure continuity.

Another possible discontinuity reason is that institutional, rather than instructor's, interests were the major motivation of providing MOOCs (Lin & Cantoni, in press). Institutes should provide sufficient support and training to the early adopters' practices, which can help ease the uncertainty and exhaustion of MOOC developers and instructors. Institutions could also credit the instruction time dedicated to MOOC practices as equivalent to their offline work.

Provide multilingual support

T&H MOOCs would benefit from additional multilingual support. Non-native English speakers face challenges in MOOCs, whose instruction language is English (Koutropoulos & Zaharias, 2015; Mackness, Mak, & Williams, 2010). One MOOC study (Hara et al., 2013) detailed this problem: only 14% of people enrolled were native English speakers, 53% read and wrote English but were not native speakers, and 24% wrote poor English.

Subtitles help participants understand video content. Transcripts act similarly to visualize video lecture content, sometimes, even more so, to enable learners to study the courses without watching videos. In some areas and countries, these options can be critical because of poor internet connection.

Facilitate social communication

That forums were the preferred communication tool in T&H MOOCs resembles other studies (Alario-Hoyos, Pérez-Sanagustín, Delgado-Kloos, & Muñoz-Organero, 2014). Having all communications within the platform reduces the information workload for both teachers and learners.

By contrast, T&H MOOCs used few social networking tools. Social media such as Facebook, Google+, or Twitter are sometimes useful in MOOCs as a discussion forum's alternative (Alario-Hoyos et al., 2013; Purser, Towndrow, & Aranguiz, 2013). MOOC learners also reported that social networking tools had a positive impact on their social learning (Brownell & Swaner, 2010; Dodge & Kendall, 2004; Kassens-Noor, 2012), and they preferred familiar social media (Veletsianos & Navarrete, 2012).

The lack of social interaction with existing social media tools, combined with the discontinuity of MOOC instructors, can potentially hinder forming an online learning

community among MOOC learners. T&H MOOC instructors need proper guidance and support on how to use social tools to facilitate communication, and possibly more importantly, to understand that learners welcome tools that can help improve social learning in MOOCs.

Conclusions

Despite MOOCs' eruptive global growth, T&H MOOCs only started rapid growth in 2015. This study developed the MOOC Components Framework to review six groups of MOOC components—scaffolding, lectures, networking, collaboration, assessment, and affirmation. The framework helped describe, analyse and compare 18 higher education institutions T&H MOOCs from 2008 to 2015. The results revealed MOOC commonalities, differences, and a need for diverse T&H MOOC offerings. Future T&H MOOCs should consider their difficulty levels to meet the needs of various global learners and provide collaboration opportunities among learners. This study also brings readers' attention to the discontinuity of MOOC instructors, the importance of multilingual support—such as transcripts and subtitles—and underused social media communication in MOOCs.

This study has two major contributions. Firstly, the MOOC Components Framework offers a map to inspect MOOC designs across disciplines, which can guide new MOOC designs or evaluate existing MOOCs. Secondly, the results and relevant implications can help improve existing and future T&H MOOCs.

The limitations of this study include little discussion about the subject matter and pedagogy of T&H education in a MOOC context. Another study limitation is focusing on T&H MOOCs and excluding MOOCs of other disciplines. A third missing detail is the financial aspect of the T&H MOOCs, which would interest future providers and future researchers.

Following this research, further work can use the proposed framework to describe the curriculum design of a MOOC of their own choice, or modify the conceptual framework by adding more components or categories. Interviews and surveys can be a further step to conduct in-depth research and explore experiences and perspectives of instructors and learners, when dealing with different MOOC components.

Study 2:

Lin, J., & Cantoni, L. (In press). Decision, Implementation, and Confirmation: Experiences of Instructors behind Tourism and Hospitality MOOCs. *The International Review of Research in Open and Distributed Learning*.

Note: The majority of contents in the section 4.2 below was officially accepted by the IRRODL journal. However, due to the limitation of characters allowed in the journal, several interviewees' comments were removed in the final submission. These deleted comments were again added and presented in this section to make the whole writing of this thesis more enriched.

3.2 Decision, Implementation, and Confirmation: Experiences of Instructors behind Tourism and Hospitality MOOCs

Abstract: As the popularity of Massive Open Online Courses (MOOCs) continues to grow, studies are emerging to investigate various topics in this area. Most have focused on the learners' perspective, leaving a gap in the literature about MOOC instructors. The current research—conducted in the field of tourism and hospitality—explored early experiences of MOOC instructors as they progressed through three stages of the innovation-decision process: decision, implementation, and confirmation. The tourism and hospitality field was chosen because its related industries contribute significantly to global employment, and training is one of their critical success factors. MOOCs possess a good potential to benefit tourism and hospitality education, yet tourism and hospitality MOOCs are under-researched. Semi-structured interviews were conducted with six instructors who offered tourism and hospitality MOOCs between 2008 and 2015. Findings revealed that (1) the instructors' decisions to offer MOOCs were mostly influenced by their institutes' interests in MOOCs; (2) when the instructors implemented MOOCs, a pattern of action emerged, which included six phases and one cross-phase element: prepare, design, develop, launch, deliver, evaluate—and across phases: support and train; (3) most instructors chose to avoid risk in their adoption and implementation of the MOOCs, staying away from innovative teaching or learning activities such as peer-review assessments and collaborative activities, and (4) half of the instructors intended to repeat the experience of teaching in the MOOCs format in the future.

Keywords: MOOCs; instructors; Diffusion of Innovation; Innovation Decision Process; motivation; tourism; hospitality

Introduction

The term MOOC (Massive Open Online Course) was coined in 2008 to describe the online course Connectivism and Connective Knowledge, which was offered to 24 for-credit students at the University of Manitoba but also opened to 2,200 additional participants from around the globe (Siemens, 2013). Since that time, the proliferation of MOOCs has been beyond imagination. In 2015, the number of MOOCs totalled 4,550 provisions and involved more than 570 universities—reaching 35 million learners (Cook, 2016).

Despite the fast development of MOOCs, their offerings in the field of tourism and hospitality (shortened as T&H below) remain scarce (Tracey, Murphy & Horton-Tognazzini, 2016), especially when compared with other subjects covered by MOOCs. This is somehow strange, if one considers the peculiarities of T&H field—e.g., high turnover, seasonality, new global challenges—which make the use of Information Communication Technologies particularly relevant in order to provide flexible training and upskilling opportunities to very diverse audiences in the concerned industries (Cantoni, Kalbaska & Inversini, 2009; Miralbell, Cantoni & Kalbaska, 2014).

There were 51 T&H MOOCs by 2015, with 23 provided by higher education institutes (HEIs), mostly in the English language (18 of 23). A study by Ryan, Horton-Tognazzini, and Williams (2016) confirmed the dearth of T&H MOOCs. The first MOOC dedicated to T&H topics was Tourism Industry Analysis, offered on the Canvas Network platform by Central Florida University in 2013. In 2014, another MOOC offered by HEIs in the field of T&H was published: Introduction to Wines 101, by Taylor's University (in Malaysia). In 2015, 15 T&H MOOCs from HEIs appeared, followed by seven more in 2016, and five more in 2017 (counting only MOOCs offered in English).

In October 2015, the first MOOC titled *eTourism: Communication Perspectives* by the Università della Svizzera italiana (Switzerland) joined the other offerings of T&H MOOCs and was launched on the iversity platform. The initiative, for the university, was an experiment out of the motivations of social corporate responsibility, developing the public relations and brand marketing; meanwhile, for the faculty, it was an opportunity to expand the existing T&H research into the domain of eLearning. MOOCs in T&H since then had become an independent research line in the university. As members of the development team, we have been through a full process of designing and implementing the MOOC as providers. The experience inspired a research problem: What are other instructors' experiences of providing T&H MOOCs?

As the number of T&H MOOCs increases, it may be helpful to introduce the existing experiences of instructors, so that we can better understand the situation, and identify problems that need to be considered in future developments.

Literature Review

T&H MOOCs and Relevant Studies

Just as the number of MOOCs in the T&H field is limited, so is the existing research on the subject. A search in Google Scholar on May 2, 2017 using the keywords "tourism" and "MOOCs" resulted in 18 relevant publications, including eight journal articles, eight conference proceedings' papers, and two book chapters.

The most relevant studies were from Deale (2015), and Annaraud and Singh (2017). The former study used a survey instrument to learn about 144 T&H educators' understanding, perception, and usage of MOOCs. Deale's results showed mostly neutral or even sometimes negative perceptions of MOOCs. The latter study estimated the variance in perceptions of MOOCs between 45 students and 25 faculty members in the field of T&H in the US using a survey instrument, and found a significant difference in 11 of 31 variables. The overall analysis of the 2017 study also showed that faculty members and students had favorable feelings toward the use of MOOCs. Considering that Deale's respondents were also mostly from the US (121 out of 144), it would appear that over the course of only two years, the general attitude of T&H educators toward MOOCs had shifted from neutral/negative to positive.

Three publications reported results from their T&H MOOCs' practices. Hara, Moskal, and Saarinen (2013) presented their six-week tourism MOOC to evaluate teaching effectiveness by analyzing data from six in-course quizzes, one final exam, and four during- and after-course surveys. They concluded that the MOOCs format can demonstrate promising outcomes, and that its teaching of complex content to massive numbers of people around the world can be effective. Lin, Cantoni, and Kalbaska (2016) followed the ADDIE model (analysis, design, development, implementation, and evaluation) to produce their first tourism MOOC. The same MOOC was further reported by Lin and Cantoni (2017) to describe and demonstrate an evaluation strategy based on the Kirkpatrick model (Kirkpatrick, 1975)—it delineates four levels of training outcomes: reaction, learning, behavior, and results.

To date, no study about T&H MOOCs has been found that addresses the full experience of producing MOOCs, as an instructor.

Studies of Instructors in MOOCs

Searching outside the field of T&H, it is possible to find existing literature about instructors in MOOCs. For instance, interviews with eight MOOC instructors from the University of Toronto revealed six themes: instructors' motivations to offer MOOCs; MOOC design, development, and delivery; measures for success; development success; development support; and implications of MOOC instruction (Najafi, Rolheiser, Harrison & Håklev, 2015). Another study involved 14 interviews with MOOC instructors and

reported three stages for each MOOC taught: preparation, implementation, and feedback (Zheng, Wisniewski, Rosson & Carroll, 2016).

Doherty, Harbutt and Sharma (2015), basing their study on the experience of developing four massive open online courses, suggested that "designing and building a MOOC can be a huge undertaking so a clear workflow is essential to keep on track" (p. 178). For a clear workflow to emerge—so that results can be optimized—thoughtful planning and practices are usually required. Another shortcut is learning from the experiences of previous practitioners who have already gone through the process. However, most MOOC researchers have investigated the learners' perspective, which leaves a significant gap in the literature on the institutional threats and opportunities, as well as on MOOC facilitators' experience and practices (Liyanagunawardena, Adams & Williams, 2013; Ross, Sinclair, Knox & Macleod, 2014).

DOI Approach to Study MOOC Experiences

To understand the whole process of how MOOC instructors experience MOOCs as an innovation, we need a detailed framework that can elaborate on the actual implementation process at the individual adopter's level. This calls for the Diffusion of Innovations (DOI) theory by Rogers (2003). Why use DOI instead of another well-known model, such as the Technology Acceptance Model (TAM)? The reasons are twofold. The first consideration is how a model applies to the situation at hand. TAM is applicable to the individual level of adoption, when what is needed is a better understanding of the factors that influence an individual's decision to adopt a technology. DOI, on the other hand, offers a systematic framework to explore the relationship between technology and people and their interactions within a social system. It covers both the organizational level of adoption but also the intra-organizational level of adoption, which is not only subject to each individual's own will, but also influenced by organizational contexts. The second consideration is the research approach. TAM is a model offering a clear set of measurements for its major factors, such as perceived usefulness and perceived ease of use. These measurement features match perfectly with a quantitative research approach. In the theory system of DOI, its widely accepted model, Innovation-Decision Process (IDP, as displayed in Figure 1), has proved to be efficient in exploring "the process through which an individual (or other decision-making unit) passes from gaining initial knowledge of an innovation (Knowledge), to forming an attitude toward the innovation (Persuasion), to making a decision to adopt or reject the innovation (Decision), to implementation of the innovation (Implementation), and finally to confirming this decision (Confirmation)" (Rogers, 2003, p. 168). Moreover, IDP is perfectly suited to a qualitative research approach. A comparison of DOI, TAM and IDP was in detail presented in the Table 1.

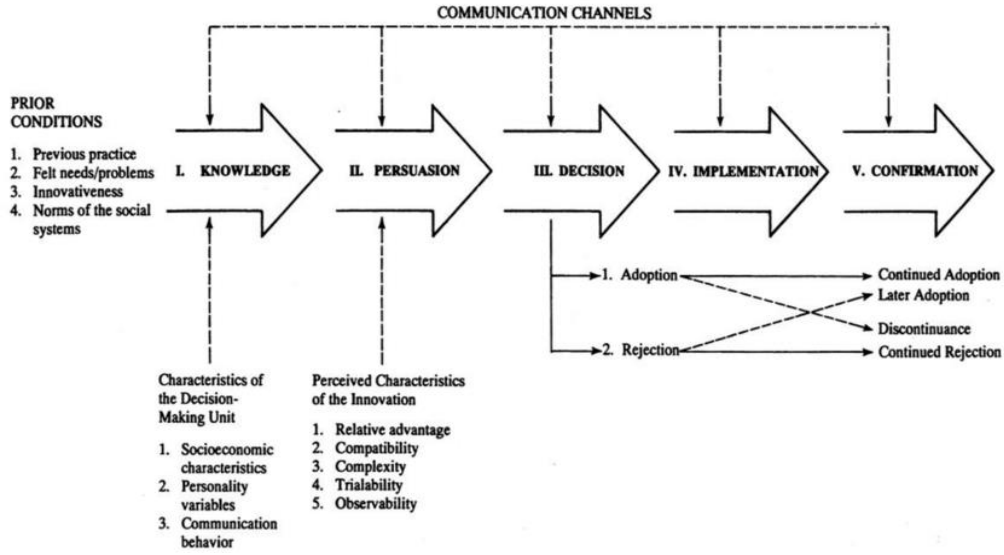


Figure 22/Figure 1 (in Study 2)**.** Innovation Decision Model (Rogers, 2003, p.170)

DOI was often adopted as the theoretical approach for MOOC studies related to student perception, student achievement, highly motivated students, higher education, online social worlds, and collaborative activity (Gasevic, Kovanovic, Joksimovic & Siemens, 2014). It also supported research investigating MOOC diffusion among HEIs. DeRousie (2014) examined four innovations including MOOCs through the lens of DOI by considering factors related to diffusion and adoption in higher education. The dataset of 81 institutions was used to investigate the diffusion of MOOCs in the US. When it comes to individual adopters—instructors who teach MOOCs—one study (Evans & Myrick, 2015) surveyed 162 professors who had taught MOOCs, taking a DOI approach to better understand how MOOCs were perceived by instructors. On the strategic decision level, Murphy, Horton-Tognazzini and Williams (2014) drew on the DOI theory and the tourism industry to investigate and propose two strategies for MOOC adoption and subsequent implementation.

However, no research has applied IDP to conduct an in-depth study of MOOC instructors' experiences of making decisions, implementing MOOCs with actions, and their intentions regarding whether to continue teaching MOOCs in the future.

Table 14/Table 1 (in Study 2). A comparison of DOI, IDP and TAM

	Level of adoption	**Conditions to apply**	**Applicable research approach**	**Pros**	**Cons**
Diffusion of Innovations (DOI)	Organizational, intra-organizational, individual	To investigate the maturity of an innovation, the different levels/characteristics of adopters, or decision-making process of an innovation.	Qualitative research approach	It can explore not only relevant elements such as technology and users but also the process of innovation diffusion throughout the social system.	Difficult to quantify, especially almost impossible to measure what exactly cases the adoption of an innovation. Meanwhile, cannot account for all variables.
Innovation Decision Process (IDP)	Intra-organizational	To explore the decision-making process of an innovation.	Qualitative research approach	The "process" element from the theory of DOI, with detailed stages of knowledge, persuasion, decision, implementation, to confirmation.	Stages follow each other in a time-ordered manner, which is not always the case. Difficult to quantify.
Technology Acceptance Model (TAM)	Individual	To investigate users' perception of a technology, in particular tackling with the perceived usefulness and perceived ease of use.	Quantitative research approach	A parsimonious and powerful theory to reveal a relationship chain, having beliefs influencing attitudes which lead to intentions, and actual behaviour.	It has to be integrated into a broader one which would include variables related to both human and social change processes, and to the adoption of the innovation model.

Research Question

Our review of the literature suggested a gap across three areas: IDP, in-depth studies about MOOC instructors' experiences and practices, and T&H MOOCs. Furthermore, MOOC researchers have favored a quantitative research approach, while very few studies have used methods traditionally associated with a qualitative research approach (e.g., interviews, observations, and focus groups) (Veletsianos & Shepherdson, 2016).

Considering our research interests, past MOOC practices in tourism and the research gap in the literature, in this study we follow the IDP model and conduct in-depth interviews to explore MOOC instructors' experiences and perspectives when producing MOOCs in the field of T&H. We include only three stages (adoption, implementation, and confirmation) from IDP, dropping the other two stages (knowledge and persuasion). The reason behind that decision was that our research interest was to identify common action-related experiences rather than to understand individual knowledge or inner thoughts affecting persuasion. Three research questions guided the process of this research:

- Why did instructors decide to adopt MOOCs in their professional career?
- How did instructors implement the MOOC innovation?
- How is the confirmation of MOOC decisions among instructors after the MOOC implementation?

Methodology

Between July 1 and December 9, 2016, all 30 instructors from nine different HEIs who offered T&H MOOCs between 2008 and 2015 were invited to participate in an interview. Six instructors, each from a different MOOC and university, volunteered and were interviewed as independent cases to be studied.

The semi-structured interviews followed a protocol (Appendix 2 & 3) designed for this study, containing 13 open-ended questions. Interviews were conducted on Skype and recorded. The longest interview lasted 67 minutes, while the shortest one lasted 44 minutes. The average length of the six interviews was one hour.

An inductive approach was used to analyse the interviews' data (Creswell, 2012; Thomas, 2006) by: coding interviews and transcribing code segments relevant to research questions; collapsing codes into emergent themes and categories; corroborating interview data with other data sources; and preparing descriptive accounts of major and minor themes from the data.

Results

This section presents the major findings of the interviews as responses to the three guiding research questions.

Why did instructors teach MOOCs?

Four instructors did not autonomously decide to become MOOC instructor. It was their institutes' senior management's decision to enter the MOOC market as providers, and then they were invited. Instructor 4 mentioned the first wave of MOOCs in his university were produced mostly due to pressure from the senior management. However, he was glad that he took the challenge and went through this process because it opened a whole new world to him.

> *"Actually I had no choice. We were having a party one day. My boss was in the party. He got a few drinks. He said to me you know you could offer a good MOOC on doing this [subject matter]. I think after the party he would forget it but he didn't. And then the IT department called me saying your boss said you need to do this, so let's do it." (Instructor 4)*

Sometimes MOOC platform providers invited universities to offer MOOCs on specific subjects, which was the case for Instructors 3 and 6.

> *"They [platform's name] came with two different ideas: [subjects' names]. These are based on what people were searching for on [platform's name]. They did not have that course covered yet. They were looking for people with expertise in that area. They probably found us based on our [subject's name] activities, because we are very good in those areas. I just happened to be a good match between what interests them and what capacities we have." (Instructor 6)*

Two instructors taught MOOCs on a voluntary basis. Instructor 1 chose to provide a MOOC because of his expertise and passion, with no support from the university. Instructor 2 volunteered to lead the MOOC experience when it was proposed by the head of the university.

> *"In the MOOC year 2012, my university got interested in such education format [MOOCs]. So they started promotion at campus, asking faculties who want to try doing MOOCs? Three by then raised their hands, I was one of them. Two got funding to provide MOOCs and I did not get any funding. But it is ok. My expertise is in [subject's name]. It is a very specific and narrow topic. I have always been interested in the topic of [topic name]. Although [worldwide famous organizations] have all paid much attention to this subject, I feel it is such a pity that this knowledge is not properly explained and understood by the public audience. I always wanted to do something to promote such knowledge but did not figure out how. Until the concept of MOOC came, I said to myself why not MOOC? So even though I did not receive any funding from the university, I was more than happy to find a technology or a way to promote the knowledge of [topic name]." (Instructor 1)*

The top three personal motivations mentioned by instructors to teach MOOCs were: institutional interest/pressure from the boss (five of six), trying MOOC as a new technology/environment/tool for teaching (four of six), and sharing knowledge and subject matter expertise (three of six).

Table 15/Table 2 (in Study 2). Motivations of Deciding to Teach a MOOC for Instructors

Motivations	In.1	In.2	In.3	In.4	In.5	In.6
Institutional interest/pressure from boss		yes	yes	yes	yes	yes
Learn a new teaching environment		yes	yes		yes	yes
Share the knowledge and expertise	yes	yes			yes	
Expectation from positions		yes				
Reputation		yes				
Opportunity to work with people with skills to develop very interactive online contents					yes	
A professional development opportunity to become a better online educator					yes	

Instructors 2 and 5 elaborated the most about their motivations of teaching a MOOC.

"And at that point I volunteered saying I will be more than happy to pilot this experience both on the view point of supervising all the trials by [university name] being the scientific director of the [lab name] which is the unit within the university devoted to support the implementation of digital technologies within teaching and learning, but also as an instructor myself, in a topic that I believe we might have something to say at the international level […] Second, the institutional interest to it. Third, I would say an issue of reputation, I thought at that moment an opportunity for me and my team to showcase what we are doing in the field of [subject matter] […] So I would say the opportunity given by the university, trying something new, and reputation […]" (Instructor 2)

"I thought it was very good opportunity to share what we know about [subject's name] to people all around the world. So one is that I want to share my expertise. But at the same time was to learn more about how to design online courses. I always have the interest to use digital technologies to teaching, so it was really a good opportunity for me to put some of what I learnt in the graduate certificate in online education to use. But it also was an opportunity to work with people with skills to develop very interactive online contents. I don't have this time to develop this kind of things during my normal academic world because of such as research commitment so I was not able to do that. So for me it was like opportunity of professional development to learn how to become a better online education teacher." (Instructor 5)

How did instructors implement MOOCs?

One imperative aspect investigated by this study was the actual implementation process of producing a MOOC as an instructor. *"Implementation occurs when an individual puts an innovation into use. Until the implementation stage, the innovation-decision process has been a strictly mental exercise of thinking and deciding."* (Rogers, 2003, p. 179) In the current study, the implementation process included all actions by instructors after the decision to offer a MOOC. In the conversations, six stages plus one cross-phase element were identified: prepare, design, develop, launch, deliver, evaluate, plus support and train (Figure 2).

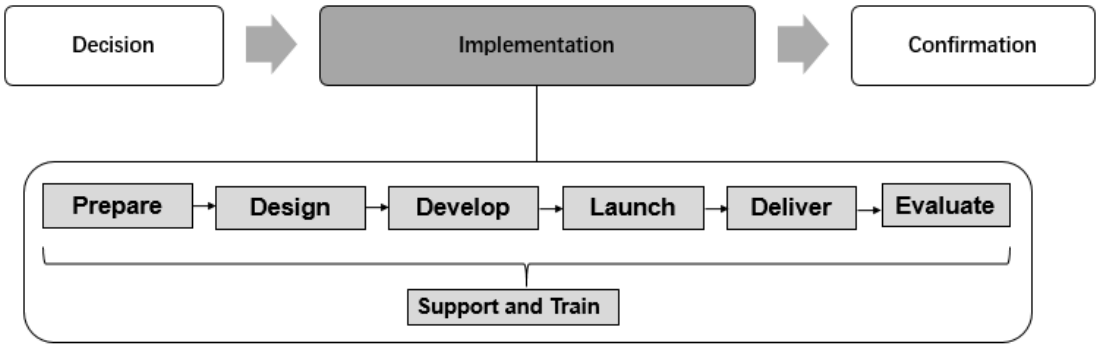


Figure 23/Figure 2 (in Study 2). The Implementation Process of Producing MOOCs: A Map

Phase 1: Prepare

Four instructors described the phase of preparation. Detailed actions in this phase were different among instructors. For Instructor 1, the situation was that there was only one instructor in the MOOC and no external support was available. But the instructor had archived a rich collection of video materials from previous teaching of the topic, and these videos were reused in the MOOC.

Instructor 2 received enough money from the university to start the project but needed to recruit people and select a suitable MOOC platform as the first stage of work.

> *"We did recruit a PhD candidate whose mission would be to do the research on MOOCs in tourism, and help us run the experience. We also recruited a video maker. […] The recruited PhD candidate did a very extensive analysis of the platforms. Then we involved people in the concerned labs and then we ended up with a short list but I participated also in having some conversation with MOOC platform providers to see under which conditions they might include our MOOC […] So it was quite a process to select the platform for our MOOC." (Instructor 2)*

Two other instructors regarded the preparation phase as an opportunity to answer some basic yet critical questions before designing the detailed educational experiences,

such as which level to teach, which topic to teach, how many videos to publish each week, and which activities to assign to complement the teaching.

> *"There were three stages, the most important stage is the first stage – preparation. I think what you need to do [at this stage] is to think of the whole MOOC as an entirety. What is the subject you want to teach? What level do you want to target? How many episodes do you want to do and how many minutes for each episode?" (Instructor 4)*

> *"In the preparation stage, we storyboard the MOOC. We as a team sat down and discuss how many weeks do we want, what contents will be in each week…how many videos would there be in each week, what would the videos be on, what kind of activities will be the participants involved in…" (Instructor 5)*

Choose a topic. Four instructors said their MOOCs' topics were chosen by the universities because of the high reputation of those HEIs in the respective fields.

> *"My university decided to offer MOOCs in the topics that we are perceived as [country's name]'s top management and economics university. So the first course was launched in fashion and design. And then they also decided to launch one in [subject's name]. Actually it was not my decision. But after the university decided to launch this course, since I am recognized as an expert in the field, they asked me to design and deliver a MOOC." (Instructor 3)*

> *"So the university approach was to choose, from each of the four faculties, one area of research and education strength and to develop MOOC from that. So there were five MOOCs initially launched. One is from my faculty. So basically, it is to choose something that the university has high reputation for. So human biology, coding and computer science, language revival in arts, [subject's name], and cyber law." (Instructor 5)*

Two instructors shared that when choosing topics, they also tended to avoid overlapping content with the work of other MOOC instructors already available online.

> *"It's a topic that I covered teaching at [university name]. It's a topic where we do a lot of research. It was a topic which wasn't covered by anyone else (in the format of MOOCs) […] We took sort of defensive decision of taking the [subject's name] perspective to avoid any possible overlap with any other colleagues who are very well known internationally as pretty actively in the [subject's name] community. It is to avoid they could perceive our being first mover as the threat to their positions […] One module was just outline what [subject's name] is all about and so the goal was to address [subject's name] domain but with a specific view point, which is peculiar to what we do and is not to be perceived as arrogant or over-doing by our community." (Instructor 2)*

"We had a plan to develop a chemistry MOOC. But unfortunately, there was an edX partner who was developing one as well. So the university decided like: well, there will be two chemistry MOOC if we also do one. So the university decided not to do it." (Instructor 5)

Phase 2: Design

The design phase sets up the whole experience for the course's learners. You can think of it as the instructional design process. For Instructor 2, the instructional design of the MOOC was the result of a bottom-up approach with a lot of brainstorming sessions, which considered both the technical affordability and the observable effectiveness. This was possibly because his MOOC was the first MOOC experiment at his university, and hence there were no procedures already in place for such work.

Instructor 3, on the other hand, received strong and organized guidance to design his MOOC.

"In the design phase, I was very much helped by them [a unit for the MOOC production at the university] in thinking of different pillars that I have to deliver. […] I had this outline of the design and discussed the outline with them to verify my idea. After discussing with them, I went back to my original design and adjusted it." (Instructor 3)

However, sometimes even with very strong support, the work is still challenging. Instructor 6 was supported by around 10 people during his MOOC experience. For him, the design process turned out to be "*quite heavy and probably a part that many people did not realize [how heavy it can be]*". He described this stage as a mixed process of both preparing for video recording (mainly scripting) and designing the entire experience.

Phase 3: Develop

Experiences of producing videos. Except for Instructor 1, all the other five instructors experienced the process of development, including the development of videos and other content. During the conversations, these instructors talked about their videos' development.

Instructor 3 found the whole process of producing videos very easy. Instructor 4 suggested that having an engaging personality helps during this process. They both perceived teaching in front of a camera as being "acting" and very different from the traditional face-to-face teaching.

"You are now like a star on TV. Not everyone can become a TV star or movie star. […] You need to be an actor when you are doing a MOOC." (Instructor 4)

Instructor 6, besides being an instructor, also served as "producer" and supervised several other instructors in his MOOC when filming video lectures. According to him,

there was trouble that began in the video scripting stage, which then continued in the studio during recording and editing.

> *"This is quite difficult for you when you were working with external non-professional people. Because first of all they did not know often how to communicate things effectively. For example, they use technical language, which they think everybody understands, but actually nobody understands…I mean, also you have to look at the script and see how to present it. For example, we had the situation when people used really long sentences. Then I went to them and said: you are doing this in front of a camera and you are not going to be able to say that or read that because you are not going to be even able to breath." (Instructor 6)*

When it approached to the studio time for recording, it was quite heavy experience for him especially at the beginning.

> *"It took me probably a day to record the first hour of the video. But at the end, I recorded four of such videos in half a day. It is a learning process to learn how to use the teleprompt, how to use your body, what works well and what doesn't and so on." (Instructor 6)*

Sources of content used in MOOCs. Four of six instructors stated that the content used in their MOOCs was mainly reused or adapted from their previous teaching activities.

> *"Three quarters of the contents for the first round of the MOOC were reused from my previous teaching and research materials. Only one quarter was freshly made on purpose for the MOOC. When it reached the fourth round of this MOOC, I freshly made one third of the contents for the new round of the MOOC and kept two thirds still the same as previous rounds." (Instructor 1)*

> *"[…] they [support unit at the university] had very well designed guidelines. In the guidelines, there is a design of the process and every step of the process, they have all the format for everything. So in this sense I did not need to innovate anything but to include my contents in the format that they have already designed […] Contents in the videos are mostly from my other classes." (Instructor 3)*

> *"[…] it was based on the topic that I teach for 14 weeks in the university. So I just took the 14 topics that I discussed. Of course, I realized 14 was a bit too much. So I cut them down and just summarized what I did in each class." (Instructor 4)*

> *"Certainly the structure of the course was designed from the scratch. But a lot of contents that we put into the course we borrowed from the courses that we teach from the face-to-face classes. I already teach students about [subject's name]. So they can be used in the component of the MOOC. Very often it was about we reuse what we already are using for teaching here but redesigned in a more engaging, suitable and interactive way to be delivered online." (Instructor 5)*

Instructor 2 said the content did not mirror the teaching being done on campus, but it was closely related to the research activities his team conducted in the university.

> *"We closely connected this part of the modules with actual research we have that was really useful in terms of providing additional materials from the papers we have published in the concerned field. When it comes to teaching, the connection was more loose." (Instructor 2)*

Instructor 6 mentioned that because MOOCs serve a lower level of learning, his team had to cut down their postgraduate programs' contents to better fit the need of MOOCs.

> *"[Was this topic very relevant to what you teach at campus or it was built from scratch?] No. Well, there is a deep connection between what we call MOOC and what we teach. The difference is that MOOC was designed to teach at a relatively lower level […] We do not have undergraduate program, we have graduate program. So we have to dump down much of the contents to make them more simple than what we usually deal with. It is not doing from scratch but it is simplifying and we were orienting much of the contents that we have done." (Instructor 6)*

Phase 4: Launch

This stage comprises the process of assembling all the developed content and putting it on the platform in a structured way to make it accessible online. Five MOOCs were repeated after their first iteration, which usually had a fixed starting date.

> *"The first edition, it was live…Now the MOOC is delivered in on-demand basis. So basically everyone can access to the MOOC and start whenever he or she wants…Now we also have an edition in [another language]." (Instructor 3)*

> *"It started in 2014. We started development in 2014… Actually it is on its fourth round. We launched it online last year (in 2015) as a six-week course. After that, we relaunched it as a self-paced course so that people who are interested can come to access to it anytime they want to. We closed it in February or March this year (in 2016). Then we launched another six-week version course this year. And now it is back to self-paced mode. So it has run for two years in two different modes." (Instructor 5)*

Instructor 2 stressed that promotion activities are to be done by the MOOCs' instructors before and after the launch.

> *"Especially in the field of MOOCs, you need to be involved in terms of promoting the MOOC, in terms of reaching out to the right audiences […]. If it's corporate social responsibility and public relations after all, you need to reach the right public. So I was deeply involved in designing it and running promotional activities so as to make sure that we had contacts with hopefully interested people." (Instructor 2)*

Phase 5: Deliver

Once online, the MOOC enters the delivery stage, when various interactions happen within the course, as illustrated in Figure 3.

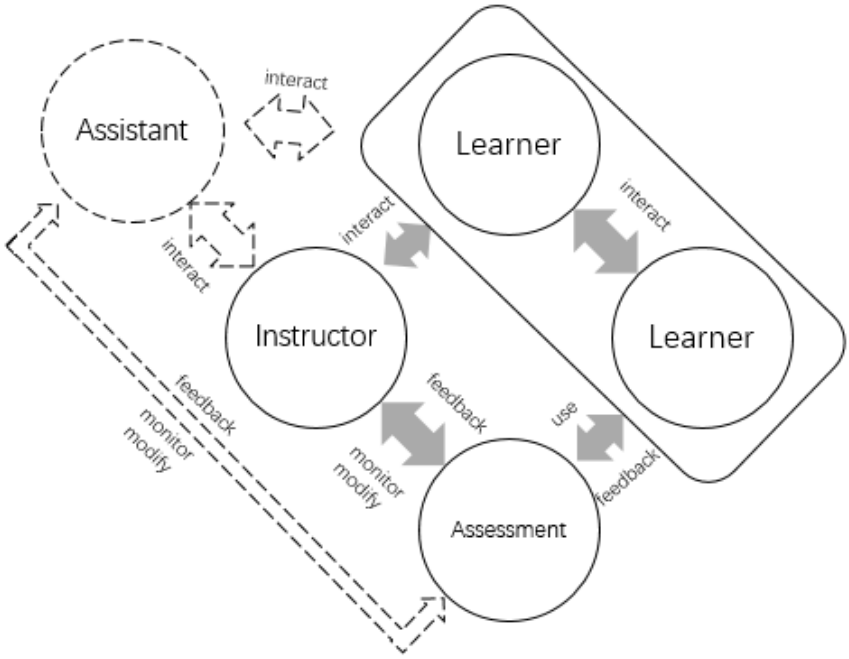


Figure 24/Figure 3 (in Study 2). Interactions within a MOOC

Intra-MOOC interaction: online forums. All six instructors mentioned that their interaction with learners in MOOCs was mainly through discussion forums, either directly or through a teaching assistant.

> *"I guess the main interaction activities among the participants was through the discussion forum. For each week of the course, it required participants to go there and do activities, and then share the activities or the outcomes on the discussions fora. So that allowed us to engage with people while the participants engage with one another." (Instructor 5)*

> *"With her (community manager), the interaction with learners in forums was daily but because I worked with her in these things, so we basically met every day. Our meetings were devoted to solve any problem or issues related to the MOOC. And after a couple of days or a week, I directly interacted with the community." (Instructor 3)*

Forums also made it possible for learners to interact with other learners. In Instructor 4's MOOC, a group of bilingual students volunteered to help another student whose English was not as strong.

"Like the MOOC what I have, you can actually start a Chinese chat group. A student who is poor in English but likes the subject delivered by this MOOC. Other students who are good in both English and Chinese can help him. But in the traditional class setting, if he just speaks to me for help and I do not speak Chinese, I am not able to help him. But in the MOOC setting, there were about three to four learners who were helping him to understand better. The peer support helps a lot to explain things to a student in his own culture, context, language, which the lecturer may not be able to do." (Instructor 4)

Three instructors commented that the online forum as an interaction method was more than sufficient for them, and sometimes even too much.

"I feel forum is enough for this MOOC to support interaction among the participants of this MOOC and provide me feedback on what they need to say." (Instructor 1)

"Overall, at the beginning I tended to answer every question and tried to encourage them. Because I felt that it is one of the power of MOOC that you are able to directly talk to your students. So it was great. But with more and more students coming in, it became difficult…It was just too many, you went to sleep and you woke up in the morning and there were already thirty comments from different learners. You can spend two to three minutes answering each person, and that was already one hour plus. So it became difficult." (Instructor 4)

"I think discussion forum is already enough for MOOC interaction. I mean I haven't seen a lot of other ways. I am not aware of other ways to manage direct interactions. I think it worked quite well. We made a point to get there during the two releases of the course that started, we spent quite a lot of time responding to questions from people. I think that worked quite well." (Instructor 5)

Intra-MOOC interaction: assessments. The interaction provided by assessments in MOOCs happens in an action-feedback loop. Some assessments are graded, such as quizzes, exams, and peer-review activities. Our interviews revealed that quizzes were often (all six MOOCs) used to measure learners' learning, as displayed in the following table.

Table 16/Table 3 (in Study 2). Assessment Reported by the Six MOOCs' Instructors

Assessment	**In.1**	**In.2**	**In.3**	**In.4**	**In.5**	**In.6**
Quizzes	yes	yes	yes	yes	yes	yes
Final exam	yes	yes	yes			
Peer-review assessment			yes			yes

Another method to encourage peer interaction is the peer-review assessment, where a learner is required to submit an assignment and will not receive grades on it until giving

grades to a certain number of submissions from others. Two instructors used peer-review assessments in their MOOCs and positively recommended it. In the best-reported case of peer-review assessments, the instructor commented:

> *"I had some concerns before about using peer-review assessments, but I think [platform's name] did a good job because they ensure us that it is going to work because it worked in the past. You have to make sure particularly the grading criteria is clear, unambiguous, objective, and it obviously requires a lot of planning and effort of the people who put together the exercises." (Instructor 6)*

Extra-MOOC interaction: email and social media. Two instructors described the email conversations they experienced with MOOC learners outside the MOOC platforms.

> *"In the first year, they were emailing me like crazy and kept asking me about the certificates. I was so overwhelmed by emails and begged in the MOOC asking them to not send me emails too often. To prevent such flood of messages from MOOC learners, in the second round and till now, I uploaded the certificate to the platform as one step to be unblocked when learners finished certain number of required tasks on the MOOC. So they can directly download the certificate without sending me anything. It worked." (Instructor 1)*

> *"I received many individual emails by participants. Some were just thanking emails, some of them were requesting interactions, some of them were requesting help given the fact that they were executives or entrepreneurs. Some of them just emailed to tell stories about themselves. I received many of them and I replied to all of them." (Instructor 3)*

When asked about their attitude toward using social media as a communication tool with learners, most of the instructors expressed concerns and considered social media to be unnecessary (or not requested).

> *"I left my personal Facebook account just in case some participants want to get connected with me there. In the short term of this MOOC, I do not see the need of using any social media tools to enhance the communication." (Instructor 1)*

> *"My attitude is zero. I do not use any social media. In the MOOC, there was social media activity but completely managed by the team. I do not want to involve in that way in this MOOC." (Instructor 3)*

> *"In terms of the Facebook and twitter, that was really not part of the MOOC delivery. I guess it was more around managing the attention. So we sent messages via Facebook or twitter to tell people 'hi we have launched week 2' or say 'hi come to check the cool view of (an online activity in the MOOC)'. So they helped us engage with people and bring them back. Maybe they missed a week, so it was a way to remind them hey you are doing this MOOC, want to come back and continue. And*

another part is about sharing. What is going on or a bit of information that we find people may be interested in. sometimes just some funny cartoon related to wine. So it was really about maintaining people's interests in the course." (Instructor 5)

"I could be a good idea (to set up social media accounts for the MOOC) except that I do not have the resources to do and support that. So there is no point to do that unless you are going to invest effort and time in developing contents to keep these people engaged. So I think it is a bad idea to do it badly." (Instructor 6)

Instructor 2 was an exception, showing a positive attitude and describing positive experiences with using social media as a part of his MOOC (in particular a Facebook group and a dedicated Twitter hashtag).

Monitor and improve the quality. Besides the interactions that happen within and outside of MOOCs, the instructors need to monitor the online content—using direct observation, analytic data provided by their platform, or feedback from learners. Our interviews revealed that modifications were made as needed to correct mistakes or improve the teaching.

"During delivery of the MOOC, my role was to monitor the discussion forums, we tried to reply to any problems or questions, so (to check if) there were some questions being misunderstood or being interpreted in a different way than what we were thinking so it did not work very well. So we went back to fix those issues." (Instructor 5)

Flipped classroom. Flipped classroom is a format of using a MOOC to teach basic knowledge and allowing for in-class time to address higher-level educational activities. No flipped classroom case was reported in this study. However, half the instructors introduced materials and activities from their MOOCs into their face-to-face classes at universities.

Phase 6: Evaluate

In this study, evaluation of MOOCs refers to the performance assessment of MOOCs from the perspective of their providers. In our interviews, we found that an evaluation procedure at the institutional level was missing in all the studied MOOCs. This is possibly because these MOOCs were still in the experimental or pilot stage and HEIs were only exploring such possibility.

Four instructors, however, did mention course-level evaluation experiences. These instructors mostly used an online survey to collect feedback from participating learners. In one case, the instructor had a comparatively better-organized evaluation approach for the MOOC.

"I was asking myself whether it was a good experience anyway but I had the other people to reflect on formalization of evaluation so we had sort of at the managerial level four major layers to evaluate MOOCs and our MOOC in particular, which are: corporate social responsibility, public relations, marketing, and research." (Instructor 2)

"We evaluated it in three ways. One is by the number of signups. The second is by the number of people who paid. And the third is every individual piece of contents on (the platform name) is ways to buy participants. If something did no receive good ratings, we go back and look and see could we improve it or why is there?" (Instructor 6)

When asked about the usage of analytic data in MOOCs, most instructors shared that they had plenty of data from MOOCs but did not have much time to use it, or only used it to monitor the quality of the course.

"I received weekly report on the analytics of the MOOC. I used them mainly to monitor and improve the instruction in the MOOC. I was interested in understanding if all the sections were used by participants, in the sense of monitoring the fact that the participants accessed every section we designed, so the video clips, the assignment, and so forth. Also obviously I was interested to something that can be problematic and need to be adjusted. We had also the open option to record new clips. Then we didn't because it was not necessary. Because actually everything went very smooth. Although we prepared too but we did not need to change anything. But the idea was monitoring and learning to change something that has problems." (Instructor 3)

"So I guess by looking at the participants' performance to understand which questions were effective, it helped us understand whether the contents were engaging or whether we delivered the message that we wanted to deliver. Because sometimes we think we talked about one thing but people interpreted it as a different thing. So even if we think we have been very clear about what we are explaining, sometimes it doesn't seem so to the audience. Probably the analytics data have the potential to be used in a lot of very different ways, but we just do not have the time to use it." (Instructor 5)

"We use the learning analytics to try to assess what is working and what is not, what needs to be changed. So for modification of the course." (Instructor 6)

Four instructors discussed the gap between what they expected their pool of learners to be (when preparing their MOOCs) and what their actual pool of learners was. In fact, most instructors (four of six) tended to underestimate learners' backgrounds—especially their education levels—prior to delivering MOOCs.

"When designing the MOOC, I did not know what kind of audience I would teach. It turned out that I had a lot of people who had at least PhD or master level of education." (Instructor 1)

"When I started, I had in mind as my potential learners of the similar age to our graduate students, or people with very limited experiences working in the field. On the contrary, after the MOOC has started, I learnt that many people are at least those people who interact with me, they were executives, so they are professionals." (Instructor 3)

"We originally targeted at the undergraduate students and the entry level of positions in the industry. But the actual people who took the program tended to be of higher level. They tend to be experienced professionals. When I say experienced professionals, could be people with 10 or 5 years' experiences. So it is higher level that we did not expect." (Instructor 6)

"When I finished my MOOC, I did not think that there would be many people interested in it […] So I was very surprised that there were so many people actually interested in it […] Also I was targeting maybe Asian students. That is why I was very surprised when so many other students from all parts of the world were so interested in this course as well." (Instructor 4)

Cross-phase Element: Support and Train

Five MOOC instructors reported not receiving training from their universities. Four received training about the MOOC platforms directly from the platform providers. Only one instructor received some training from the central MOOC production unit in the university; this training was about how to design and teach MOOCs.

Five instructors were well supported by a team of four to ten people for the MOOCs' production. Three said that their MOOC experiences were under the guidance of a central unit from their universities, which took responsibility for supporting instructors when producing MOOCs.

Course assistants, available in four of the MOOCs, were often mentioned as being active throughout the whole process of MOOC implementation, especially during the delivery stage, where the mass communication with learners becomes a challenge to instructors. Like instructors, they had to frequently interact with learners and instructors, and were involved in assessment activities.

"When you deliver the MOOC, there was the issue of interacting with people, helping them understand that the MOOC was not just materials like reading a book or watching a nice video. (In our team) there are people (including two course assistants) behind that, there are people actively involved committed so sort of nurturing a sense of belonging. That has taken a lot of time, a lot of hours, but as I was mentioned

before, it was been rewarding on at least for me. In my opinion, it's part of what at least a MOOC, as a major interaction opportunity, is about." (Instructor 2)

"So during a couple of weeks, I was involved in some interactions with the community…I was participating in the debates but on a more sparse basis while my teaching assistant interact with the community on a daily basis. And this was repeated for the four or five modules." (Instructor 3)

"I logged in two or 3 times per day. We had a PhD student who spent three hours per week (on the MOOC). So half an hour per day on the discussion forums." (Instructor 5)

"We have teaching assistant, who monitor the forums, make sure everything is ok, bring problems to our attention, and then if it is for whatever reason, somebody's peer assessment was not graded, they were either sent to be graded by others, or graded and commented by us." (Instructor 6)

Two instructors had no assistant, and they expressed difficulty in managing the course all by themselves without proper support.

"I did not have any teaching assistant in this MOOC. I am the only instructor and did all the things by myself…So I have to try to make it as convenient as possible for me." (Instructor 1)

"When the MOOC goes online, people are coming with questions. One is technical question, the other one is about content…The best way to do this is that the technical problems you need a technical support. If you do not have one, it can be difficult. The content questions, because you are the lecturer and expert, you can do it but it may become too much. So you need to know how to manage it. You cannot answer every single question every day. Maybe one thing you can do, as my dean suggested it, you can get a few graduate student or master student, to pay them actually to reply to those questions, so they spend one to two hours online." (Instructor 4)

Findings on Re-inventions

Reinvention usually happens at the implementation stage (Sahin, 2006), which was described as "the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation" (Rogers, 2003, p.180). Such efforts depart from the core or mainline version of innovation promoted by the change agency (Rogers, Eveland & Klepper, 1977). Rogers (2003) stated one general assumption about reinvention: the higher the re-invention rate is when implementing an innovation, the faster the innovation will be adopted. Most instructors chose to avoid risk in their adoption and implementation of the MOOCs, staying away from innovative teaching or learning activities. Only two instructors referred to some elements of their MOOCs as inventive. One re-invention was in the content delivered through video: instead of the instructor

being a talking head in a studio or conducting interviews in an office setting, the instructor created a documentary film. Another re-invention came as a result of the instructor adopting animated and interactive media in the MOOCs.

> *"I advanced the proposals from a specific didactical tool that I had on my mind for long but never had the possibility to do it. It was a documentary…For the documentary, we actually acted as a movie team. Actually the documentary was about a district in (country name) in particular known for the excellence of food and beverage. The city is (city name). We moved there and stayed there for one week. We were typical a troop recording a movie. So there are director, video camera, video maker, sound engineer, everything. So this was very different, actually we had to, more like in a movie, to move altogether. I was not only interviewing people, but preparing the set, checking the light, checking the sound, so it was very complicated." (Instructor 3)*

> *"From last year to this year, we took feedback from participants last year…the biggest addition to this version is we added an online field trip. It is kind of cool. It is quite different. But the idea is that you can go and visit one of this southern Australian vinery. And it has got this animated map so that you can click on different parts of the vinery and launch a video that shows each part of the vinery. You see grapes harvested in the vineyard, you see trucks with grapes running on a white bridge, you see wine is being bottled, the boiling hole, wine barrel, etc. So all these different parts of the vinery. There were also interviews videos of the member staff, from the vinery, from the yard, from the lab." (Instructor 5)*

How is the confirmation of MOOC decisions among instructors after the MOOC implementation?

When asked "are you willing to continue teaching MOOCs in the future and why?", three instructors gave positive answers.

> *"I enjoyed very much being a MOOC instructor and would like to continue offering this MOOC and will for sure continue to do so. I have already received many requests of providing other MOOCs in some other topics from my MOOC learners. In the future, when the time permits, I would like to contribute more on these suggested topics with the MOOC format." (Instructor 1)*

> *"I am going to run the second edition of the MOOC. I didn't know what exactly what it could mean but nowadays I was happy and I am happy to give it a second try." (Instructor 2)*

> *"I love it. It took a lot of time. When we went back to estimate the hours we spent on building up the wine MOOC. It was over six hundred hours. It was a lot of work. But it was absolutely worth of it. To me, it was one of my teaching highlights. My*

accomplishment. I am so proud of that course. Everyone involved in that course was very proud of the course. We did a really good job. The feedbacks also tell us we did a good job. We all loved it […] I am definitely willing to produce more in the future." (Instructor 5)

The other three were hesitant to continue teaching MOOCs. Instructor 6 stated that he would not repeat the experience unless it could become less demanding and more rewarding. The other two instructors firmly stated that they did not want to produce a new MOOC in the future, but that under certain conditions, they might consider re-teaching the existing MOOC.

"Probably yes […] I said probably. Why would I say that? Because it is a massive amount of work, more work definitely than what I anticipated and they anticipated. So the reward system needs to be adjusted to reflect that. So on the conditions I had before, I would not do it again. But if it is more realistic, I will do it again." (Instructor 6)

"Well, if again by MOOCs, the standard one, like the one I did, I am not sure I will do many more because it is very time consuming. If we implement MOOC as a teaching and learning experience, which is technology mediated style, then I think my intention is to do only MOOCs. My regular courses will be richer and richer in terms of technology mediated learning." (Instructor 3)

"If I have a support team, yes. I don't want to go back. I don't want to do a new one. I would like to go back and redo the MOOC that I did before to improve it. Still have the same number of episodes but be more user friendly a lot of graphics, live recordings outside, etc. But must with a team." (Instructor 4)

Discussion

Through interviews with six instructors who taught T&H MOOCs between 2012 and 2015, we aimed to explore the reasons or motivations for offering MOOCs, the process of developing MOOCs, and the intention to continue offering MOOCs in the future. In this section, we present our results in comparison with the previous literature, explain the current study's contribution and suggest future improvements.

Stressful but motivating. Every interviewed instructor reported the experience as having "taken a lot of time, a lot of hours", or being "overwhelming" or "difficult". Instructors from other fields also reported similar experiences (Egerstedt, 2013; Najafi, Rolheiser, Harrison & Håklev, 2000). Considering all the stresses, why would instructors invest time and effort in something that could risk their reputations in the case of failure? T&H MOOC instructors explained that their decision to teach MOOCs was mostly due to a request from the senior management. In the cases of personal motivation, the decision came from wanting both to experiment with MOOC as a new technology for teaching, and

to share knowledge on a topic about which the instructors are passionate and have expertise. Similar motivations were reported by instructors from other fields, for example, the wish to gain first-hand experience with MOOCs as a teaching tool (Egerstedt, 2013; Najafi, Rolheiser, Harrison & Håklev, 2000), shaping the MOOC development in their specialism or subject (Egerstedt, 2013), and demonstrating the teaching of their host institute (Najafi, Rolheiser, Harrison & Håklev, 2000).

Support is critical. The existence of a group of people who can dedicate their time, skills, and efforts to assist the various instructors who produce MOOCs at a university was considered effective and efficient. This institutional support, as a critical requirement when producing a MOOC (Corke, Greener & Philip, 2016), can positively influence the sustainability of the existing MOOCs over the long run by maintaining the communication with online learners no matter when they join the MOOC. In other words, MOOC design and delivery is a team effort requiring ample emphasis on planning and clarity (Najafi, Rolheiser, Harrison & Håklev, 2000). Other findings also confirmed the importance of adopting a team approach to producing a MOOC (Alario-Hoyos, Pérez-Sanagustín, Cormier & Delgado Kloos, 2014; Belanger & Thornton, 2013; Corke, Greener & Philip, 2016).

The contribution of a map. Our study has revealed six critical phases of implementing and offering a MOOC, plus one cross-phase element. These six phases are: prepare, design, develop, launch, deliver, and evaluate; plus, across all phases—support and train. These reported stages were partially addressed in previous works (Najafi, Rolheiser, Harrison & Håklev, 2015; Zheng, Wisniewski, Rosson & Carroll, 2016). The current study narrates the details of the IDP model's "implementation" stage in the context of MOOCs by summarizing MOOC instructors' practical experiences into a visual flow map (Figure 2). The map breaks down the stages divided by other scholars into more detailed phases, which can be useful in the following ways: (1) as a timeline, the process map demonstrates the complete process of producing a MOOC from the perspective of MOOC providers. The timeline allows for greater understanding of the experiences of MOOC instructors, which had been a gap in the literature; (2) as a guideline, the process map provides a possible path for forthcoming MOOC instructors to follow, which can help to improve MOOC practices in the future.

Face the discontinuity. The combination of two facts—institutional interest being the main reason of their decision of adopting MOOC practices and the high discontinuity of instructors—could be explained by the DOI theory as: the authoritative decision style resulted in a lower possibility of repeating MOOC practices by the early adopters. According to Rogers (2003), the decision by an individual within an organization to adopt a particular innovation can be contingent (dependent on a decision made by others in the organization), collective (the individual can vote but eventually have to follow the group decision), or authoritative (the individual is told whether or not to adopt it). Authoritative

decisions may increase the chance of initial adoption by individuals but may also reduce the chance that the innovation is successfully implemented and routinized (Greenhalgh, Robert, Macfarlane, Bate & Kyriakidou, 2004).

Meanwhile, a critical element that influences the continuity of MOOC practices is the time. As commented by Carenzio, Triacca, and Rivoltella (2014), the strong contrast between the Old and the New in classroom settings often leads to attitudes of resistance or explicit rejection; and one critical element has to do with time: learning deep with or without technology requires a lot more time to prepare lessons and also a lot more time in the classroom.

Under the top-down approach of MOOC adoption within a university, to reduce the discontinuity of instructors, the university can consider the suggestions by Rogers (2003), who described the IDP as a process to reduce uncertainty and proposed five attributes of innovations that help to decrease such uncertainty, which include: relative advantage, compatibility, complexity, trialability and observability. Universities can make full use of the support and training as a string through all six phases, to package the early adopters' practices with these attributes. Such attainment can not only sustain the existing practices but also showcase best practices to attract new instructors as later adopters. On the other hand, the time dedicated to MOOC practices by instructors should be counted as equivalent credits of their work performance at campus.

Between borders. Three possible connections can be bridged between the two educational contexts: face-to-face and online. First, T&H MOOC instructors adapted contents from their previous teaching, research, and practical activities to the context of MOOCs. This was the case with other MOOC instructors as well. By analyzing the mainstream MOOC platforms Coursera, edX, and Udacity, Yang (2015) found that the mainstream MOOC teaching mode is a continuation of the traditional curricular structure and the traditional teaching process. Second, assets built for MOOCs were introduced back to the face-to-face classroom, and became supplemental resources for students (Hollands & Tirthali, 2014a), to improve or enhance the face-to-face learning experiences. Third, the application of the flipped classroom (Cook & Triola, 2014). Even not adopted in any T&H MOOC, the flipped classroom practices have been reported and encouraged in other MOOCs (Chen, Yang & Hsiao, 2016; Lee & Rofe, 2016; Li, Zhang, Bonk, Guo & Guo, 2015; Robinson, 2016). It is believed that by using blended learning or flipped classroom models, students can gain basic knowledge at their own pace through MOOCs' high-quality content and conserve their classroom time for learning experiences better suited to the social nature of a classroom, such as activities to deepen understanding, solve problems, encourage creativity, spark innovation, and train students in critical thinking (Anders, 2015; Ingolfsdottir, 2014).

Tools for interaction. As a built-in tool of the MOOC teaching format, the forum was highly valued by T&H MOOC instructors as the way to interact with learners. This result is consistent with a previous study (Stephens-Martinez, Hearst & Fox, 2014), which surveyed 92 MOOC instructors and concluded that discussion forums were rated as the most useful resource for understanding class dynamics and preparing courses for the next iteration. "The ubiquitous online discussion forum has long been seen as a suitable place for asynchronous communication and discussion among participants on a large scale." (Zhang, Skryabin & Song, 2016, p. 277) It is no surprise that the discussion forum fits perfectly into MOOCs, which host a mass audience globally.

By contrast, social networking tools did not receive positive feedback from T&H MOOC instructors. Facebook and Twitter in MOOC settings has been frequently practiced and researched. Facebook has been used by people to access resources provided to deepen understanding of course content, and to encourage connectivity, peer learning and interaction, and learning about current trends (Liu, McKelroy, Kang, Harron & Liu, 2016). Twitter has been used to connect with peers and share information, such as resources or comments on their personal and immediate status (Lin, Hoffman & Borengasser, 2013). Facebook was found to have a greater impact than Twitter (Alario-Hoyos, Pérez-Sanagustín, Delgado Kloos & Munoz-Organero, 2014; Salmon, Ross, Pechenkina & Chase, 2015), and also more useful according to MOOC learners (Liu et al., 2016). MOOC learners also reported that the social networking tools had a positive impact on the social aspects of their learning process (Brownell & Swaner, 2010; Dodge & Kendall, 2004; Kassens-Noor, 2012) but they preferred to use the social medium to which they were already accustomed (Veletsianos & Navarrete, 2012). T&H MOOC instructors may need not only proper guidance and support on how to use social tools to facilitate communication, but also—possibly more importantly—to better understand that these tools are welcomed by learners and that they can help to improve social learning in MOOCs.

Re-invent to innovate MOOCs. MOOCs nowadays usually contain video lectures, quizzes, discussion forums, and sometimes peer-review assessments. Our interviews' results suggest that T&H MOOCs did not typically go beyond these formats. The limitation in the pedagogy and effectiveness of MOOCs has been often discussed (Waldrop, 2013). Along with the fast development of web technologies, more and more widgets and applications emerge. The usages of various online tools in the MOOC context need further experimentation and research. For instance, it was suggested that for innovative teaching on the Internet, it would be interesting to add collaboration tools such as Google+ hangouts and shared documents to enable the fluid forming of study groups for some class types (Cerf, 2013). New ideas for the many uses of digital tools (Ingolfsdottir, 2014) can enrich the learning experience.

Conclusions

With the guidance of the IDP, we conducted semi-structured interviews with six HEI instructors who taught T&H MOOCs between 2008 and 2015. Our results uncovered useful insights into these early adopters' experiences through the process of decision, implementation, and confirmation. We identified the top three reasons these instructors decided to teach a MOOC, which included institutional interest/pressure, learning a new teaching environment, and sharing their knowledge and expertise. Based on their descriptions, we created a panorama map of the process of implementing MOOCs for instructors. The map includes six phases—prepare, design, develop, launch, deliver, and evaluate—as well as one cross-phase element: support and train. It was found that re-invention was a rare case among T&H MOOCs. After their MOOC teaching experiences, half the instructors were positive about continuing the experience, while the other half expressed hesitation and concerns.

The limitations of this study include a lack of discussion about the subject matter and pedagogy design of T&H education in the context of MOOCs. Another limitation is that the sample size was small. However, our interviewees accounted for 20% of all instructors and represented 67% of all HEIs that offered a T&H MOOC in the analyzed timeframe.

As an explorative study, this research sets an example to study MOOC instructors' experiences and perspectives with the IDP model. Future studies are needed, for example, to use the whole IDP model to study MOOC instructors, to include a larger sample of interviewees, or to apply the same approach to other subjects and compare the results.

CHAPTER 4.
A JOURNEY WITH A SWISS TOURISM MOOC

This chapter is divided into four pieces of research, which serve to explore in depth different aspects of a single MOOC – *eTourism: Communication Perspectives* – from the perspective of MOOC providers. The major topics covered include the overall implementation process, the MOOC platform selection experience, measuring MOOC learner engagement, and the experience of MOOCs' performance evaluation.

Study 3:

Lin, J., Cantoni, L., & Kalbaska, N. (2016) How to Develop and Evaluate an eTourism MOOC: An Experience in Progress, *e-Review of Tourism Research (eRTR)*, 7:1-5

Notes: The following section presents an extended version of the above publication.

4.1 Overall Implementation Process of the eTourism MOOC

The significant growth of Massive Open Online Courses (MOOCs) in higher education has prompted different academic institutions to join the community and offer their own eLearning courses. There are two opposing attitudes toward this world-renowned educational phenomenon. Optimists advocate various opportunities offered by MOOCs; as pointed out by Klobas, Mackintosh, and Murphy (2014, p. 3), "the capacity of MOOCs to be massive reflects developments in information and communications technology and the pedagogy of online and distance learning". In contrast to this view, pessimists pay attention to the critical issues related to MOOCs, such as the high drop-out rate, weak bonding between teachers and students, ignorance to pedagogy, the mismatching of media and instruction contents, and the heavy workload for academic staff over routine teaching and research duties. Despite the benefits of MOOCs, designing and running a MOOC can be a very time demanding task that requires a great deal of effort. Many MOOCs are launched online; however, very few providers are sharing experiences from the preparation phases of MOOCs. This section, examining the case of a small Swiss university, aims to address the following question: "What is the implementation process of a MOOC?"

Three Drivers to do MOOCs

Three drivers of MOOCs. Università della Svizzera italiana (www.usi.ch [September 8, 2015]), founded in 1996, is a Swiss public university. In 2014, it decided to produce two pilot MOOCs. This research was based on the case of the eTourism: Communication Perspectives MOOC (https://iversity.org/en/courses/etourism [October 20, 2015]), one of the two MOOCs offered by USI. To understand why USI decided to become a MOOC provider, three major drivers are presented below.

Figure 25/Figure 1 (in Study 3). Four Drivers for USI to Supply MOOCs

Driver one: corporate social responsibility. Corporate social responsibility (CSR) refers to "a voluntary commitment a business makes to choosing and implementing these practices and making these contributions" (Kotler & Lee, 2005, p. 3). One of the major drivers of USI MOOCs is for the university to extend its social responsibility in the developing and emerging world, as well as for those who cannot attend regular in-presence courses.

Driver two: public relations. Besides investing in the existing faculties, USI also plans to develop new initiatives designed to stimulate and enhance its unique profile within the university system. More and more European universities are becoming or considering becoming MOOC providers. The adoption of a formal position in this community will improve public relations.

Driver three: marketing. Marketing as the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large (Cohen, 2011) is another important driver for USI to develop its first MOOCs. It is believed that MOOCs, if properly designed and developed, can boost the reputation of the university and possibly attract more and better students.

MOOCs Workflow

Università della Svizzera italiana (USI) has four faculties: Architecture, Economics, Communication Sciences, and Informatics. The MOOC was initiated by the President of USI in a university board meeting (which gathers the President, the General Secretary, and the deans together), after an exploratory study and a consideration of different possible strategic approaches. Participation in the world of MOOCs as a course provider became a university-level decision and action. It was agreed that two pilot MOOCs would be designed and launched by the Faculty of Communication Sciences. The evaluation of this pilot experience will guide future decisions.

A project proposal was originally submitted in August 2014 by the eLab of USI (eLearning Lab, www.elearninglab.org) and the project was officially executed in September 2014, with funding provided by USI. From January 2015 onward, it is estimated to be a two-year project. The first year will be devoted to MOOC development and operation. In the second year, the team is going to focus on data analysis, evaluation, practice sharing, and research outputs (e.g., journal papers, conference presentations, and project reports).

The two pilot MOOCs are briefly introduced below. They will be open to anyone who is interested in joining, and will consist of eight modules corresponding to the eight-week course.

***eTourism: Communication Perspectives*.** This MOOC will be offered in English. The university's connections with the UNESCO Chair in ICT in regard to developing and promoting sustainable tourism at World Heritage Sites with its summer school, and with the International Federation for Information Technologies and Travel & Tourism, offer a good starting point for this MOOC. They will attract the attention of professionals in the tourism sector, as well as enthusiasts and students. The content will cover topics such as online communication models, the quality of online content, usability and usages, localisation, business-to-business activities and eLearning, user generated contents, Web 2.0 and online reputation, and argumentation.

***Lecturae Dantis*.** This is supported by rich resources and experience in the area of Italian literature and culture at USI. Recordings of the *Lecturae Dantis* (a series of lectures about Dante Alighieri's Hell, Purgatory, and Paradise are already available on the USI channel on iTunesU, which attracts not only specialists and students, but also people passionate about literature and reflecting on universal existential themes. These videos will be adapted and integrated to form the basis of this MOOC, which will be conducted in Italian.

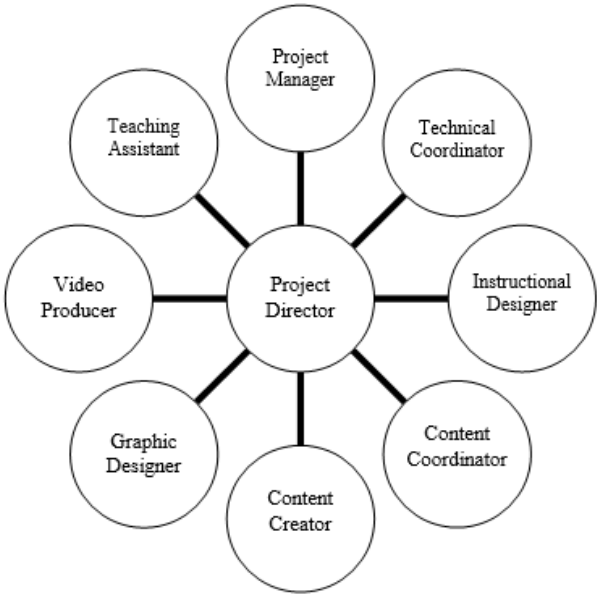


Figure 26/Figure 2 (in Study 3). Human Resources in the MOOCs Team at USI

Project members were recruited from both the internal staff team and an international talent pool. In total, nine positions were assigned for this project (Figure 2), involving 11 members with overlapping roles. While only two workers (the project manager and video producer) were fully paid to work with the project, all other nine staff partially collaborated with the project from their existing posts at the university.

By December 2014, the USI MOOC project team had been formed. During the project kick-off meeting (January 2015), seven phases through which to complete the first year's project tasks were identified. Together with the previous phases of work, they form the basic workflow for the USI MOOC project (Figure 3). The following work, to analyse different MOOC platforms in the market and select the most suitable one for hosting USI MOOCs, became a critical task before all the other work could proceed. The following section will further explain how this task was accomplished.

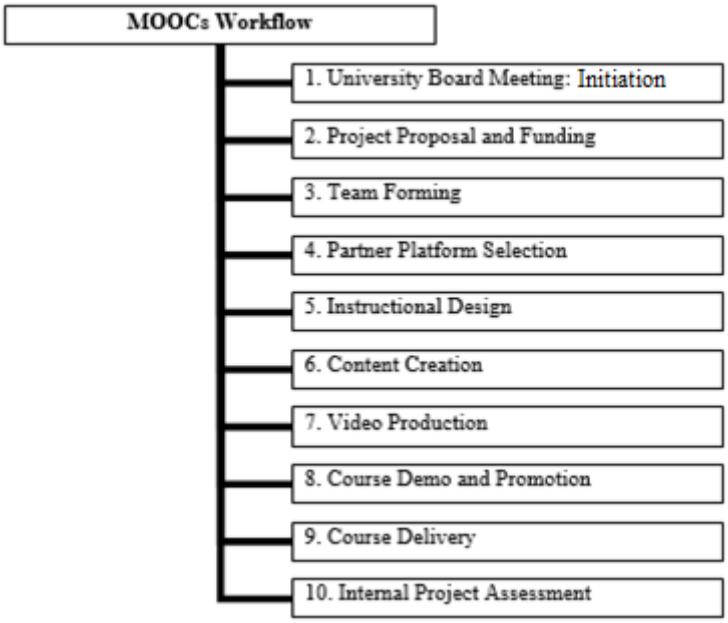


Figure 27/Figure 3 (in Study 3). Workflow of MOOCs Project at USI

As it is well known in the field of instructional design, even if the above-listed tasks/activities can be clearly identified and described, the actual work is always far from being linear; in reality, many processes overlap (Botturi et al., 2006; Rapanta & Cantoni, 2013).

eTourism MOOC Implementation

The implementation process of producing a MOOC, which was developed in Section 4.2, was used in the process of supplying the eTourism MOOC. This model consists of six stages, plus one cross-phase element: preparation, design, development, launch, delivery, evaluation, and support and training

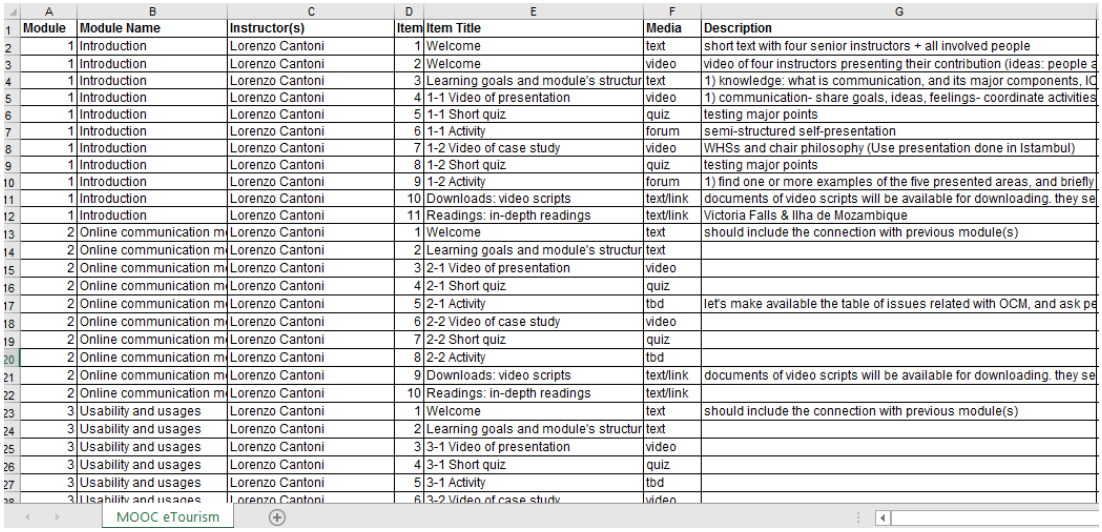
Prepare stage

Three tasks were covered in this stage: defining the project workflow, recruiting staff, and deciding on the teaching topics. According to the European Commission's Open Education Europa (2015), by January 2015, there were over 3,842 MOOCs worldwide. By August 2015, in Europe, there was a record of 1,759 MOOCs, which included 178 upcoming MOOCs. Despite the fast expansion of MOOCs, the tourism and hospitality studies relevant to MOOCs are very few (Murphy et al., 2015). According to the IFITT Tourism and Hospitality MOOC List (2015), there were approximately nine existing MOOCs provided by universities in this area. None of them were related to the topic of eTourism or ICT in tourism.

Between January and March 2015, 17 platforms were selected and compared under four categories of attributes, to choose the most suitable platform to host the USI MOOCs (Lin, Kalbaska, Tardini, Decarli Frick, & Cantoni, 2015) and iversity (https://iversity.org [September 8, 2015]) was chosen as the partner platform. Details of how the host platform for the MOOC was selected are presented in the upcoming study.

Design stage

The instructional design was a collaborative effort between the host platform, iversity, and the involved instructors. Conversations exchanged among instructors constructed the first concept of the teaching plan. The teaching plan was then formulated in an instructional design template provided by the platform. The template defines the number of modules, module names, instructors, learning objects, and the modules' adopted media type. In this way, the overall structure and content of the MOOC was drafted and finalised. Through this process, an agreed design of instruction between the technical supplier (the iversity platform) and content supplier (the university) was formed.



Module	Module Name	Instructor(s)	Item	Item Title	Media	Description
1	Introduction	Lorenzo Cantoni	1	Welcome	text	short text with four senior instructors + all involved people
1	Introduction	Lorenzo Cantoni	2	Welcome	video	video of four instructors presenting their contribution (ideas: people a
1	Introduction	Lorenzo Cantoni	3	Learning goals and module's structur	text	1) knowledge: what is communication, and its major components, IC
1	Introduction	Lorenzo Cantoni	4	1-1 Video of presentation	video	1) communication- share goals, ideas, feelings- coordinate activities
1	Introduction	Lorenzo Cantoni	5	1-1 Short quiz	quiz	testing major points
1	Introduction	Lorenzo Cantoni	6	1-1 Activity	forum	semi-structured self-presentation
1	Introduction	Lorenzo Cantoni	7	1-2 Video of case study	video	WHSs and chair philosophy (Use presentation done in Istambul)
1	Introduction	Lorenzo Cantoni	8	1-2 Short quiz	quiz	testing major points
1	Introduction	Lorenzo Cantoni	9	1-2 Activity	forum	1) find one or more examples of the five presented areas, and briefly
1	Introduction	Lorenzo Cantoni	10	Downloads: video scripts	text/link	documents of video scripts will be available for downloading. they se
1	Introduction	Lorenzo Cantoni	11	Readings: in-depth readings	text/link	Victoria Falls & Ilha de Mozambique
2	Online communication m	Lorenzo Cantoni	1	Welcome	text	should include the connection with previous module(s)
2	Online communication m	Lorenzo Cantoni	2	Learning goals and module's structur	text	
2	Online communication m	Lorenzo Cantoni	3	2-1 Video of presentation	video	
2	Online communication m	Lorenzo Cantoni	4	2-1 Short quiz	quiz	
2	Online communication m	Lorenzo Cantoni	5	2-1 Activity	tbd	let's make available the table of issues related with OCM, and ask pe
2	Online communication m	Lorenzo Cantoni	6	2-2 Video of case study	video	
2	Online communication m	Lorenzo Cantoni	7	2-2 Short quiz	quiz	
2	Online communication m	Lorenzo Cantoni	8	2-2 Activity	tbd	
2	Online communication m	Lorenzo Cantoni	9	Downloads: video scripts	text/link	documents of video scripts will be available for downloading. they se
2	Online communication m	Lorenzo Cantoni	10	Readings: in-depth readings	text/link	
3	Usability and usages	Lorenzo Cantoni	1	Welcome	text	should include the connection with previous module(s)
3	Usability and usages	Lorenzo Cantoni	2	Learning goals and module's structur	text	
3	Usability and usages	Lorenzo Cantoni	3	3-1 Video of presentation	video	
3	Usability and usages	Lorenzo Cantoni	4	3-1 Short quiz	quiz	
3	Usability and usages	Lorenzo Cantoni	5	3-1 Activity	tbd	
3	Usability and usages	Lorenzo Cantoni	6	3-2 Video of case study	video	

MOOC eTourism

Figure 28/Figure 4 (in Study 3). Instructional Design Template

The theme of the chosen topic of eTourism was positioned as overlapping knowledge between ICT and tourism. To design the contents for this MOOC, four instructors were invited to contribute their expertise. Although the majority of the contents were already covered by either the previous teaching or research activities conducted by the instructors, all contents were freshly packaged from scratch for the dedicated MOOC. The syllabus and content of the eTourism MOOC were organised over eight weeks, as shown in Table 1.

Table 17/Table 1 (in Study 3). Chapters Summary in the *eTourism: Communication Perspectives* MOOC

Chapter	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Title	Communication: An introduction to its nature and history	The Online Communication Model (OCM) and the quality of online content	Usability analysis and web analytics	Localisation of online content	B2B activities and eLearning within the hospitality and tourism domain	User Generated Contents (UGCs) and Web 2.0	Reputation in online media	Argumentation in online travel reviews
Theory Video	The etymology of communication and its major components	The Online Communication Model	Usability and usage analysis of tourism websites, mobile apps, and other online communication tools	Cultural translation/localisation of messages for people with different cultural backgrounds and experiences	The notion of eLearning and its use in the hospitality and tourism field	Communication opportunities given by UGCs and Web 2.0	The definition of the reputation construct and its relevance in the online domain	The definition of argumentation
Case Video	UNESCO World Heritage Sites and eTourism	Analysis of the content quality in online communication	Strategies to assess usability	Localised website for domestic and international visitors: The case of Quito (Ecuador)	eLearning courses about destination management organisations: The case of the Ticino Switzerland Travel Specialist online course	Hotels' communication strategies to respond to online reviews	How to analyse the online reputation of a tourist destination	Argumentative analysis of the online travel reviews of a Chinese national park

The assessment activities in the MOOC included quizzes, in-depth homework realised through the support of discussion forums, and a final exam of 30 multiple choice questions.

Table 18/Table 2 (in Study 3). Assessment Methods

Video quizzes	**In-depth homework**	**Final exam**
Every module had two videos. Each video had a 5-question quiz to help learners test their own understanding of the content covered by the video.	For advanced learners, in-depth readings provided more information and knowledge. They were followed by in-depth homework, which was peer reviewed in the discussion fora to stimulate peer discussion and support.	For advanced learners who paid for the achievement certification, a final exam invited them for the final assessment of their mastery of the whole course. The exam included only multiple choices questions and was automatically graded.

Develop stage

The development of the course content was divided into two parts: video materials and non-video materials. A total of 18 videos were developed for this MOOC. Aligning with the video materials, other resources and activities were added accordingly, which included but were not limited to the syllabus, FAQs, quizzes, discussion exercises, video scripts, reading documents, and surveys.

Beginning in April 2015, the course instructors began preparing the video transcripts of the contents of the videos. Between May and July 2015, video shooting was in progress. The aim of this period was to create videos for eight modules; it engaged four instructors, one video producer, and two assistants in nine indoor and outdoor locations.

Figure 29/Figure 5 (in Study 3). On-Site Video Shooting

The raw videos then were edited for several rounds before being uploaded to the MOOC platform. The full video production process is depicted below.

Figure 30/Figure 6 (in Study 3). Nine-Step Video Development Process for eTourism MOOC, USI

The MOOC ran for two iterations. In the first iteration (October 2015 to December 2015), the video subtitles and transcript were only available in English. In the second iteration (October 2016 to October 2017), subtitles and transcripts in three additional languages (in simplified Chinese, Italian, and Spanish) were added, to empower global learners.

Figure 31/Figure 7 (in Study 3). Subtitles Available in Four Languages in the eTourism MOOC Videos

Launch stage

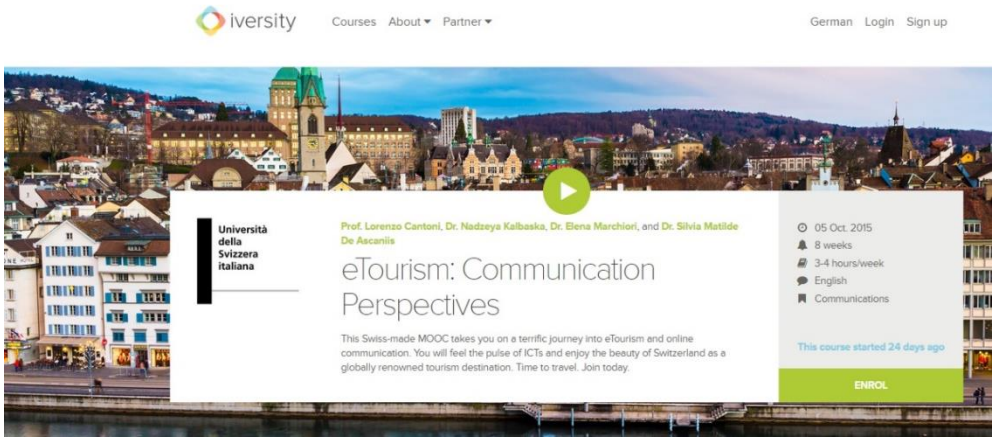


Figure 32/Figure 8 (in Study 3). Enrollment Page of eTourism MOOC (First Iteration)

Before the official opening date of the MOOC, all contents were uploaded to the iversity platform, as planned in the instructional design template document.

Various channels were used to promote the eTourism MOOC. For instance, the press office of the university and staff e-mail signatures, different social media, seeking school

cooperation, and requests to join the MOOC aggregators' course lists, were employed. The promotion period last for five months, from June to October 2015, although it didn't stop with the launch of the MOOC.

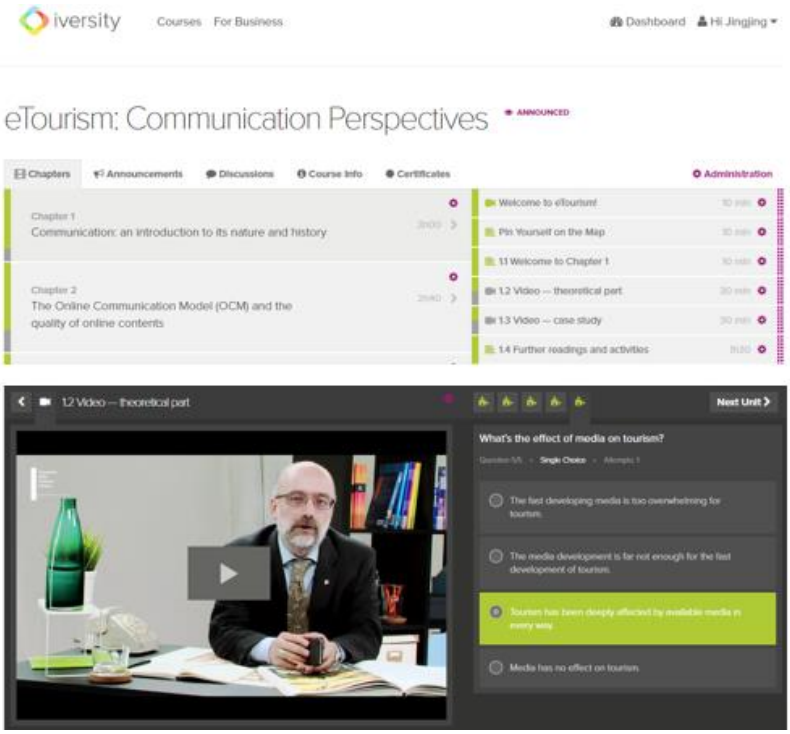


Figure 33/Figure 9 (in Study 3). Contents Uploaded to eTourism MOOC

One activity that was not initially designed but was eventually implemented in this MOOC was a "pin yourself on the map" activity. By embedding a ZeeMap application in the course, this activity encouraged learners to pin their position and provide a self-introductory description along with the pin.

Figure 34/Figure 10 (in Study 3). Pin Yourself on the Map Activity in eTourism MOOC

Deliver stage

On October 5, 2015, the first iteration of the eTourism MOOC was opened online to a global audience and remained available to the public until late December 2015. During the eight-week period, four instructors and two course assistants provided spontaneous facilitation for the course. First, we organised weekly MOOC meetings to update participants with news, discuss the progress of the course, and suggest modifications when needed. Second, we arranged facilitation activities in advance, which included three aspects: administrative support, technical support, and content based feedback. Third, we conducted continuous promotions via various channels, including TV, radio, conferences, magazines, newspapers, websites, and social media. Fourth, we proactively maintained our course related social media channels, including a Facebook group and Twitter hashtag. Finally, we sent regular course announcements, sharing news, sending invitations to events, and providing responses to certain problems.

During this period, we conducted an online survey to investigate learner engagement in the MOOC. The results are shared in Section 5.3.

Evaluate stage

By January 2016, all generated data from the eTourism MOOC were organised and presented during an internal evaluation meeting. Corresponding to this action, a research paper was produced to systematically introduce the evaluation methodology adopted by USI to assess the performance of its first MOOC (refer to Section 5.4).

Study 4:

Lin, J., Kalbaska, N., Tardini, S., Decarli Frick, E., & Cantoni, L. (2015). A Journey to Select the Most Suitable MOOCs Platform: The Case of a Swiss University. In S. Carliner, C. Fulford & N. Ostashewski (Eds.), Proceedings of EdMedia 2015--World Conference on Educational Media and Technology (pp. 273-283). Montreal, Quebec, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/p/151294/.

Notes: The following section presents an extended version of the above publication.

4.2 A Journey to Select the Most Suitable MOOCs Platform: The Case of a Swiss University

Abstract: In this paper the process from the strategic decision to become MOOC provider to the selection of the suitable platform is demonstrated and discussed. The case presents a boutique and international Swiss university, which has decided to enter the MOOC world both for altruistic reasons, especially to support people in developing/emerging countries, and for gaining more visibility internationally. In order to reach intended strategic goals, without omitting actual constraints, the selection of a suitable MOOC platform plays a major role, not only from a pedagogical perspective – which platforms might support a rich learning experience – but also from a managerial viewpoint: encompassing costs, visibility, opportunity to be accepted on a major platform. Both the process leading to a managerial informed decision, and the methodology developed to support such decision are introduced.

Keywords: MOOCs; MOOC platform; MOOC

Introduction

Massive Open Online Courses (MOOCs) stand for courses that are offered remotely, which are intended for a large number of students from around the world with free access. Various European Union funded MOOC projects together with OpenupEd (www.openuped.eu) are working with the following definition: "MOOCs are online courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free" (Jansen & Schuwer, 2015, p.4).

The very first MOOC, *Connectivism and Connective Knowledge*, was offered in 2008 by Siemens and Downe from the University of Manitoba (Canada) with an enrollment of 2,000 people from around the globe (Leontyev & Baranov, 2013). However, the phenomenon started its serious expansion only after the course of Artificial Intelligence at Stanford University in 2011. Normally MOOCs are hosted on online platforms, where they are grouped according to the subject or the university that imparts courses. Among the most widely used platforms in the globe, there are Coursera (www.coursera.org), edX (www.edx.org), and Udacity (www.udacity.com), also well known as the Big Three. On

the European level, several platforms have emerged, which include but are not limited to FutureLearn (www.futurelearn.com), iversity (iversity.org), Alison (alison.com), openHPI (open.hpi.de), France Université Numerique (www.france-universite-numerique-mooc.fr), and Miriada X (www.miriadax.net).

According to the European Commission's Open Education Europa initiative, as of January 2015 – there were over 3,842 MOOCs worldwide. The total number of MOOCs grew 201% in 2014, and over the period 2013-2018, MOOCs are forecasted to grow at a Compound Annual Growth Rate of 56.6%. (MOOCs Directory, 2015) From late 2012 onwards, Swiss universities also started to offer some MOOCs. By March 2015, EPFL is the Swiss university that has invested most in this field, offering 27 MOOCs, in English and French: 19 of them are offered through Coursera, 8 through edX. In recent months, other higher education institutions in Switzerland have also begun to deliver MOOCs: in particular, the University of Geneva (9 MOOCs on Coursera), ETH Zurich (3 MOOCs on edX), the University of Zurich (4 MOOCs on Coursera), and the University of Lausanne (3 MOOCs on Coursera). In the late 2015, at least two more Swiss universities will launch their own MOOCs: University of Basel (on FutureLearn), and Università della Svizzera italiana (on iversity).

When it comes to the decision making process of becoming MOOCs provider or not, it requires considerations in specific strategic goals of a specific university. Once the decision to join this fast developing field has been made, most universities will soon face similar question: what platform should we use to host the coming MOOCs?

Two research questions are addressed in this study:

- How does a small university make a decision to design and launch MOOCs in a market dominated by top-tier universities?
- How can different MOOCs platforms be compared to support managerial decision of the university?

Literature Review

As observed by Spyropoulou, Pierrakeas and Kameas (2014, p.2), the research literature on MOOCs "is constantly growing, although it still remains limited. Several articles have discussed empirical evidence and results, concerning the effect in higher education and MOOCs pedagogy from the learner's side but as mentioned by Liyanagunawardena et al., there is not much research literature regarding MOOCs from the side of creator/institutions or the technological aspects". Furthermore, according to our knowledge there is not any study about the evaluation of existing MOOCs platforms for the purpose of university-platform partnership from educational management perspective. This study will fill in the gap by presenting a workflow of managerial decision making related to MOOCs, from initial plan of becoming MOOCs provider to choosing the most suitable platform. In

particular, a methodology for analyzing different MOOCs platforms was developed to assist the decision-making process.

MOOCs and Educational Management

MOOCs are no longer an educational innovation concerning elite universities in the USA, but a global event involving universities, colleges, non-profit organizations, social sectors of educational purpose, and business corporations. The report of Institutional MOOC Strategies in Europe by Jansen and Schuwer (2015), shows that in the European Union MOOCs are already meeting some or most institution's objectives and are becoming mainstream. This seems consistent with the EUA study (Gaebel et al., 2014) indicating in their survey that 33% of European institutions have adopted a position on MOOCs and 42% are considering the adoption of a formal position. According to the statistics provided by Open Education Europa (2015), by March 6, 2015 there were 1,066 MOOCs recorded in its database and 54 are upcoming in March. Among 18 major European countries that contributed to MOOCs creation, Spain led with 306 MOOCs, the UK followed with 257. Other four countries are providing more than 50 MOOCs: France (143), Germany (117), Switzerland (69), and Netherland (52).

Possibly in the earlier years, it was important for an institution to respond to the MOOCs phenomenon simply because MOOCs present the opportunity to "redefine, rethink and rearticulate educational practice at several micro and macro levels – courses, programs, institutions, missions, strategies" (Iiyoshi & Kumar, 2008); or they were becoming popular, and could represent a threat to traditional universities (Teplechuk, 2013). Nowadays, the major drivers of advocating MOOCs initiatives for universities become more and more clear and well researched. Jansen and Schuwer (2015) reviewed both the work of Hollands and Tirthali (2014c) on the categorization of a variety of institutional goals about MOOCs, and the work by Yuan et al. (2014) on possible strategic choices based on developing a MOOC. Afterwards, they proposed four main clusters of the institutional objectives for MOOCs, which include: (1) Using MOOCs for financial reasons (e.g., reduce training costs, generate additional income); (2) Using MOOCs for reputation/visibility reasons (e.g., potential student recruitment, marketing potential); (3) MOOCs as innovation area (e.g., improve quality of on campus offering, contribute to the transition to more flexible online education, improve teaching); (4) Responding to the demands of learners and societies.

Despite of huge potentiality and benefits beheld by MOOCs, the decision to provide MOOCs or not for universities has not always been easy. As shared by Anzai et al. (2015) in their case of Kyushu University in Japan, unfortunately there are some limitations. Firstly, from a provider's perspective, most Japanese universities do not have the opportunity to provide lectures from major platforms as *Coursera* or *edX*, because those platforms are only open to top universities in the world. Secondly, there is an issue of costs.

In most cases, the lecture videos are produced by professional video companies, and the cost becomes burdensome on the department or the school. The challenges for lower-ranking universities do not just stop by lacking the qualification to partner with famous platforms or financial struggles. “It was obvious that delivery of MOOCs by a university requires agility, innovative thinking, understanding of market demands and impact on existing provision and a clear business strategy.” (Morris, Livesey & Elston, 2014, p.2) By actually engaging in MOOCs activities, universities must address a wide range of important related issues including: the role of the teacher and the university, culture of sharing, business models and administrative concepts. In terms of how MOOCs are implemented in the educational institutions, a commitment to more sustainable practices will be a challenge for many higher education leaders, especially when none of the MOOCs companies or institutions have made profit from MOOCs yet. (Teplechuk, 2013)

According to Teplechuk (2013), given the perception of the MOOCs as a time draining academic activity in terms of development, production, refinements and delivery load, for institutions that are facilitating or considering MOOCs, the research advice is to pay special attention to the following aspects: 1) appropriate recognition of instructor effort; 2) workload implications consideration; and 3) proper incentivisation capitalising on MOOCs motives and benefits in accordance with the subject area.

MOOCs Platform List and Evaluation

Between 2008 and 2015, there were over one hundred MOOCs platforms becoming available worldwide. These platforms enable the MOOCs to be delivered to millions of users around the world. As explained by Daniel (2012), at the heart of MOOCs are the platforms that enable the various operations involved in offering MOOCs to be done effectively. It is impossible to say today which platforms may eventually prevail. Among private platforms, no doubt that the major sector players (Blackboard, Instructure, ...) want their share; but new players like Google are already offering MOOC-like courses; and other companies, leaders in the world of new technologies, are watching and are ready to jump in (Epelboin, 2013).

In order to select a list of MOOCs platforms for research purpose, Johansson and Frolov (2014) searched two websites: www.moocs.co and www.mooc-list.com. They identified 100 platforms but continued to eliminate irrelevant or unavailable platforms based on selection criteria (e.g., available in English, fit the adopted definition of MOOCs, offer at least two fields of study), and narrowed down the list to 26 platforms. In a similar way, Liyanagunawardena and Williams (2014) carried out a process of identification of such MOOCs platforms using the literature, news items, and web resources. A total of 28 identified MOOCs platforms was considered.

Chapter 4. A Journey with a Swiss Tourism MOOC

In the field of eLearning, evaluation of online learning environments is no longer a new topic, as it has been covered by extensive literature from very different perspectives (Succi & Cantoni, 2005; Creelman, Ehlers & Ossiannilsson, 2014). Different researches have led to a number of evaluation tools, such as checklists, theoretical or practical frameworks, and guides. (Johansson & Frolov, 2014). As regards MOOCs platform evaluation, some specific researches are worth mentioning here: from the perspective of usability evaluation, Johansson and Frolov (2014) developed an Adaptable Usability Checklist for MOOCs platforms; from the perspective of economics and business, Belleflamme and Jacqmin (2014) used various economic and pedagogical concepts to understand the specificities of MOOCs platforms; from the design perspective, Zary and Hernwall (2014) investigated how the learning environment affects the design of the MOOCs components by comparing the implementation of a MOOCs platform in an online and in a technology-enhanced campus-based course; from the perspective of accessibility, Iniesto, Rodrigo, and Teixeira (2014) stated their work on the analysis of the degree of accessibility of two platforms from the point of view of the User Centered Design for which tools suitable for this purpose.

A Competitive Analysis Checklist for MOOCs Platforms was developed by the eLearning Communication Open-Data organization (Ortega et al., 2014). The checklist has been structured by ten main categories to get specific information in a survey about the current features, attributes and characteristics of the MOOCs platforms:

- Introduction to evaluation: get information of the survey respondents;
- General information: get insight about the information seen by the user of the platform at first sight;
- Economic structural factors: ask for information about the platform's economic model;
- Technology: know about the technological features supported by the platform;
- Accessibility: ask about the way the platform cares about people with watching and hearing disabilities;
- Communication and interaction: obtain information about platform's teacher-learner & learner-learner interaction;
- Goals, content and resources: seek information about the learning materials and tools provided by the platform to teachers and learners to convey their tasks;
- Assignments: get insight about the kind of tasks the platform provides to their learners and teachers.
- Assessments: acquire information about how learners are evaluated in the platform.
- Pedagogical principles: get feedback about the nature of the learning process offered by the platform.

Each category has its own indicators, which are meant to provide detailed information about the nature of the platform. The detailed indicators can be directly retrieved from the report by Ortega et al. (2014).

Methodology

This study adopted the qualitative research approach with especially the case studies methodology. According to Yin (2003), the "how" or "why" research questions are more explanatory and likely to lead to the use of case studies as the research strategy because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidences. The cases hereby were defined to be global MOOC platforms.

To identify a list of MOOCs platforms as cases for further analysis, the 30 platforms listed by Liyanagunawardena and Williams (2014) and 26 platforms listed by Johansson and Frolov (2014) were referenced. The inclusion criteria was to select: 1) widespread and prevalent platforms, 2) with English as primary language, 3) not an internal course platform in a university, 4) which allows free registration, 5) and would be the major learning space when taking the MOOCs.

In total 13 platforms were then filtered from the two lists (twelve and one, respectively). Meanwhile, results from the Google search engine, MOOC aggregator sites Class Central and MOOC List, together with blog posts were combined to examine and possibly extend the list. Three more platforms were added: *versal*, *Open Education*, and *Khan Academy*. To conclude, a total of seventeen MOOCs platforms were selected (Figure 1).

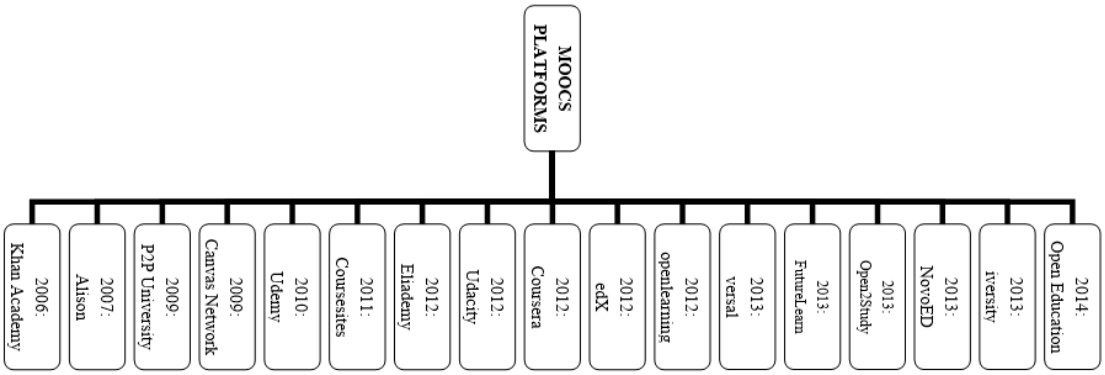


Figure 35/Figure 1 (in Study 4). Seventeen Pre-Chosen MOOCs Platforms and Their Founding Years

Ad-hoc learner accounts were created on the selected 17 MOOC platforms to observe and collect data from them. The technique of web content mining was manually applied when using the MOOC platforms to retrieve useful information from them. Web content mining is the mining, extraction and integration of useful data, information and knowledge from Web page content. It usually constructed information retrieval procedures such as categorization, clustering, finding extract rules, and finding patterns in texts. The process

of information retrieval and content analysis of the information resulted in a review schema for comparing MOOC platforms, which is to be presented in detail below.

Review Schema to Compare MOOC Platforms

To set up a review schema of the MOOCs platforms, three aspects were considered: 1) requirements of the instructional designer and content creators; 2) features supported by different MOOCs platforms; and 3) items from the competitive analysis checklist for MOOCs platforms (Ortega et al., 2014).

In the finalized review schema, four categories as first-level attributes were constructed. They are: general attributes, course attributes, technology attributes, and partnership attributes. Nineteen second-level attributes were included under the four first-level categories (Table 1).

Table 19/Table 1 (in Study 4). Review Schema of 17 Pre-chosen MOOCs Platforms

GENERAL ATTRIBUTES	1	Platform Name	***COURSE ATTRIBUTES***	9	Max Class Size
	2	Web Link		10	No. of Courses
	3	Founded by		11	Width of Courses
	4	Country		12	Operation Mode
	5	Released Date			• Temporal
	6	User Amount			• Self-paced
	7	Free Access			• Mixed
		• Free to register		13	Course Features
		• Free to learn			• Video upload
		• Free to teach			• Video download
	8	Social Accounts Integration			• Video speed control
		• Google			• Video subtitle
		• Facebook			• Video transcript
		• Twitter			• Video embedded/hosted from YouTube
		• YouTube			• Hypertext
		• LinkedIn			• Share web link
		• Yahoo			• Downloadable files
		• Microsoft			• Progress bar
		• Guokr.com			• Quiz
					• Assignment/Assessment
TECHNOLOGY ATTRIBUTES	14	Mobile App			• Discussion
	15	Responsive Site			• Messaging system
	16	Learning Analytics provided to course provider			• Peer collaboration
					• Participation certificate
BUSINESS ATTRIBUTES	17	For profit/Non-profit			• Attainment certificate
	18	Partnership Model			• Learning statistics displayed to learner
	19	No. of University/College Partners			

Please note that the results presented in the following lines are as of March 2015, and do not consider any change/improvement that might have occurred afterwards.

General attributes (1-8)

Among the seventeen platforms under review, eleven are from the USA, four are from Europe (*FutureLearn* in the United Kingdom, *iversity* in Germany, *Alison* in Ireland,

Eliademy in Finland), and two are from Australia (*openlearning* and *Open2Study*). Comparing existing user statistics collected, *Khan Academy* has the biggest user community and *Eliademy* the least one. No user data was found on *versal*, *Coursesites*, *Open Education*, and *P2P University*. The user size seemingly decreases from American platforms, to European platforms and then Australian platforms.

One significant attribute of MOOCs is its being open to the public. When examining the openness of MOOCs platforms, the attribute of free access was used. It includes three aspects: free to register on the platform, free to learn a course, and free to teach on the platform. All 17 platforms are free to register. Ten platforms are free to learn, which include *Coursera*, *edX*, *FutureLearn*, *Khan Academy*, *iversity*, *Canvas Network*, *versal*, *P2P University*, and *Alison*. *Udemy* offers mostly paid courses and only very few free courses. Other six platforms offer competitive amount of free courses but most of the courses remain charged. As for free certification, *FutureLearn* and *Udacity* only provide paid certificates, while *versal* and *Canvas Network* don't generate certificates on the platform. But other thirteen platforms do offer free certificate option. For individual instructors, the following nine platforms allow them to create MOOCs for free: *Eliademy*, *Khan Academy*, *openlearning*, *Alison*, *Canvas Network*, *Udemy*, *versal*, *Coursesites*, *P2P University*. On *iversity*, it requires the instructors to be university professors. Other seven platforms accept MOOCs offered by universities based on negotiated partnership.

Social accounts integration explains how many external accounts the platform supports to use for login and sign-up purpose. Here is the result: 12 out of 17 support Facebook; 11 support Google; 4 support LinkedIn; 2 support YouTube, Yahoo, Microsoft or Guokr.com; and only one supports the Twitter account.

Course attributes (9-13)

Maximum class size reveals how many students each course can host at most. Most platforms set no limit on it but *versal* does control the number of learners being tracked with different subscription business plans. The maximum size goes up to 25,000 students per course being tracked for statistics. *No. of courses* means the number of courses available on the platform, while the *Width of courses* explains the subject coverage status, such as engineering, psychology, IT, etc. *Operation modes* of the platform can be divided into three types: (1) *temporal* means the courses have fixed dates to begin and finish and learners can only access to the courses during the specified time period; (2) *self-paced* allows the learners to enroll in the course anytime; (3) *mixed* means both temporal and self-paced modes are available.

Concerning course features, eighteen items under the Attribute 13 were examined. Among these features, six of them are related to video quality; three about interaction among learners; two about certification; two about assessment; and other four about other

aspects. Refer to Figure 2 for the detailed features and comparison of the pre-chosen platforms.

To explain the course features, we use the example of *NovoEd* on the first line in the table. On the platform instructors can upload video for learners to download. Learners could control video speed, read video subtitle, and download video transcrip, which is an independent feature enabled by the platform. *NovoEd*'s videos are hosted from YouTube, while *Canvas Network* and *FutureLearn* for example only enable internal video uploading. Hypertext integrates different media types, picture, text, and video, in one hypertext page. Instructors can share web links, upload files for learners to download. And leaners can check their learning progress with the progress bar. Quiz is separated from assignment as independent assessment activity on *NovoEd*. There are discussion forum and internal messaging system for message exchanges. With Groups feature on *NovoEd*, it is possible for learners therein to conduct peer collaboration work by forming online groups on their own. *NovoEd* provides participation certificate and attainment certificate either for free or with a price, depending on the requirement of various courses. It is possible that learners can access to learning statistics to understand their learning activities and achievement.

Certain features regarded as important for MOOCs learning experiences are supported by most platforms under examination. They mainly include: video embedded/hosted by YouTube, video subtitles, quiz, hypertext, downloadable files, and discussion.

Technology attributes (14-16)

Except for *Canvas Network*, *FutureLearn* and *Khan Academy*, all other platforms have responsive design to adapt the platform interface to different mobile devices' screens. To compensate with the lacking responsive design, the three platforms have mobile apps for users to download and install on personal smartphones or tablets. Besides them, another four platforms also own mobile apps, including *Eliademy*, *Coursera*, *Udacity*, and *Udemy*.

All platforms provide different types of learning analytics to course providers.

Business attributes (17-19)

In total there are five non-profit platforms out of seventeen ones, including *FutureLearn*, *edX*, *Khan Academy*, *P2P University*, and *Open2Study*. No matter as non-profit or for-profit platform, a partnership model to collaborate with other parties, either organization or individuals, and a business model to strike for financial balance need to be considered for sustainable development of the platform. The partnership model details of the Big Three nowadays are transparent and easy to be discovered by researches (Kolowich, 2013; Peterson, 2013). Some other platforms are more cautious about sharing

publicly the business model and their partnership details with academic institutes (as it is quite common in the software industry, where ad-hoc agreements are negotiated based on a number of parameters). *FutureLearn* and *NovoEd* are of this example. *Khan Academy* approaches partners in a single-way selection process. *Udemy* and *versal* mainly partner with business sectors. *Coursesites* only welcomes individual instructors. *Open Education* partners are Blackboard's existing university clients. It is free to partner with *Canvas Network, iversity, Eliademy,* and *openlearning* as universities. No partnership information was found on the following platforms: *P2P University, Alison, Open2Study*.

Figure 36/Figure 2 (in Study 4). Screenshot of the Features of 17 Pre-Chosen Platforms

(Note: * in the table stands for the availability of the feature in the platform.)

Index	Platforms	Video upload	Video download	Video speed control	Video subtitle	Video transcript	Video embeded/ hosted from YouTube	Hypertext	Share web link	Downloadable files	Progress bar	Quiz	Assignment/Assessment	Discussion	Messaging system	Peer collaboration	Participation certificate	Attainment certificate	Learning statistics displayed to learner
1	NovoED	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Free/Paid	Free/Paid	*
2	Canvas Network	*		*	*	*		*	*	*	*	*	*	*	*	*			*
3	FutureLearn	*	*		*	*		*	*	*	*	*	*	*		*	Paid	Paid	*
4	iversity	*	*	*	*		*	*	*	*	*	*	*	*		*	Free	Paid	
5	openlearning			*	*	*	*	*	*	*	*	*	*	*	*	*	Free	Paid	*
6	Eliademy	*		*	*		*	*	*	*	*	*	*	*	*		Free	Paid	*
7	versal			*	*		*	*	*	*		*							
8	Coursera	*	*	*	*	*		*	*	*	*	*	*	*		*	Free	Paid	
9	edX		*	*	*	*	*	*	*	*	*	*	*	*		*	Free	Paid	*
10	Udacity			*	*	*	*	*	*	*	*	*	*	*	*	*	Free	Paid	
11	Udemy	*					*	*	*	*	*	*	*	*	*		Free	Paid	
12	Khan Academy			*	*		*	*			*	*		*			Free		*
13	Coursesites	*			*		*	*	*	*		*	*	*	*	*	Free		*
14	OpenEducation	*			*		*	*	*	*		*	*	*	*	*	Free		*
15	P2P University				*		*	*	*					*			Free		
16	Alison	*						*			*	*		*			Free	Paid	
17	Open2Study				*		*			*	*	*	*	*			Free		

For platforms of smaller scales, the partnership fee varies among academic partners. It is possible that they would charge less or offer free service to prestigious universities in order to share their fame and upgrade the university partner team's quality. On the other hand, they would charge more on a small university of lower ranking to balance their service cost in other partnership cases.

Until March 2015, *Coursera* has attracted 107 universities partners, followed by *Canvas Network* (86), *edX* (64), *Open Education* (44), *FutureLearn* (40), *iversity* (30), *openlearning* (25), *Open2Study* (17), *NovoEd* (14), *Alison* (8), *Udacity* (2), and *Eliademy* (1). No university partners were found from the other 5 platforms.

Four Shortlisted MOOCs Platforms

Along with the process of review schema development, direct contacting the partnership teams of platforms through email, Skype, or phone conversations compensated the online information searching. Afterwards, it was possible to exclude some platforms. For example, *Udacity* is a heavily IT oriented platform and does not fit USI's two pilot MOOCs. *Udemy* and *versal* are designed to support individual instructors and business sectors rather than universities or colleges. *Coursesites* only accepts individual instructors and *Open Education* requires the users to be existing Blackboard product clients. *Openlearning* is a community of limited number of Australian and Malaysian universities, which is not geographically diverse enough to support USI project's global-audience scope. Other platforms have been excluded because of un-affordable economic requirements, or conflict with the project scheduled time.

After the first round of analysis, we shortlisted four platforms out of the seventeen pre-chosen platforms, which are *FutureLearn*, *iversity*, *NovoEd*, and *Canvas Network*.

FutureLearn

FutureLearn (http://www.futurelearn.com/) was founded by UK's Open University in 2013. With fast speed of expansion, the platform so far attracted 900,000 users. Under its 13 subject categories, 156 courses are available online to the public by July 14, 2017.

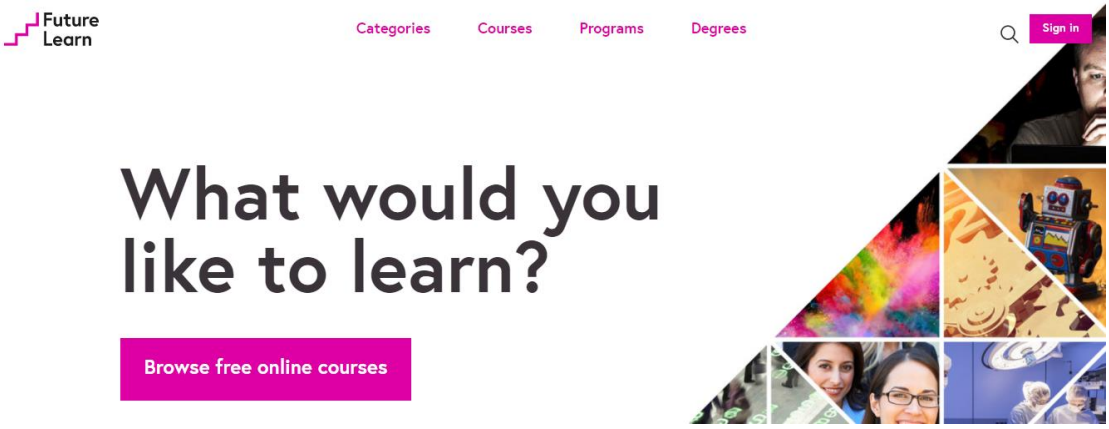


Figure 37/Figure 3 (in Study 4). Front Page of the FutureLearn Platform

FutureLearn also has plans to make all the content of their courses open (https://about.futurelearn.com/blog/our-first-year/). As more of the content from these hundreds of professors and thousands of MOOCs and becomes sharable (at an increasing level of production quality), perhaps we will start to see new forms of content aggregation.

FutureLearn allows the instructors to embed videos, upload audios, build up text pages, construct course sections, track progress of students, and provide quizzes with multiple choice and multiple answer types. Meanwhile, it has peer assessment, discussion board, and users can follow each other on the site. FutureLearn can be accessed both on desktop and mobile app. The interface is responsive when using mobile devices to browse the site on the small screens.

For learning analytics, one of the areas of support the FutureLearn offers is: "Packaging of your learning analytics data for your course so you can learn quickly what works and what doesn't, and so improve course delivery and future design". FutureLearn shares all your course data, including all raw analytics and a pack to help conduct more consistent analytics across courses. FutureLearn has the legal right, subject to them meeting data protection laws, to retain all your course data, including learner contact details, if you leave the platform in the future.

Concerning certification options, FutureLearn offers two types of certificates with prices.

> ***Statement of Participation****: Most courses now offer a Statement of Participation. If your course does, you can find the link to purchase in the final week of the course. Remember that in order to be eligible for a Statement of Participation you must have 'marked as complete' at least 50% of the course steps and attempted all tests and quizzes. Statements of Participation should arrive with you within 6-8 weeks of your*

purchase date. The certificate is at the cost of GBP 29. It doesn't provide free statement or certificate. Delivery cost will be charged too.

***Statement of Attainment**: On some FutureLearn courses, learners will be able to pay to take an exam to qualify for a Statement of Attainment. These are university-branded, printed certificates that provide proof of learning on the course topic(s). Any learner who has taken a course offering a Statement of Attainment on FutureLearn can register for the relevant exam. We currently charge an introductory fee of £119 per exam, which includes VAT / local sales tax. Learners who pass the exam will receive their Statement of Attainment as part of this fee.*

FutureLearn is a non-profit organization. It makes endeavor to support top universities to design and launch MOOCs on its platform. But due to the limit of funding, not all partners can get free services by using the platform. FutureLearn sometimes charges the membership fee of its global academic institutions partners. And the partnership is legalized by agreement. The membership fees they charge is to cover administration, our training for us and access to other editorial opportunities and services they provide. The goal is that they will work with all universities partners to help recruit students into their paid programmes (if any), allow them to use the MOOCs on campus with their own students for free, and also support delivery of paid courses. FutureLearn will take around 85% of the revenues for Statements of Participation and around 92.5% for Statements of Attainment to fund their business in the case of USI MOOC.

There are some shortcomings, though. Different from other platforms combining scheduled courses and self-paced courses, FutureLearn only have scheduled courses, which means for all of their courses students have to follow the exact scheduled date to participate and get access to the course contents. Another shortcoming is that students have to mark each learning activity as complete manually.

Iversity

Iversity (https://iversity.org/) is based in Germany with users of 500,000. It was founded by Jonas Liepmann and Hannes Klöpper in 2013. Users can either use their emails to sign up or log in on the platform, or using existing Google or Facebook accounts to access to the platform.

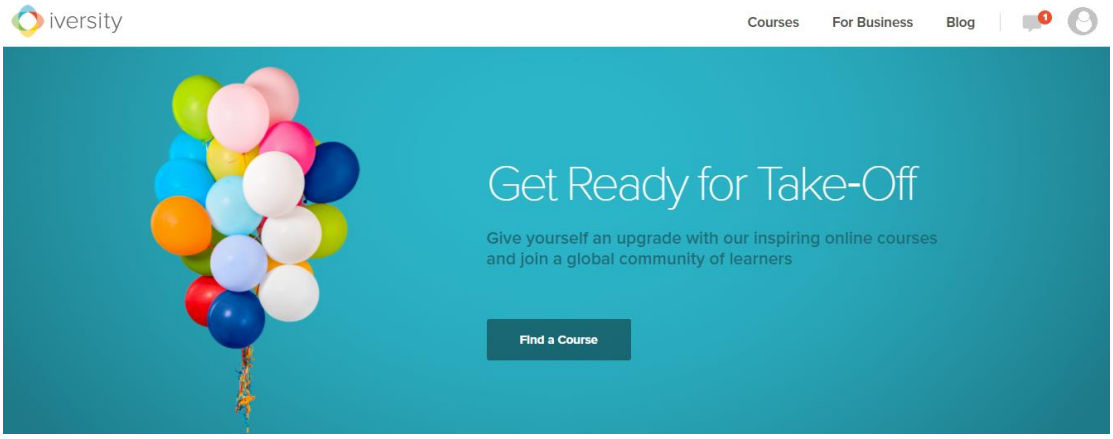


Figure 38/Figure 4 (in Study 4). Front Page of the iversity Platform

Once the student enters the course page, s/he will find four key sections: (1) dashboard: it displays your progress, learners who joined the MOOC, the total number of learners, and the instructors; (2) chapters: iversity's MOOCs follow a two-level structure, where each course is divided into chapters and chapters are divided into units. A chapter usually consist of around 6-10 units; (3) announcements: all announcements by the instructors, ordered chronologically; (4) discussions: the forum is the main tool for students to interact with each other and instructors; and (5) certificates: it is where the learner can download the certificates when it is available.

Inside the chapters, students have two types of units: content and homework. Every content unit consists of a main resource (usually a video), quizzes, as well as additional material, references and attachments. The second type of unit inside a chapter is a homework. It is mainly used as a feedback mechanism, where students can apply and review the content learnt in the unit.

Quizzes are displayed next to the main resource and serve as a teaching element and therefor are not graded. There are three types of quizzes: single choice, multiple choice and free text quizzes. Homework assignments are used to test cross-unit learnings and are time fixed. It has same three types as the quiz has. For the assessment, iversity also has peer evaluation, peer-grading, exams and projects.

European Credit Transfer and Accumulation System (ECTS) were offered in three MOOCs on iversity. Iversity offers choices to grant statement of participation for free, and certificates with prices (Certificate of Accomplishment (CoA), and Certificate of Accomplishment with ECTS Credits).

Regarding certification, there are several two main certificate types on iversity which needs to be clarified below.

Statement of Participation: *The Statement of Participation was an official free document issued by iversity until 2016 when it turned to be paid option. It states that you have participated in a course. It is cost-free, but ungraded, and you are eligible to receive only if you have passed the progress threshold established by the instructor.*

Certificate of Accomplishment: *The Certificate of Accomplishment is an official document issued by iversity, which states that you have successfully completed the course. It is graded, identity-verified and signed by your instructor. It also includes a short description of the course content. If you achieve a top 10% grade, this will be noted on your certificate.*

Iversity is possible to host and support MOOCs of its global academic institutions partners at no cost. But for all charged certificates sold, its partners will only keep certain percentage out of the course revenue. Over 30 academic partners are already offering courses on iversity.

NovoEd

NovoEd (http://www.NovoEd.com/) was founded by Amin Saberi and Farnaz Ronaghi from Stanford University in April 2013. Over the world, it has 600,000 users and supports Google and Facebook users to sign up and sign in the platform using their own existing social site accounts. Under ten categories, 121 courses are active online only in English and mainly focused on business topics. For upcoming and ongoing courses, they are scheduled. For past courses, they can be accessed in self-paced way.

Figure 39/Figure 5 (in Study 4). Front Page of the NovoEd Platform

In NovoEd, it offers both free and paid courses. All paid courses vary in prices. When finishing the course, the student can get Statement of Accomplishment, or even Statement with Distinction.

It costs annual fee for partner universities to use the platform. And the platform is only available in English at present.

Learners on NovoEd can interact with videos, text pages, attached files, web links, course sections, and track their own progress as well as forming group for deeper communication upon the course. The platform also offers quizzes, assignment, peer assessment, messaging system, discussion board, and following other users.

As for learning analytics, the platform enables the integration of Google Analytics tool.

Canvas Network

Canvas Network (https://www.canvas.net/) was founded by Instructure in America in 2012. It is free to partner with it and provide free MOOCs on the platform. However, Canvas doesn't provide any certification.

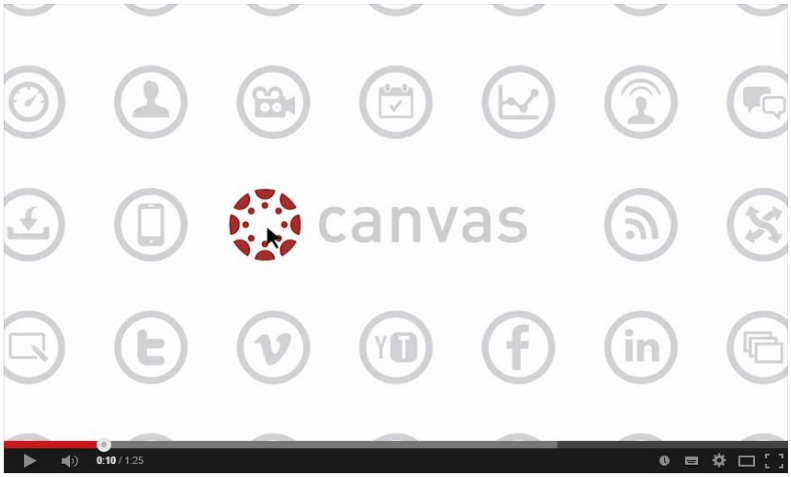


Figure 40/Figure 6 (in Study 4). Video Page of the Canvas Network Platform

On Canvas, anyone can register either as student or teacher. You can use your email address to sign up on the platform. With a student account, you can freely begin taking courses, which are ongoing at present. Some forthcoming courses are displayed as locked in status and students cannot click to use them. But in the ongoing courses, students are able to watch videos, read texts, post or reply to discussions, attend online conference, collaborate upon Google Docs or Etherpad, join groups, attempt quizzes, and submit assignments, etc.

You can also get a trial teacher account for 14 days. You can extend it once and add the trial period to in total 28 days. Or, you can directly sign up for the free Teacher account

on Canvas and start bringing courses and students for free on using the platform. With teacher account, you can create your own online courses, which equips the features as shown below:

- Announcements: to release course announcements;
- Assignments: design and manage course assignments. Group assignments enabled. Peer review supported;
- Discussions: create a discussion board to engage students;
- Grades: display students grades or download it as .csv file;
- People: Invite or group people;
- Pages: set up pages, where either only teacher can edit, both teacher and student can edit, or anyone can edit;
- Files: allow to upload files to the course;
- Syllabus: create and display syllabus for the course;
- Outcomes: define and list learning outcomes;
- Quizzes: design and set up quizzes activities as course assessment activities;
- Modules: arrange different modules in the course;
- Conferences: organize online conferences with participants;
- Collaborations: collaborate over Google Docs or Etherpad;
- Course statistics: provide a brief statistics about assignments, students, file storage, and other data in general.

Canvas doesn't have a built-in tool that generates certificates. In Canvas Network, instructors usually provide a certificate that students can download upon completion of the course. Or the institution will send the certificate to students directly.

It is absolutely free to use Canvas to teach. For students, if the course charges the participants, you just need to pay the labelled price for seats in the course.

As academic partner, university doesn't need to pay anything for either joining the partner list or using the platform. The Canvas team will provide free support in both course setup, instructional design and technical aids. University has to sign contract with Canvas and the contract is not limited to time, which means the university can use the platform to deliver courses on Canvas forever free.

Monetization model in Canvas is that for any revenue generated from the courses, the university and the Canvas Network will break the shares. But it is recommended that free courses are more attractive to most users.

User Experiences Survey

To better understand the four shortlisted platforms from the actual user experiences, a small-scale online survey was designed through Google Forms. A dozen of people

among the collaborators of the involved labs were asked to try each platform by at least taking one course therein, and to list their likes and dislikes about the platform. The titles of the courses that they took were also required. At last, they were asked to pick the favorite platform out of the four shortlisted ones. Ten complete replies were received over one week. Sixteen courses were taken from *NovoEd*, twenty from *FutureLearn*, sixteen from *iversity*, and nineteen from *Canvas Network*. Main goals of this activity were to collect user experiences and to further involve the USI team in the selection of the platform.

According to the survey result, users preferred *FutureLearn* and *iversity*, which are both European-based platforms. The respondents appreciated the responsive design and commented that the interface is friendly and easy to use. *FutureLearn*'s partner institutions enjoy high reputations globally. *Iversity* is comparatively less famous but its compatibility with the European Credit Transfer and Accumulation System (ECTS) can be very useful for further development of the MOOCs. Below quoted some users' feedbacks on *FutureLearn* and *iversity*.

"I seriously think that FutureLearn is the best one, because of the graphics, the order and just how it's cured. I'm taking some courses of my real interest now and enjoying it a lot!"

"I think that iversity shows the best user-friendly layout among all the platforms and the platform perfectly fits the screen of a phone."

"Regarding the user experience, FutureLearn is for sure the best platform. It's easy to use, it has a nice look & feel and it looks familiar (the comments are pretty like Facebook, you can follow people like Twitter, etc.)."

Transcripts are considered as important. For users who got exposed to transcripts options in other platforms, if a platform didn't provide such choice, it could become less appealing to the users. For example, several complaints were received from the users taking some no-transcript courses from *NovoEd* and *iversity*.

"There is no possibility to download a script of the videos provided in the courses. Moreover, I did not find any explanation below them (any additional information on the content of what I was watching)." (NovoEd)

"No transcript of the videos were used – quite difficult to understand the tutor – many users were complaining about this issue." (iversity)

"I dislike the fact that there is no availability of subtitles or scripts for the videos of the courses." (iversity)

Searching and filtering features are demanded. *FutureLearn* doesn't provide whole-site search feature for users to discover the course catalog with keywords. *Iversity* doesn't

enable filtering feature through the courses based on subject. According to the users, the absence of the searching and filtering power on the courses can increase the feeling of difficulty when exploring a large collection of MOOCs on the platform.

"Courses are in a plain list: there is no classification in categories." (iversity)

"Not possible to filter courses by university, neither by language." (NovoEd; FutureLearn)

"No search bar in the homepage!" (FutureLearn)

Final decision: Report to University Board

In March 2015, the results of the benchmark analysis and of the User Experiences Survey were presented by the project director to the University Board, which made the final decision to set up a partnership with *iversity*. Among the main reasons for this choice we can list the fact that *iversity* is based in Germany, offers free partnership, and supports ECTS, which enables the potential of more formal accreditation in the future. For a small university like USI, the budget, the visibility opportunities, and how the platform can be integrated into the existing educational environment played important roles in the decision-making process of the management team at the university level.

Conclusion and Future Work

The popularity of MOOCs draw attention and action of universities globally to join the community and develop MOOCs due to various motivations. The journey to become MOOCs provider must be well justified in the perspectives of the institution and strongly supported by the involved staff. With outstanding contribution to the MOOCs area, it is highly possible for the university to boost up the visibility and attract international students for new enrollment possibilities. USI Università della Svizzera italiana, as a small Swiss university has recently partnered with *iversity* to launch MOOCs in 2015. With a strong leadership, efficient top-down approach, clear mission, and highly motivated staff, the university is ready to enter the MOOCs development community. Along with this progress, the university will also get the valuable chance to rethink how to adapt the existing curriculums to the mass number of audience and the business model for self-financed operation of the MOOCs in the future.

By comparing seventeen MOOCs platforms in the market, this study is able to set up a review schema as a tool for the other universities to follow when deciding on partnership issue. Nineteen attributes categorized under four groups can provide a good overview of the MOOCs platforms. It is clear that these platforms share some similarities and also hold differences. The User Experiences Survey revealed that platforms with friendly interface, neat design, and responsive site are preferred. The features such as transcript, searching and filtering across the available courses are helpful to learners.

Due to the fast development of MOOCs, the statistics collected for this study will possibly be out of date in months, if not in weeks. The further work related to platform evaluation can be directed to more contributing up-to-date data about the MOOCs platform, more categories of attributes, or more in-depth attributes to extend the current review schema to more levels.

Study 5:

Lin, J., & Cantoni, L. (2018). Evaluate the MOOC Learner Engagement via an Online Survey. Manuscript under preparation.

4.3 Evaluate the MOOC Learner Engagement via an Online Survey

High dropout rates have been considered the Achilles' heel of eLearning for a long time (Succi & Cantoni, 2008). A similar and even stronger criticism can be found in both academic literature and general media when it comes to MOOCs (Onah, Sinclair, & Boyatt, 2014). The currently reported completion rate of MOOCs is often in the range of between 5% and 10% (Jordan, 2014; Khalil & Ebner, 2014). Understanding learner engagement as a course progresses is believed to help, in particular, minimise dropout rates, characterise learning patterns, guide instructor intervention, and enhance MOOCs' global educational impact (Ramesh, Goldwasser, Huang, Daume III, & Getoor, 2014). It can also generally foster learning, enhance quality assurance, and impact learner persistence (Mandernach, 2015). Therefore, learner engagement is a necessary consideration in designing, running, evaluating, and improving a MOOC.

The term "engagement" is more than jargon or a buzzword; it concerns involvement or participation. It does not only cover the activities of learners, but also examines learners' feelings and sense-making (Harper & Quaye, 2009). For example, a high number of video views can be interpreted as a high level of involvement of video playing but not as a high degree of engagement with the video because it is also possible that the video is played on the screen while the learner is not engaged at all.

The goal of this section is to explore the level of engagement directly reported by MOOC learners in the *eTourism: Communication Perspectives* MOOC (www.etourismmooc.ch), by using an online survey (Appendix 5). The following research question guided the research progress: How can the engagement level of a MOOC be measured?

Learner Engagement and How to Measure It?

Learner engagement has received considerable attention in the literature since the mid-1990s. It is defined as the time and energy students devote to educationally purposeful activities (Kuh, 2001) or, in more detail, it typically refers to the amount, type, and intensity of investment students make in their educational experiences (Jennings & Angelo, 2006).

There are various ways of collecting data to measure learner engagement, including student self-reports, experience sampling, teachers' ratings of students, interviews, direct observation, checklists and rating scales, work sample analysis, and focused case studies (Mandernach, 2015). Among these techniques, the survey appears as a frequently adopted and implemented tool. There exist surveys: (1) at the institutional level, such as the National Survey of Student Engagement (NSSE), the Community College Survey of Student Engagement (CCSSE) with versions from 2001 to 2017, the Faculty Survey of Student Engagement (FSSE), the Student Engagement Instrument (SEI), the Student

Engagement Questionnaire (SEQ), the Beginning College Survey of Student Engagement (BCSSE), and the Australasian Survey of Student Engagement (AUSSE); and (2) at the course level, such as the Classroom Survey of Student Engagement (CLASSE), the Student Engagement Index, the Student Course Engagement Questionnaire (SCEQ), the Student Engagement Survey (SE), and Behavioural Engagement Related to Instruction (BERI) (Mandernach, 2015).

The NSSE has been proven to be the most established and adopted tool used to measure learner engagement. Several studies have adapted the survey instrument from the NSSE. For instance, the Student Engagement Survey (SE) (Ahlfeldt, Mehta, & Sellnow, 2005), the Student Engagement Index (Langley, 2006), the Faculty Survey of Student Engagement (FSSE) (Ouimet & Smallwood, 2005), and the United Kingdom Engagement Survey (Wintrup, Wakefield, & Davis, 2015).

The NSSE instrument, which was launched in 2000 and updated in 2013, measures the degree to which students participate in educational practices that prior research shows are linked to valued outcomes of college (Zhao & Kuh, 2004). It developed 10 Engagement Indicators organised within four engagement themes, as displayed in Table 1.

Table 20/Table 1 (in Study 5). NSSE Survey: Themes and Engagement Indicators

Theme	**Engagement Indicator**
Academic challenge	Higher-order learning Reflective and integrative learning Learning strategies Quantitative reasoning
Learning with peers	Collaborative learning Discussions with diverse others
Experience with faculty	Student-faculty interaction Effective teaching practices
Campus environment	Quality of interactions Supportive environment

The United Kingdom Engagement Survey draws upon the well-developed categories from the NSSE's research and was in the pilot stage for two years before it was applied to develop the *UKES MOOC Engagement Research Survey* in 2014 (Wintrup, Wakefield, & Davis, 2015) and used in two MOOCs, *Web Science* and *Exploring our Oceans*, on the FutureLearn platform. MOOC learners were asked questions in the following categories of Engagement Indicators.

- *Higher Order Learning:* Engaging in complex cognitive tasks requiring more than mere memorisation of facts. It captures how much learners' activities emphasise challenging cognitive tasks such as application, analysis, judgment, and synthesis.
- *Course Challenge:* Learners perceive themselves being challenged by the course to do their best. Students are more likely to engage in educational activities when working toward a challenging but still achievable goal.
- *Collaborative Learning:* Collaborating with peers in regard to solving problems or mastering difficult material; for instance, during group projects, asking or offering help from or to their peers.
- *Academic Integration:* Not only limited to in-course discussions, but expanding the discussions from the course with others outside the course.
- *Reflective and Integrative Learning:* Making connections between the learning contents and the world around them, re-examining their beliefs and considering issues and ideas from others' perspectives.
- *Skill Development:* Perceiving the development of different skills by engaging in the learning activities; for instance, bettering writing skills, critical and analytical skills, and job related knowledge enhancement.
- *Engagement with Research:* Exploring and learning current research results and relevant concepts and methods of making scientific inquiries.

ETourism MOOC Learner Engagement Survey

An online survey, adapted from the UKES MOOC Engagement Research Survey, was implemented in the eTourism MOOC between November 2015 (after all modules had been unveiled) and January 2016, using Google Forms (see the survey in Appendix 4). A total of 1,264 participants from the eTourism MOOC were invited via course announcement to complete the survey and 216 of them finished it, resulting in a response rate of 17.1%.

Six of the seven *UKES* Engagement Indicators were adopted, while "engagement with research" was dropped because it was considered less relevant for the learners. It was substituted with "course resources", which involves studying learner-to-content relations (Murphy, Kalbaska, Horton-Tognazzini, & Cantoni, 2015) from the point of view of learners' engagement. Respondents had to rate on a four-point Likert scale their agreement with specific sentences (values could mean either "very little", "some", "quite a bit", "very much", "never", "sometimes", "often", or "very often").

When the response period was over, the whole set of replies was downloaded as a spreadsheet and pre-processed in Excel. The overall results are presented below.

Demographics of Participants

Gender. Among the 216 respondents, there were 124 females, accounting for 57.4% of the participants, and 92 males (42.6%).

Age groups. About 39.8% of the respondents were 26-35 years old, followed by participants aged 36-45 (18.5%), 46-55 (16.7%), and 18-25 (16.7%). In total, the age groups between 18 and 55 accounted for 91.7% of the participants. The rest was distributed between 56-65-year-olds (13, 6.0%) and beyond (five, 2.3%). Learners participating in this MOOC were younger than those of the benchmark study conducted by Wintrup, Wakefield, and Davis (2015), based on the percentage of age groups of 46 and older: 25% and 66.7%, respectively.

Country of residence. Respondents were from 72 different countries, encompassing both developed as well as developing countries. The most represented countries included Italy, France, Ecuador, Thailand, the Philippines, Spain, and Canada.

Highest education level and study field. Approximately 87.4% described their educational attainment level as having a degree or higher (bachelor's degree: 44.4%; master's degree: 36.1%; doctoral level: 6.9%), which is a similar result as that of the benchmark study (Wintrup, Wakefield, & Davis, 2015). Some participants had completed high school education (11.6%). Only 0.9% (two people) had attained less than a high school education level. Besides, 60 out 216 (27.8%) had their highest level of education in a field relevant to tourism and hospitality.

Employment status and sector. About 63.4% of participants were in employment (full-time: 50.0%; part-time: 13.4%). Meanwhile, 24.5% of participants were looking for a job. Only 17 out of the 216 participants were full-time students. Six people, accounting for 2.8% of participants, were not able to work and three were retired (1.4%). The percentage of working force learners in the benchmark study (Wintrup, Wakefield, & Davis, 2015) was lower (49%), but the retired audience was greater (36%). Regarding the working sectors, nearly 66 out of 216 (30.6%) participants' jobs were clearly relevant to the tourism or hospitality sectors. The most mentioned employment fields were: destination management organisations (9.7%), hospitality (7.9%), tour operator/travel agencies (6.0%), cultural institutions, such as museums and theatres (1.9%), and restoration, event management, and transportation (1.4%).

Before the MOOC

The survey included some questions that aimed to map the methods used by respondents in order to learn new knowledge/skills, their drivers to enrolling in the MOOC, and other MOOC experiences they might have had in the same area. Due to the complexity of the studied aspects, learners were allowed to select up to three answers.

Methods of knowledge/skills upgrading. Taking eLearning courses, including MOOCs (140, 64.8%), was the most popular and common method for respondents to upgrade knowledge and skills. Visiting specialised websites/blogs/mailing lists (100, 46.3%), which is still an online based method, followed as the second most popular method. Traditional methods, such as reading books/magazines (86, 39.8%) was positioned in the third place.

Three most important reasons to participate in the MOOC. The three major reasons for learners to participate in a MOOC were its being free of charge (83, 38.4%), interesting (77, 35.6%), and useful for updating skills (50, 23.1%).

Other MOOCs before this one. A total of 85.0% of participants had not taken any other eLearning course relevant to tourism and hospitality prior to this MOOC.

Engagement in the eTourism MOOC

Course Challenge. The MOOC "quite a bit" or "very much" challenged the learners to do their best (75.9%), which is similar to the result (60% to 70%) reported by the benchmark study (Wintrup, Wakefield, & Davis, 2015).

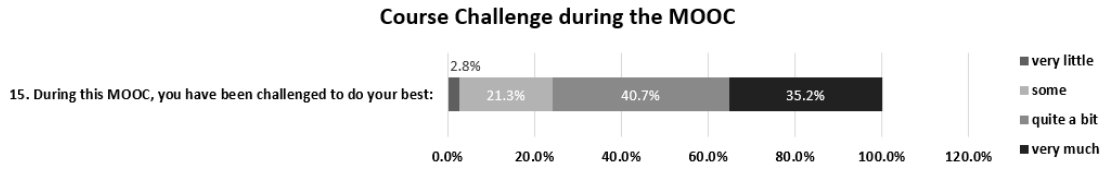


Figure 41/Figure 1 (in Study 5). Course Challenge during the MOOC

Higher Order Learning. Over half of participants agreed that they "quite a bit" or "very much" achieved higher order learning throughout the MOOC. The most positive aspect was "forming a new understanding from various pieces of the course", with 36.1% of respondents rating this aspect as "very much" and only 2.3% choosing "very little". The least positive aspect was "applied facts, theories, or methods to new situations", with 43.0% of participants indicating that they experienced this aspect "very little" or "only some".

The higher order learning of this MOOC is comparatively 10% higher than the two MOOCs reported by the benchmark study (Wintrup, Wakefield, & Davis, 2015) in four aspects, but 5% lower when learners "formed a new understanding from various pieces of the course".

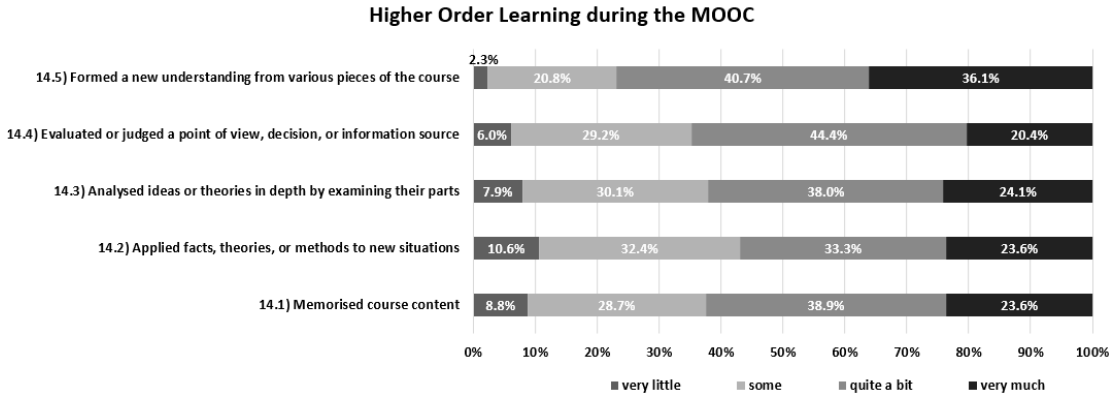


Figure 42/Figure 2 (in Study 5). Higher Order Learning during the MOOC

Skill Development. For seven aspects of skill development, over half of participants positively rated them as happening "often" or "very often" in their learning. For instance, learners often or very often thought critically and analytically during the MOOC (77.8%) and became independent learners during the process (75.5%). Even for the least rated aspect of skill development, "analysed numerical and statistical information", with 24.1% of participants never experiencing this, there were still 45.9% people who achieved it "quite a bit" or "very much". Compared to the benchmark study (Wintrup, Wakefield, & Davis, 2015), the percentage of participants who rated themselves as very much engaged in skill development is, on average, 13% higher.

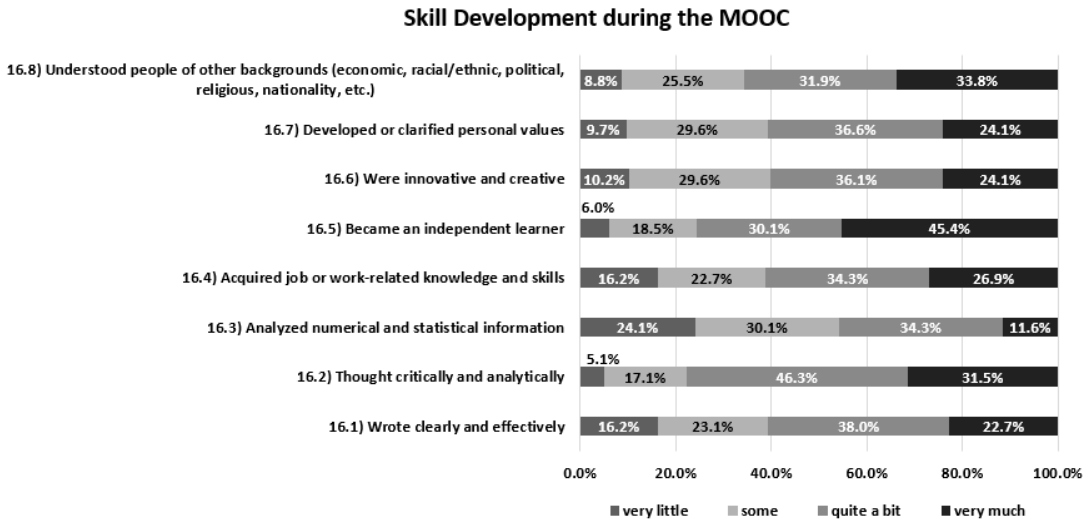


Figure 43/Figure 3 (in Study 5). Skill Development during the MOOC

Reflective Integrated Learning. Learners found they frequently had the opportunity to connect ideas from the MOOC to prior experience and knowledge (only 5.6% never did

so) and to learn something that changed the way they understood an issue or concept (6.0% never did). It was, however, less common for learners to connect the learning to societal problems or issues (19.4% never did and 43.1% sometimes did). The benchmark study (Wintrup, Wakefield, & Davis, 2015) found a similarly low percentage (22% never did) regarding this aspect.

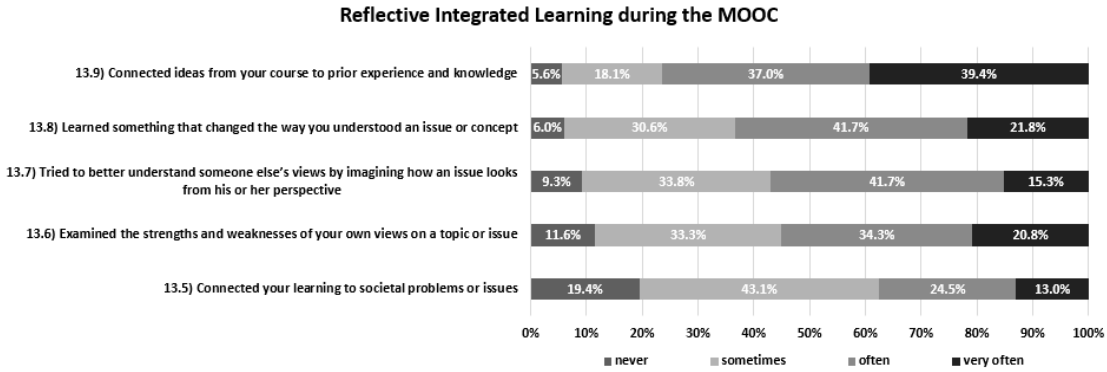


Figure 44/Figure 4 (in Study 5). Reflective Integrated Learning during the MOOC

Course Resources. The learners found the given resources in the MOOC were often or very often useful (92.6%) and only 0.5% rated them as not useful. However, when engaging with additional resources not suggested by the MOOC or with the need-to-purchase resources directly related to the subject, their engagement dropped.

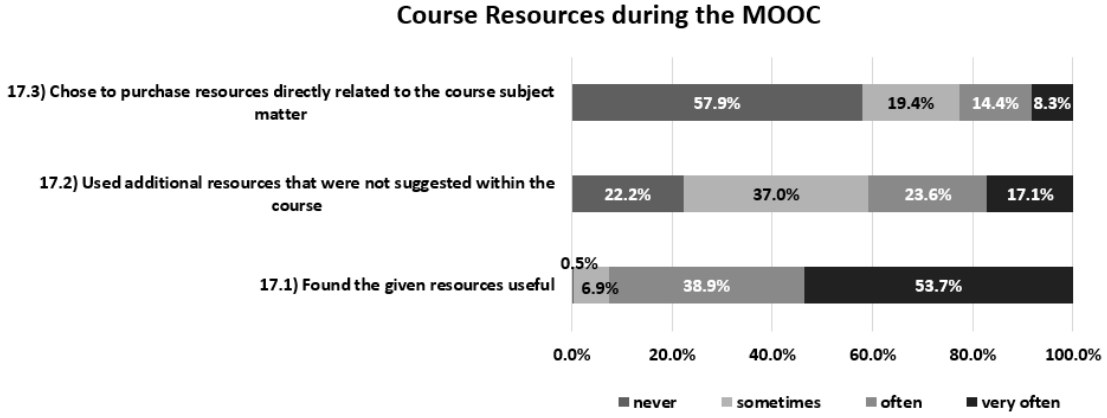


Figure 45/Figure 5 (in Study 5). Course Resources during the MOOC

Academic Integration. A low level of engagement appeared in regard to discussions either inside the MOOC or beyond it. A total of 35.2% of respondents never participated in the discussion activities in the MOOC, which is similar to the benchmark study (Wintrup, Wakefield, & Davis, 2015). A total of 40.7% of participants never discussed ideas from the MOOC with others outside the course.

This percentage is 12% higher in this MOOC than in the benchmark study (Wintrup, Wakefield, & Davis, 2015).

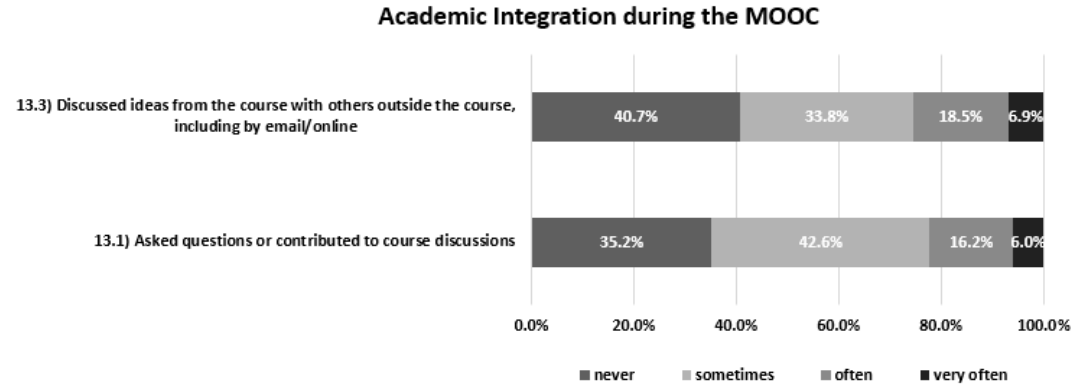


Figure 46/Figure 6 (in Study 5). Academic Integration during the MOOC

Collaborative Learning. Learners showed the lowest engagement level for the collaborative learning indicator. In fact, when comparing seeking help from and offering help to peer learners in the same MOOC, it was discovered that learners were more resistant to "asking for help" (78.7% never did so), compared to "offering help" (63.4% never did so). The benchmark study (Wintrup, Wakefield, & Davis, 2015) found a similar distribution (90% never asked for help; 77% never helped others).

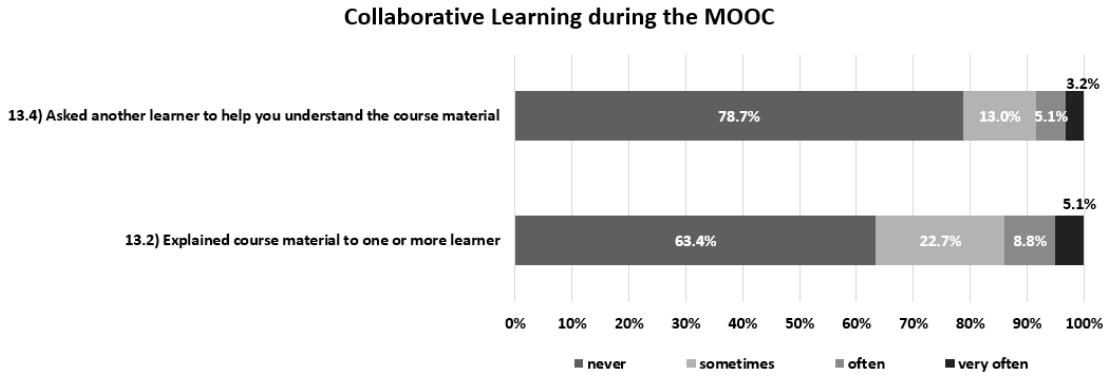


Figure 47/Figure 7 (in Study 5). Collaborative Learning during the MOOC

Discussions

Knowledge Acquisition and Skills Development were highly achieved. As an introductory online course under the topic of eTourism, this MOOC was not perceived as an easy task. On the contrary, the majority of respondents felt it was a challenge. However, the MOOC successfully conveyed the key knowledge of this topic and enabled the learners to build up a variety of skills during the learning process.

Not Collaborative Enough. The origin of the MOOC, known as the cMOOC, is famous for its connectivism characteristics. Connectivism is a learning theory that

emphasises the role of social and cultural context. Unfortunately, in both studies using the *UKES MOOC Engagement Research Survey*, results showed poor collaborative learning levels inside the examined MOOCs. This suggests that the learning communities were not engaged enough in peer communication and collaboration. In future iterations, the designers and instructors of these MOOCs could consider, for instance, including more collaborative activities that encourage group efforts or organising online social networking activities to engage participants first at a personal level, then at the level of collaborative learning.

Forum was not Interactive. Forum discussion activities were often used in the MOOCs to support mutual communication among all participants. This has been rated as the preferred communication tool in MOOCs. The eTourism MOOC organised eight assignments across eight forums in the course, which were optional learning-by-doing activities. However, the learners showed very low levels of engagement with the discussions inside the course, as reflected in the engagement level regarding academic integration. This is partially due to the fact that this MOOC's host platform, iversity, does not support direct replies to each message posted in the forum, which is a major usability issue and can easily frustrate users when trying to engage with the forums. Another possible explanation for this is that the assignments were designed to be closely related to the subject and may be perceived as less relevant or useful for those participants, around 72% of all learners, who are not studying or working in the field of tourism and hospitality.

MOOCs Serve the General Education Purpose for Beginners. It is undoubtedly a challenge for MOOC designers to foresee who is going to show up in the virtual classroom. However, unlike classic on-campus academic classes, which often gather a group of students with the same or similar areas of specialisation, MOOCs appear to blur such borders. With the initial intention of attracting different stakeholders in particular within the tourism and hospitality field, this MOOC actually attracted a much wider audience, many of whom might have been interested only in specific aspects – for example, communication theories, usability, or online reputation – not necessarily peculiar to eTourism. Participants joined the MOOC for very different reasons, but all joined for free knowledge with skill-enhancement motivations.

*MOOC to Better Engage Global Problem Solvers***.** In the experience of this MOOC, the learners did not report high engagement levels when participating in meaningful discussions related to newly acquired knowledge, or connect this knowledge to wider societal problems or issues, or develop mutual support in the online learning community. This could be explained by the way in which MOOC learners deeply appreciate the freedom of learning and invest their time and effort in engaging with the course only to reach their intended learning goals. However, with such diverse backgrounds, multiple perspectives, and talent available, it could have been promising to address global issues

from different subjects. A MOOC is thereby not limited to a meaningful learning space but also acts as a public stage for discussing and contributing to solving global problems.

MOOC as a Free Training Method. Nowadays, eLearning has become a widely accepted method of upgrading skills and knowledge, especially for younger generations, who are familiar with information technology. MOOCs gradually become an attractive further education opportunity for people, who are receiving full-time education, looking for jobs in the market, or seeking to polish skills outside a daily job. These learners displayed a high level of engagement in their participation with the MOOC. However, it is not easy to monetise in regard to this audience because they are not in a financially privileged situation, as older employees are likely to be. Therefore, they participate in the course, learning proactively, and usually prefer no actual payment.

Time May Be the Key to Higher Engagement. An interesting finding was that the 56-65 year-olds (13 out of the 216 participants) in this MOOC were the least engaged group. Meanwhile, three retired people from this group were the most engaged ones when compared with the other people with other employment statuses. This high engagement level was not limited to the retired participants but also stayed true for groups such as those "in full-time education" and "looking for work". These three groups were actually the most engaged learners in the studied MOOC. In contrast to this, the full-time/part-time employees, when compared to unemployed groups, were much less engaged in collaborative learning, which requires the time to communicate with others. As explored by a previous study, the main cause of the problem of the high dropout rate in MOOCs was identified as poor time management.[15] These interesting facts may imply that the time allowed to study a MOOC merits careful consideration in regard to the efforts made to enhance learner engagement.

Implications for Practitioners

The analysis of the engagement levels and demographic profiles of participants of a MOOC can offer useful insights to instructional designers, MOOC instructors, course marketing teams, and researchers.

Instructional Designers. These research results can support the future decisions of instructional designers concerning the quality assurance and enhancement of a MOOC. The overall engagement score and the individual indicator scores provide a scale with which the designers can evaluate the strengths and weaknesses of a MOOC. In future designs, the weak aspects of a MOOC can be improved and then evaluated again in the following iteration to test the effectiveness of the new improvements. By repeating this process, the quality of a MOOC can increase over time.

MOOC Instructors. With mass audiences with very diverse backgrounds and interests, it is truly not easy to facilitate global classes like those offered by MOOCs. This

engagement analysis allows instructors to understand the learning atmosphere and learner involvement in different levels and aspects of a MOOC. In the case of this MOOC, instructors in the future can try to be more present in the MOOC for learners, especially those with higher education levels, of older ages, and those in employment. The difficulty here is that such engagement analysis is related to post-course evaluation and cannot provide real-time advice for the running of the MOOC. However, it still makes it clear to instructors to whom they should pay more attention when it comes to online facilitation.

Course Marketing Team. The marketing team of a MOOC can also benefit from engagement studies, especially when it comes to marketing activity design and implementation. For instance, in the design phase of a MOOC promotion, different groups of learners clustered by this study can support market segmentation and improve the accuracy and relevancy of the promotion concerning the audience. In the marketing content development phase, a narrative of existing learner profiles can provide validated testimonies for upcoming learners. Different engagement results can also demonstrate the quality of a MOOC based on the self-reports of learners, which can be shared on social media, for example, to enhance other learners' confidence and interest in regard to participating in the MOOC in the future.

Researchers. A similar approach can be applied to other MOOCs, so that the results can be compared across different contexts and disciplines in the future. Further research is needed to explore the seven indicators' relationships among each other, with the total engagement level, and with the demographic characteristics.

Conclusions

This study adopted the *UKES MOOC Engagement Research Survey* to investigate the engagement situation of a Swiss MOOC, *eTourism: Communication Perspectives*. Seven MOOC Engagement Indicators were used, measured, and analysed: Course Challenge, Higher Order Learning, Skill Development, Reflective Integrated Learning, Course Resources, Academic Integration, and Collaborative Learning.

There are two main limitations of this study. First, as a preliminary analysis of the survey, the results of the study were only descriptive and explorative. Further in-depth analysis could be conducted to reveal the association between the seven Engagement Indicators and the participants' demographics. Second, the conclusions of this study cannot be generalised to wider contexts, due to the number of survey respondents and the restriction to the context of one specific MOOC.

Study 6:

Lin, J., & Cantoni, L. (2017). Assessing the Performance of a Tourism MOOC Using the Kirkpatrick Model: A Supplier's Point of View. In Roland S., & Brigitte S. (eds) Information and Communication Technologies in Tourism 2017 (pp. 129-142). Springer, Cham.

4.4 Assessing the Performance of a Tourism MOOC Using the Kirkpatrick Model: A Supplier's Point of View

Abstract: This paper presents the evaluation methods and results of a pilot tourism MOOC (Massive Open Online Course) called eTourism: Communication Perspectives, based on the Kirkpatrick model. It assigned twelve indicators to the model's four levels of evaluation (reaction, learning, behaviour, results). Indicators include: self-efficacy and motivation, satisfaction, relevance, course performance, collaborative learning, higher-order learning, reflective and integrative learning, skills development, post-course practices, corporate social responsibility, public relations, and marketing. With various measurement tools such as pre-, in- and post-course surveys, post-course interviews, and analytics data by the host platform, the paper explains the available data with the twelve indicators and provides meaningful performance assessment for the MOOC. Results show that the MOOC was successful in all four levels according to the twelve indicators. The limitations and the future directions are also discussed at the end of the study.

Keywords: MOOCs; Massive Open Online Course; Kirkpatrick model; tourism

Introduction

Imagine a scenario: your MOOC was finished and uploaded online; you shook hands with team members and popped a champagne together, thinking the work was done. Think twice. As suggested (Rodrigo, Read, Santamaría & Sánchez-Elvira, 2014), since MOOC delivery has become an innovative part of modern education it should also undergo the same type of quality assurance as other eLearning courses. After all, you as a supplier need to know whether your MOOC is a success or a failure, worth of a second run or not, demanded or ignored by the online learners, perfect or insufficient in contents.

In 2015, a total of 1'800 new MOOCs were announced online adding the number of MOOCs in the world to 4,200 from over 550 universities; meanwhile, the total number of learners who signed up for at least one MOOC had crossed 35 million (Class Central, 2015). A shocking fact was that between 2012 and 2015, out of 4,745 peer reviewed publications about MOOCs, only 26 papers covered extensively the issue of their quality

assessment (Gamage, Fernando & Perera, 2015). With so many MOOCs produced, the evaluation of such supplies undoubtedly remains in the early stage in the literature.

The settings of hospitality and tourism uncovered similar situation above. A preliminary analysis by the author identified a total of 51 MOOCs between 2008 and 2015, with 23 of them being provided by universities. In the existing literature, only a few MOOC studies focused on hospitality and tourism, with even fewer dedicated to the MOOC evaluation (Murphy, Tracey & Horton-Tognazzini, 2016; Tracey, Murphy & Horton-Tognazzini, 2016).

This research aimed to answer the following three questions: (1) how to evaluate the performance of a MOOC using the Kirkpatrick model? (2) what indicators can be included during such process? and (3) is the selected MOOC successful according to the relevant evaluation criteria?

The methodology of this study took a further step, compared to the previous studies related to MOOC evaluation in hospitality and tourism settings, by introducing specific indicators and practical measurements. Results can potentially benefit the future MOOC suppliers when they evaluate the effectiveness of a MOOC of their own.

Literature Review

MOOC evaluation

Evaluation can be on different scales and aspects based on various purposes as displayed in Table 1. How to evaluate a MOOC stays an open question and there is no agreed model for conducting MOOC evaluation.

Table 21/Table 1 (in Study 6). Evaluation of MOOCs: Cases, Aspects, and Literature

Evaluation cases	Evaluation aspects	Literature
A single MOOC: overall	Critical thinking skills	Poce (2015)
	Participants' perspectives on MOOC	Cross (2013)
	Learner engagement	Parra (2016)
	Learner motivation	Douglas, Mihalec-Adkins, Hicks, and Diefes-Dux (2016)
	Usability and effectiveness of the blended mode	Yousef, Chatti, Schroeder, and Wosnitza (2015)
A single MOOC: a component	Learning analytics module	Yousef, Chatti, Ahmad, Schroeder, and Wosnitza (2015)
	Discussion forum	Onah, Sinclair, and Boyatt (2014)

Multiple MOOCs	Design quality of MOOCs	Khalil, Brunner, and Ebner (2015) Rodrigo, Read, Santamaría, and Sánchez-Elvira (2014)
	ICT tools for teaching	Lesjak and Florjančič (2014)

Regardless of different formats of evaluation, in its essence quality is very much the condition that determines how effective and successful learning can take place (Creelman, Ehlers & Ossiannilsson, 2014). Therefore, measuring the learning inside a MOOC is a critical factor concerning quality. However, due to the mass scale of global audience, MOOC as an innovative educational movement is destined to hold much more dynamic characteristics than a traditional face-to-face class. Downes (2013b) claims that the success of a MOOC is process-defined rather than outcomes-defined, and that it should be seen as a vehicle for discovery and experience. Thus, the evaluation mechanism for a MOOC should ideally adopt multiple sources of data to enhance its capability of various cases inclusion, rather than simply considering the completion rate.

In the hospitality and tourism field, defining MOOC failure or success remains a tricky issue (Murphy, Tracey & Horton-Tognazzini, 2016). Tracey, Murphy, and Horton-Tognazzini (2016) recommended using Kirkpatrick model as a comprehensive framework to evaluate MOOCs in applied tourism and hospitality settings. They suggested including: self-efficacy beliefs into level 1 criterion, higher level of learning into level 2, participant engagement, participant persistence, pre- and post- course performance comparison into level 3 and cost-benefit model, linking customer engagement and performance outcomes into level 4. However, this brief framework was only a conceptual proposal and they did not apply it to practically evaluate any MOOC. A similar effort was found in another research (Lin, Cantoni, & Kalbaska, 2016), which tried to apply Kirkpatrick model to evaluate a MOOC by proposing indicators.

Kirkpatrick model

Kirkpatrick model was first introduced by Donald Kirkpatrick in 1954 and became the worldwide standard for training course evaluation after his best-known work *Evaluating Training Programs* (Kirkpatrick, 1975). The model has long been considered one of the most influential models for any kind of training course, formal or informal. Kirkpatrick model (1994) delineates four levels of training outcomes that successively build upon each previous one: reaction, learning, behaviour, and results. The first three levels examine the effectiveness of training, on individuals while the fourth one explores that at the organizational level.

Level 1: Reaction. Reaction was originally used to describe how much participants liked a particular training program and the term evolves along with time to assess trainees' affective responses to the quality (e.g., satisfaction with instructor) or the relevance of training (e.g., work-related utility) (Bates, 2004).

Level 2: Learning. The degree to which participants acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training (Kirkpatrick Partners, 2016). Measuring learning is important because changes in behaviour cannot occur if learning has not taken place (Bradley & Connors, 2007).

Level 3: Behaviour. Behaviour outcomes address either the extent to which knowledge and skills gained in training are applied on the job or result in exceptional job-related performance (Bates, 2004). Essentially, this level's evaluation explores what the individual participants did or did not do once returning to jobs (Bradley & Connors, 2007). It is more challenging and costly to conduct than previous two levels because the involved factors are difficult to be measured directly.

Level 4: Results. The degree to which targeted outcomes occur as a result of the training and the support and accountability package (Kirkpatrick Partners, 2016). At this level, it shifts the analysis from changes observed in individuals to the impact on the organization (Bradley & Connors, 2007).

eTourism: Communication Perspectives

The MOOC to be evaluated by this study is *eTourism: Communication Perspectives*, which was one pilot MOOC provided by *Università della Svizzera italiana* (USI) from Switzerland. First launched on October 5, 2015 on the German MOOC platform iversity (http://www.iversity.org), it has lasted for eight weeks with eight chapters of contents. English was its instruction language and the estimated study hours were three to four per week. Eleven staff supported the development. Four instructors and three assistants were collaboratively working on its delivery. This MOOC contained 17 lecturing videos (usually each week one theory video and one case video), 17 video scripts, 16 quizzes matched with videos, eight content-based discussion forums, eight lists of further readings, 21 course announcements, one engagement survey, two platform-generated surveys, one Facebook group, one Twitter hashtag. Learners in the Certificate Track, who paid 49 euros, were able to take the final online written exam, CoA exam, any day any time in the given exam period. The exam included 30 multiple choice questions. If the learner passes the exam, he will receive a Certificate of Accomplishment with his grade on it.

The MOOC attracted the attention of 5,519 global learners from 142 countries. By the end of the course, 7.1 % learners completed at least 80% of the course and received a free Statement of Participation.

The completion rate of 7.1% in this MOOC lingers in the rage of 5% – 10% found by other studies (Jordan, 2014; Khalil & Ebner, 2014). If measured by the traditional standard of education success, critics may consider this a failure. However, as aforementioned the completion rate is only one small piece of the iceberg and establishing relevant success measure is critical to organisations adopting and subsequently implementing MOOCs (Murphy, Tracey & Horton-Tognazzini, 2016).

Evaluation Methodology

The evaluation of this MOOC sought to review the course data by assigning twelve indicators to the Kirkpatrick model, which were adapted to the need of the evaluation. Multiple sources of data were utilized for evaluation. The host platform provided results from their pre-course survey, post-course survey, as well as course analytics data. In the fifth chapter of this MOOC, an engagement survey was delivered to participants for responses. Meanwhile, individual post-course interviews were invited among the respondents who participated in the engagement survey activity. For the social media consumption data, they were directly retrieved from the involved social media tools Facebook and Twitter. All the data were retrieved after the MOOC went offline. The number of respondents can be found in Table 2.

Table 22/Table 2 (in Study 6). Evaluation Methodology based on the Kirkpatrick Model

Kirkpatrick model aspects	**Indicators**	***Literature basis***	**Measurements**	**No. of respondents**
Reaction	Self-efficacy and motivation	Douglas et al. (2016); Tracey, Murphy, and Horton-Tognazzini (2016)	Pre-course survey (9 questions)	477
	Satisfaction	Kirkpatrick (1975)	Post-course survey (3 questions)	114
	Relevance	Kirkpatrick (1975)	In-course engagement survey (1 question)	216
Learning	Course performance	Kirkpatrick (1975); Tracey, Murphy, and Horton-Tognazzini (2016)	In-course analytics data: video views; number of posts in forum; quizzes; CoA exam attendance and grades	5,519
	Collaborative learning	Wintrup, Wakefield, and Davis, (2015); Tracey, Murphy, and Horton-Tognazzini (2016)	In-course engagement survey (2 questions)	216
	Higher-order learning		In-course engagement survey (5 questions)	216
	Reflective and integrative learning		In-course engagement survey (5 questions)	216
	Skills development		In-course engagement survey (8 questions)	216
Behaviour	Post-course practices	Kirkpatrick (1975)	Post-course interviews	9
Results	Corporate social responsibility	Self-developed indicators	Number of subscribers from developing countries and unlikely-to-attend-physical-class groups	Refer to the section of "Results Layer" below.
	Public relations		Visibility of USI in positive contexts: such as number of total subscribers, and media exposure rate (Facebook, Twitter, YouTube); New collaborative projects or materials being reused by others	
	Marketing		Number of new admissions at campus due to the MOOC	2

Results

Reaction Layer

Self-efficacy and motivation. Most learners initially held high level of self-efficacy concerning their ability to dedicate time and complete this course. For example, 80% of them intended to spend 1-5 hours on this MOOC. Nearly 87.5% of them planned to finish all or most of the provided lecturing videos. 81.7% considered completing all or most of the course assignments (homework, quizzes, and exam).

Three major reasons encouraged the participants to enrol in this MOOC: personal curiosity, supporting current job responsibilities or company's line-of-business, and being useful for obtaining a new job. The impact of the institute, the instructor, and the friend in the MOOC were found to be little in such decision. Over 82% claimed that taking this MOOC was mostly due to the consideration of their professional life or academic life.

Satisfaction. Among 114 respondents to the satisfaction question, 71.9% chose "very satisfied", 22.8% selected "somewhat satisfied", and others responded as: neutral (2.6%), somewhat dissatisfied (1.7%), and very dissatisfied (0). The satisfaction rate reached 95.0%. Besides the high level of satisfaction, 88.5% expressed the willingness to take more courses from the same instructors and nearly 86.0% of them were positive about recommending this MOOC to their friends.

Relevance. Out of 216 respondents of the engagement survey, 93.6% found the given resources in this MOOC useful and relevant (very often: 54.2%, often: 39.4%, sometimes: 6.9%, never: 0).

Learning Layer

MOOCs are often heavily based on lecturing videos. These videos, instead of traditional textbooks, become the core medium for knowledge acquisition in MOOCs. The video views of eTourism MOOC continuously dropped over weeks (Fig. 1). The views of theory videos on average decreased from 3,575 views in the first week to 486 views in the final week. Throughout the course, theory videos were in general more popular among learners than the case videos. This difference was more obvious before the fifth week, after which the views on both videos simultaneously decreased.

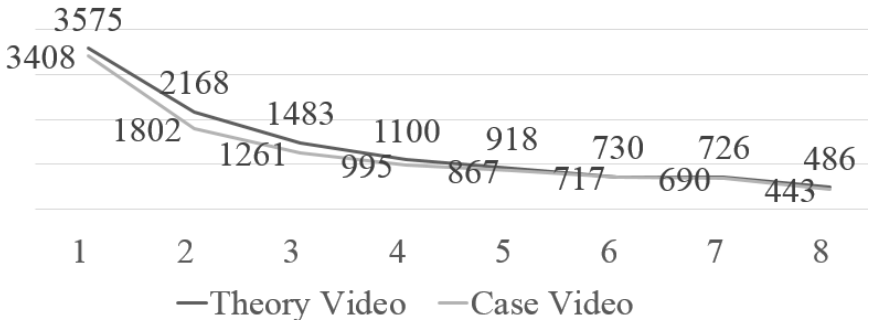


Figure 48/Figure 1 (in Study 6). Video Views by Chapter

Nine chapter-based discussion forums in this MOOC provided valuable channel for the participants to communicate with the instruction team and other learners. At the same time, they produced new valuable contents for the course. The first forum invited learners to do self-introduction as a warm-up activity. The remaining eight discussion activities were designed as homework to examine the understanding of learners on each given topic. Learners were required to post their answers to the given tasks in the forums. As shown in Fig. 2, the participation rate in finishing homework declined over chapters. The high level of engagement with the forums were found in the first four chapters, with active posting and replying from both learners and instruction team. In the final two chapters, the facilitation from the instruction team stopped because of a sudden technical change in forums on the host platform side, which disabled instructors or assistants to reply to learners' posts.

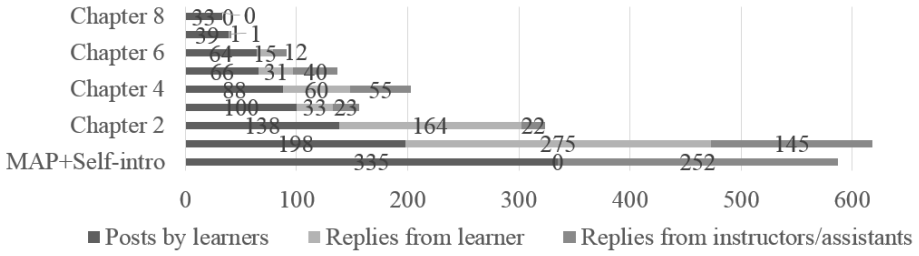


Figure 49/Figure 2 (in Study 6). Post Numbers by Chapter

The quizzes data was not usable by instructors in this MOOC, majorly due to the settings of the host platform. Learners were able to have multiple tries in all the quizzes' questions until they reached the right answer. And in the analytics data provided by the host platform, was always simply displayed as 100% success for each quiz. Therefore, the quiz data was not much of a help in this study.

For the CoA exam, although there were eighty learners who were registered, only 37 ones completed it and obtained the Certificate and Accomplishment. The average grade reached 25.4 (out of 30.0) and the lowest score was 17.0 (1 out of 37).

Collaborative learning. Out of 216 respondents in the engagement survey, approximately 78.3% never asked another learner for help to understand course materials, and 64.2% of them never explained course materials to others.

Higher-order learning. Most participants agreed that their higher-order learning was achieved well through this MOOC. Over 90% stated that they were able to memorise course content, apply facts, theories, or methods to new situations, analyse ideas or theories in depth by examining their parts, evaluate or judge a point of view, decision, or information source. Nearly 98% formed a new understanding from various pieces of the course by different levels: some (20.8%), quite a bit (40.7%), very much (36.1%).

Reflective and integrative learning. Over 80% of the 216 participants at least sometimes or more (often, very often) were involved in the following learnings: connected their learning to societal problems or issues (80.6%), examined the strengths and weaknesses of their own views on a topic or issue (88.4%), tried to better understand someone else's views by imagining how an issue looks from his or her perspective (90.7%), learned something that changed the way they understood an issue or concept (94.0%), and connected ideas from the course to prior experience and knowledge (94.4%).

Skills development. On average over 90% claimed that they developed – some, quite a bit, or very much – the following skills: thought critically and analytically (94.9%), became an independent learner (94.0%), were innovative and creative (89.8%), developed or clarified personal values (90.3%), understood people of other backgrounds such as economic, racial/ethnic, political, religious, nationality, etc. (91.2%). Meanwhile, more than 76% agreed that in at least some parts of this course they wrote clearly and effectively (83.8%), analysed numerical and statistical information (75.9%), acquired job or work-related knowledge and skills (83.8%).

Behaviour Layer

All the interviewed learners (nine in total) expressed that eTourism MOOC was their first MOOC experience and it was so positive that they would like to continue the MOOC experience in the future. A coach from Panama discovered the opportunity of delivering education to African people via mobiles after finishing one homework about evaluating a mobile app, which was developed to educate African youth concerning world heritages preservation in Africa. He said:

> *"One of the things that brought at first on my mind, well, the colours, the look, the feel, were not what I expected. However, I found out that people in Africa they are stunning on mobile devices. Now I am connected to a company who will deliver some education*

to mobile…For me, it was mind changing that we should not think about only locally, like perhaps the world is obviously similar everywhere. We should take advantage of the whole global economy rather than just local or regional."

Another interviewee had finished master level of education in tourism when taking this MOOC and said that this MOOC delivered very practical experience, which triggered more learning opportunities for her.

"[Because of this MOOC,] I finished Ticino Travel Specialist eLearning course and found out a lot more about online education. Now I am studying something from Paris and Hong Kong travel specialists. That is something really good that I can practice all my life after this MOOC. So it was very practical."

A French interviewee served as a coordinator of the promotion service in a destination management organization, specialized in media relations. She shared her experience of a cross-sector collaboration because of the influence of this MOOC.

"I had a discussion with a colleague who was taking care of the eTourism reputation for [Ddestination X] tourism. She said to me I don't know what to do on twitter for the [Ddestination X] tourism, can you help me? I was then following the course and said ok we can try. And I will take that account for press, tour operators and tour players. So she said ok I will let you take care of the Twitter account for [Ddestination X] tourism. It helped me to go from one subject to another inside and even outside the team, better communication and collaboration."

Results Layer

Corporate social responsibility. A total of 1,817 participants from 51 developing countries (based on United Nations sources) were attending this MOOC. 339 of them had at least 5% progress in taking the course. Five of them passed the final CoA exam and received Certificate of Accomplishment and they are from Serbia (2), Côte d'Ivoire (1), India (1), and China (1). The top five developing countries where participants were from included: Philippines (308), India (2190, Bangladesh (162), Pakistan (151), and Kenya (95). Besides the coverage of developing countries, another indicator is the number of participants who were not students. According to the demographic survey results, there were 428 non-students, accounting for nearly 70% of the responses. There were more female learners (62.1%) than male learners (37.9%). The majority of learners were of 26-46 years old (82%). The detailed age distributions can be found in Fig. 3.

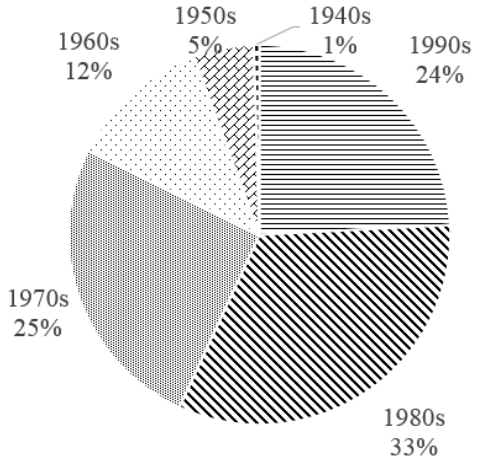


Figure 50/Figure 3 (in Study 6). Number of Participants by Age Group (out of 645 Responses)

Public relations. When the MOOC went offline, it attracted 5,519 subscribers. Compared to other hospitality and tourism MOOCs, it was the most active MOOC in cultivating social networking channels for better communication. It had 887 members on its Facebook group and the number is still growing. The course hashtag *#eTourismMOOC* on Twitter received hundreds of tweets under this topic with the potential reach of 20,700. The trailer video of this MOOC received 7,630 views. Besides the social media exposure, this MOOC was also reported in the mass media channels (such as Il Sole 24 ORE, Skopje, and teleticino) and multiple websites (such as academic-future.com, or wn.com).

Meanwhile, the MOOC's materials were being reused by other universities including Universite Sorbonne (univ-paris1.fr), CETT-UB Campus de Turisme, Hoteleria i Gastronomia (www.cett.es), University of Barcelona (www.ub.edu), and National Research University Higher School of Economics (https://www.hse.ru/en/).

Marketing. Because of the MOOC, the exposure and reputation of the university and its relevant tourism related programs got enhanced. One direct impact was that enrolled participants moved from online classroom to face-to-face classroom at campus. According to the admission office of USI, at least two new admissions were directly generated from the eTourism MOOC as indicated by the required survey.

Discussions

The Kirkpatrick model's four-level evaluation criteria provided a systematic and effective way to assess the performance of this MOOC as an online training program. Firstly, learners' reactions were dominantly positive regarding motivation before the course, satisfaction after the course, and relevance of the course. Secondly, during the course, it was discovered that the participants' performance dropped along with the progress. A lot of them ceased the course, based on the statistics of the video views and post numbers.

However, most of them still held positive attitude to their learning achieved through the MOOC considering the fact that they highly rated their performance in aspects of collaborative learning, higher-order learning, reflective and integrative learning, and skills development. Thirdly, the MOOC opened a new gate to the education for the masses and they confirmed with their own post-course practices that this opportunity encouraged them to carry on with more similar learning experiments online, apply acquired knowledge and skills into daily job and earn new chances at work, and obtain a refreshing view of the global economy by breaking through the local or regional perspectives. Lastly, this MOOC not only helped different individuals enjoy the course and get better in learning or behaviours, but also fed back the three drivers of the provider, *Università della Svizzera italiana*, by serving people from developing countries and at-job workers to develop new skills and update knowledge, created new channels of communications through public promotions in different media sources, and admitted new students to the at-campus academic programs. Overall, *eTourism: Communication Perspectives*, as a pilot MOOC, was considered a success according to the four layers from Kirkpatrick model with twelve indicators assigned in this study.

Besides the evaluation results, two more results about MOOC learners are worth of attention. Based on the fact that over half of learners were non-students and one major purpose for taking the MOOC was connected to professional life and academic life, it was clear that besides fulfilling curiosity, MOOCs also became a tool for adults to seek further education or on-job trainings. With such a precise learning purpose, however, learners displayed an excessive amount of optimism in their learning efficiency on this MOOC. As discovered, the majority of learners set the original goal as finishing the course, but the completion rate of this MOOC actually only reached 7.1%. One important factor underestimated by these learners obviously was the time per se. It seemed that most learners scheduled only 1 to 5 hours for a course of expected 16 to 24 hours' time commitment. On one hand, it revealed the short tolerance of online learners to the length of the MOOC. On the other hand, it hoisted an alert for MOOC designers that when developing a MOOC, the time commitment should be set carefully in order to provide a more practical learning experience for online learners.

Another interesting finding was that learners were more willing to participate in internal activities mainly discussion-based ones in forums, rather than external activities posted on other social media channels such as Facebook or Twitter. Hereby the border between internal and external activities is set by the criteria of inside or outside the host platform. This finding aligned with the results from previous studies (Alario-Hoyos et al., 2014). The drawbacks of the absence of social networking communities related to a MOOC is that the learners from different periods of attendance cannot communicate with each other, and when the MOOC is over there will be no further communication among the participants even if they are from the same period. The advantage of having all

communications within the platform is that it can reduce the information overload for both teachers and learners (Lin et al., 2016).

The limitations of this study are threefold. The indicators assigned to the Kirkpatrick model is self-developed and experimental. Another one is that the relationship among different indicators remained unknown in this study. Thirdly, this study provided a brief evaluation of the whole MOOC, not only as a course but also as a project within the institution; however, there were much more details to explore considering the large amount of available data.

Conclusions

Kirkpatrick model is a widely used model for training evaluation. This paper presented the methodology to assess the performance of a Swiss tourism MOOC, *eTourism: Communication Perspectives,* by adopting the Kirkpatrick model. A total of twelve indicators were proposed under the four levels of the original model. Multiple sources of data were used to measure the indicators. The eTourism MOOC was evaluated to be successful, with high number of motivated and satisfied learners, who claimed to have achieved effective learning through the MOOC. The follow-up interviews also revealed positive influence of the MOOC on job-related practices, personal value and learning behaviour changes. The supplier, *Università della Svizzera italiana*, benefited from the production of this MOOC in respect of corporate social responsibility, public relations, and marketing.

One future research direction can be to in-depth investigate the different surveys inside this MOOC, in particular the engagement survey, to understand better about the potential relationships among indicators that have been omitted by this study. Another suggestion is to validate the current indicators and explore more indicators to support the approach of using Kirkpatrick model to conduct MOOC evaluation, and when possible to validate the proposed framework of indicators.

CHAPTER 5.
CONCLUSIONS

Chapter 5. Conclusions

5.1 Conclusions and Implications

This thesis, constructed by six studies, aimed to explore instructors' experiences of teaching MOOCs, specifically in the under-researched field of tourism and hospitality. Furthermore, in the case of the pilot MOOC, *eTourism: Communication Perspectives*, produced by Università della Svizzera italiana (USI), this thesis has presented in detail the implementation process of the MOOC.

As a piece of research closely conducted with a project, this thesis adopted the mixed methods approach to combine both qualitative and quantitative data generated over the two-year period of the project. This approach was suitable for tackling the three research questions, which guided the whole research process. The conclusions of each research question are addressed below.

RQ1. What are the development statuses, commonalities, and differences among the offerings of tourism and hospitality MOOCs?

To examine the status quo of tourism and hospitality MOOCs' development, Study 1 adopted a qualitative research approach, using a multiple case studies methodology. To identify the research cases, four sources were used to search for and include offerings produced before 2015. Both online websites and instructors' feedback were used to enrich the course profile data of the selected 18 tourism and hospitality MOOCs in the market.

MOOCs in tourism and hospitality started in 2013 and remained limited in number and skewed in their distribution of course topics and providers. They were of beginner education levels, including common learning objects such as videos, quizzes, and forum discussions. Although there were differences in video presentation styles, course topics, video numbers, social interaction rates, and multilingual support, these 18 MOOCs were more or less produced by each involved university independently, barely engaging with other external instructors in other universities or relevant industries. The lack of diversity in assessments, collaboration types, and evaluation methods also displayed the way in which the current offerings were experimental and explorative for the providers.

The process of searching for tourism and hospitality MOOCs and the procedure used to compare these offerings in this study suggest methods for future researchers who are interested in investigating this topic further.

The scientific contribution of this study was its development of a framework that can be used to review MOOCs (Figure 17), using six categories of components including 26 aspects. The framework proposed a structure through which to review the course design of a MOOC, which is not limited to the subject of tourism and hospitality but can also be applied in other disciplines for similar research purposes.

RQ2. How did pioneer instructors implement MOOC innovation in tourism and hospitality?

While Study 1 in this thesis investigated the offerings of tourism and hospitality MOOCs and the objects within each MOOC, Study 2 focused on understanding the personal element behind such offerings: the instructors. Semi-structured interviews were conducted in 2016 with six instructors from six different tourism and hospitality MOOCs. The average one-hour conversations with each instructor uncovered insights into their motivations for teaching MOOCs, the process of implementing MOOCs, and their willingness to continue such offerings.

The main reason why the instructors taught MOOCs was the institutional interest, followed by the desire to try new technology and to share knowledge and subject matter expertise. Instructors explained that their main reason for teaching a MOOC was the pressure or assignment from the senior management of the universities at which they worked. Only very few instructors were teaching MOOCs simply out of their own interest. The participation of instructors in MOOCs was proven to be institution-led, with a top-down approach in the market.

Guided by the Innovation Decision Process model, this study used interviews to summarise an implementation process for offering a MOOC, which included six stages and one cross-phase element: preparation, design, development, launch, delivery, evaluation, and support and training (Figure 23). The whole procedure of implementing a MOOC was proven to be time-consuming and challenging for instructors. Although different tasks were identified in the interviews, some common aspects emerged across different stories told by instructors. The scientific contribution of this study was two-fold. On one hand, it extracted the behaviours of instructors when implementing MOOCs and can be used by future MOOC instructors when planning their MOOC experiences in advance. On the other hand, it applied the Innovation Decision Process model in the MOOC context and elaborated on the implementation experiences of MOOC instructors after they decided to adopt MOOCs as a new innovation.

The intention to continue offering MOOCs among instructors was not positive overall, due to time commitments, lack of rewards and support, and overwhelming workloads. It raised the problem of dropouts by instructors who offered MOOCs; new MOOC suppliers should be aware of this discontinuity and arrange action plans corresponding to different dropout scenarios.

RQ3. How did a MOOC provider implement a MOOC in the case of eTourism: Communication Perspectives MOOC?

The implementation process of MOOCs (Figure 23), developed in Study 2, informs the process of producing the first MOOC at USI, *eTourism: Communication Perspectives*,

which was in detailed in Study 3. As one of the pioneer MOOCs in tourism and hospitality, *eTourism: Communication Perspectives* provided a valuable case for the author to actively participate in the implementation process as a project manager from the beginning to the end of the production of the MOOC. The single case generated rich data, both qualitative and quantitative, which were reported in Studies 3, 4, 5, and 6 (mainly covered in Chapter 5). While Study 3 demonstrated the implementation process of the eTourism MOOC, which included preparation, design, development, launch, delivery, and evaluation, the other three studies constitute follow-up research along the whole six-phase process.

Study 4 reported the experiences of USI in comparing and selecting a suitable MOOC platform for hosting the pilot MOOC, which occurred in the preparation phase. A total of 17 platforms were included for the analysis and a self-developed review including general attributes, course attributes, technology attributes, and business attributes was used to compare the platforms and help make the final decision. The iversity platform was eventually chosen as the host platform for the eTourism MOOC.

Study 5 analysed learner engagement via an online survey active during the delivery process of the MOOC. Responding to the criticism of a high dropout rate in MOOCs, this study adapted the *UKES MOOC Engagement Research* survey and launched it in the eTourism MOOC when it first ran online in 2015. The demographic analysis of the participants showed that more female participants and younger learners were active in the MOOC. The audience also showed high levels of educational backgrounds, with many participants holding a degree or higher educational certificate. Many participants were also working full-time or part-time when taking the MOOC. They started learning with this MOOC because it is free, interesting, and useful as a tool with which to update skills. Most participants had not previously taken any other MOOCs in similar subjects. Concerning learner engagement, the eTourism MOOC's learners found the course quite challenging, but they were able to achieve higher order learning to develop new skills, reflect on and integrate other learning, and obtain useful course resources. However, they reported relatively low engagement levels when it came to academic integration and collaborative learning.

Study 6 was conducted during the final stage of the implementation of the MOOC, when the instructors were evaluating the whole project's performance. The study contributed to the existing literature by applying the Kirkpatrick model in the context of MOOC evaluation and by proposing an evaluation methodology. This methodology was then applied to the eTourism MOOC, which reported the whole project to be a success based on the four levels of reaction, learning, behaviour, and results.

5.2 Limitations

In detail, three types of limitations in this thesis have been explained below: methodological limitations, results limitations, and technical limitations.

Methodological limitations. The mixed methods research design provided flexibility in interpreting both quantitative and qualitative data from multiple sources. However, during the research process, more qualitative studies were conducted, due to the following reasons: (1) This is explorative research and the involved research subjects were limited in number, which restricted the size of the sample available to be studied; (2) using the qualitative research methods to study MOOCs was rare in the literature; (3) the author prefers the qualitative approach over the quantitative approach; (4) the author was working as a direct participant in the MOOC's production team, which provided a valuable case as a research sample.

The qualitative research uncovered interesting results, but the possibility of generalising these results is questionable, due to the limited size of the sample involved. For example, in Study 2, there were six interviewed instructors, which could be considered as too small of a sample pool. However, as previously addressed, these six instructors accounted for one fifth of all instructors and represented 67% of all HEIs that offered a T&H MOOC in the analysed timeframe. The language limitations of the author also restricted the possibility of including non-English MOOCs as research samples, of which there were four accounted for that could have increased the number of hospitality and tourism MOOCs from 51 to 55.

Another limitation of this research was the triangulation rule applied when collecting data. For example, in Study 1, the review of the 18 MOOCs was based on the data that remained public to the enrolled learners on the MOOC platforms. Some data was confirmed by consulting the instructors. However, not every MOOC's instructor responded. Hence, the triangulation rule, which was suggested by Yin (1994) and involves using three different sources to collect data, could not be followed in all cases.

As an independent PhD researcher, it was often the case that the author was the only coder involved when collecting and coding data. Barbour (2001) argues that the benefits of multiple coders rest in the contents of coding disagreements and the insights that discussions can provide in regard to refining coding frames. With only one coder, the qualitative analysis could be considered to be subjective, biased, and sometimes even possibly incorrect due to the existing skills, attitude, and knowledge of the coder.

Results limitations. Despite the thesis title and the research intention being related to tourism and hospitality MOOCs, the results of the analysis mainly remained on the general MOOC level, without a detailed discussion of the subject matter and pedagogy design of tourism and hospitality education in the context of MOOCs.

There were three reasons behind this limitation. First, the educational and working background of the author is related to eLearning studies, without specific focus on instructional design or tourism and hospitality education prior to the author's doctoral level of study. Second, as an explorative study, the results show the present experimental development status of the tourism and hospitality MOOCs. In the interviews, most instructors did not seem to think that teaching a tourism or hospitality MOOC is any different from teaching other subjects. Third, the MOOC as an educational movement was confirmed in this study to follow a top-down approach when spreading through higher education institutions around the world. Instead of evaluating the teaching quality or teaching instructors in regard to how to teach the subject of tourism and hospitality, the purpose of this study was to inform the audience, mainly HEIs and their instructors, about the existing perspectives and experiences of pioneering providers who have offered tourism and hospitality MOOCs so far.

When presenting the eTourism MOOC's implementation experience, not all phases generated research outputs. In this thesis, only three phases were reported with detailed research reports: the preparation, delivery, and evaluation. It could be argued that, in Study 5, the sample of participants was biased because they participated in the online survey and this fact could possibly already suggest their active participation in the MOOC in the first place. This doubt cannot be disproven unless the log files of learners can be accessed and analysed in pair with the survey's result. As previously addressed, however, the learning analytics provided by the iversity platform did not enable us to track or recall individual learners' behaviour during the course.

Technical limitations. The iversity platform, which hosted the eTourism MOOC for USI, did not provide usable and accurate learning analytics with which to analyse the learners' in-course behaviours. Due to its financial crisis in 2016, a scheduled visit to Berlin to negotiate data sharing for the purposes of this research was eventually cancelled by iversity. These incidents altogether partially forced the author to shift from studying learner experiences to instructor experiences, which eventually proved to be very fruitful.

5.3 Future Research

Increase the samples. The cases covered in this study were collected from 2008 to 2015. The number of tourism and hospitality MOOCs were witnessed to grow every year. For instance, in 2017, Hong Kong Polytechnic University launched a series of MOOCs in tourism and hospitality on edX within its well-known MicroMaster programme. Future work could increase the number of sample studies and expand the analysis of them to include newly produced tourism and hospitality MOOCs.

Apply the developed frameworks. Other scholars could modify or apply the formulated frameworks in this thesis to study similar research problems. For example, the

Framework to Review MOOCs and the Review Schema to Compare MOOC Platforms could contribute to these studies with the aim of exploring the overall design or functions of MOOCs and their host platforms. The Implementation Process of Producing MOOCs can guide other practitioners in producing their own MOOCs.

Future work could also try to modify or expand the parameter coverage of the developed frameworks, to improve the research design.

Add more sharing of experiences. Very few practitioners of MOOCs in tourism and hospitality shared their detailed practices through publication. Current and future practitioners are encouraged to enhance communication among themselves through published reports or research, in order to share useful experiences and improve future offerings.

References

Admiraal, W., Huisman, B., & Pilli, O. (2015). Assessment in Massive Open Online Courses. *Electronic Journal of E-Learning*, *13*(4, SI), 207–216. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84928682146&partnerID=40&md5=c59694fcf9cfcca64438dfa4322224b1.

Agarwal, A. (2013). Online universities: It's time for teachers to join the revolution. Retrieved from http://www.theguardian.com/education/2013/jun/15/university-education-online-mooc.

Ahlfeldt, S., Mehta, S., & Sellnow, T. (2005). Measurement and Analysis of Student Engagement in University Classes Where Varying Levels of PBL Methods of Instruction Are in Use. *Higher Education Research & Development*, *24*(1), 5–20.

Ahn, J., Butler, B. S., Alam, A., & Webster, S. A. (2013). Learner participation and engagement in open online courses: Insights from the Peer 2 Peer University. *Journal of Online Learning and Teaching*, *9*(2), 160.

Alario-Hoyos, C., Muñoz-Merino, P. J., Pérez-Sanagustín, M., Delgado Kloos, C., & Parada, G. (2016). Who are the top contributors in a MOOC? Relating participants' performance and contributions. *Journal of Computer Assisted Learning*, *32*(3), 232–243. DOI 10.1111/jcal.12127.

Alario-Hoyos, C., Pérez-Sanagustín, M., Delgado-Kloos, C., & Munoz-Organero, M. (2014). Delving into participants' profiles and use of social tools in MOOCs. *IEEE Transactions on Learning Technologies*, *3*(7), 260–266.

Alario-Hoyos C., Pérez-Sanagustín M., Delgado-Kloos C., Parada G. H.A., Muñoz-Organero M., Rodríguez-de-las-Heras A. (2013) Analysing the Impact of Built-In and External Social Tools in a MOOC on Educational Technologies. In Hernández-Leo D., Ley T., Klamma R., Harrer A. (eds) Scaling up Learning for Sustained Impact. EC-TEL 2013. Lecture Notes in Computer Science, vol. 8095 (pp. 5–18). Springer, Berlin, Heidelberg. DOI 10.1007/978-3-642-40814-4_2.

Alario-Hoyos, C., Pérez-Sanagustín, M., Cormier, D., & Delgado Kloos, C. (2014). Proposal for a conceptual framework for educators to describe and design MOOCs. *Journal of Universal Computer Science*, *20* (1), 6–23. DOI 10.3217/jucs-020-01-0006.

Alevizou, G. (2015). From OER to MOOCs: Critical perspectives on the historical mediation trajectories of open education. *International Journal of Media & Cultural Politics*, *11*(2), 203–224. DOI 10.1386/macp.11.2.203.

References

Anders, A. (2015). Theories and applications of massive online open courses (MOOCs): The case for hybrid design. *The International Review of Research in Open and Distributed Learning*, *16*(6). DOI 10.19173/irrodl.v16i6.2185.

Anderson, T. (2013). Promise and/or peril: MOOCs and open and distance education. Commonwealth of Learning. Retrieved from http://bit.ly/2ftr8a7.

Andersen, R., & Ponti, M. (2014). Participatory pedagogy in an open educational course: challenges and opportunities. *Distance education*, *35*(2), 234-249.

Annabi, C. A., & Muller, M. (2016). Learning from the Adoption of MOOCs in Two International Branch Campuses in the UAE. *Journal of Studies in International Education*, *20*(3), 260–281.

Annabi, C. A., & Wilkins, S. (2016). The use of MOOCs in transnational higher education for accreditation of prior learning, programme delivery, and professional development. *International Journal of Educational Management*, *30*(6), 959–975. DOI 10.1108/09564230910978511.

Annaraud, K., & Singh, D. (2017). Perceptions of hospitality faculty and students of massive open online courses (MOOCs). *Journal of Hospitality & Tourism Education*, *29*(2), 82–90. DOI 10.1080/10963758.2017.1297714.

Anzai, Y., Mizoguchi, K., Yin, C., Inada, T., Tashiro, T., & Fujimura, N. (2015). Developing a MOOC at Kyushu University in Japan. In D. Slykhuis & G. Marks (eds) Proceedings of Society for Information Technology & Teacher Education International Conference 2015 (pp. 144–147). Las Vegas, NV, United States: AACE. Retrieved from http://goo.gl/0VZVtM.

Aparicio, M., & Bacao, F. (2013, July). E-learning concept trends. In *The Proceedings of the 2013 International Conference on Information Systems and Design of Communication* (pp. 81–86). ACM. Retrieved from http://bit.ly/2fthTqg.

Armellini, A., & Rodriguez, B. C. P. (2016). Are Massive Open Online Courses (MOOCs) pedagogically innovative? *Journal of Interactive Online Learning*, *14*(1), 17–28.

Arnold, P. (2012, November). Open educational resources: The way to go, or "Mission Impossible" in (German) higher education. Retrieved from http://bit.ly/2ftnhd1.

Ashton, S., & Davies, R. S. (2015). Using scaffolded rubrics to improve peer assessment in a MOOC writing course. *Distance Education*, *36*(3), 312–334. DOI 10.1080/01587919.2015.1081733.

Atenas, J. (2015). Model for democratisation of the contents hosted in MOOCs. *Rusc-Universities and Knowledge Society Journal*, *12*(1), 3–13. DOI 10.7238/rusc.v12i1.2031.

References

Atiaja, L. N. A., & Proenza, R. S. G. (2016). The MOOCs: origin, characterization, principal problems and challenges in Higher Education. *Journal of e-Learning and Knowledge Society*, *12*(1).

Ayala, C., Dick, G., & Treadway, J. (2014). The MOOCs are coming! Revolution or fad in the business school? *Communications of the Association for Information Systems*, *35*, 225–243. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84921733991&partnerID=40&md5=c0f69ef8d4b7049654ae6d04d015587c.

Bandara, W., Miskon, S., & Fielt, E. (2011). A Systematic, Tool-supported Method for Conducting Literature Reviews in Information Systems. Paper presented at the Proceedings of the19th European Conference on Information Systems (ECIS 2011).

Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: A case of the tail wagging the dog? *British Medical Journal*, *322*(1), 115–117

Baggaley, J. (2013). MOOC rampant. *Distance Education*, *34*(3), 368–378.

Bates, R. (2004). A critical analysis of evaluation practice: The Kirkpatrick model and the principle of beneficence. *Evaluation and program planning*, *27*(3), 341–347.

Bates, T. (2012). What's right and what's wrong about Coursera-style MOOCs. Retrieved from http://bit.ly/2ftljJO.

Belanger, Y., & Thornton, J. (2013). Bioelectricity: A quantitative approach Duke University's first MOOC. Retrieved from http://bit.ly/2s92Iq2.

Bell, F. (2011). Connectivism: Its Place in Theory-Informed Research and Innovation in Technology-Enabled Learning. *The International Review of Research in Open and Distributed Learning*, *12*(3), 98–118. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/902/1664.

Belleflamme, P., & Jacqmin, J. (2016). An economic appraisal of MOOC platforms: business models and impacts on higher education. *CESifo Economic Studies*, *62*(1), 148–169.

Benckendorff, P., Lohmann, G., Pratt, M. A., Whitelaw, P. A., Strickland, P., & Reynolds, P. (2015). Creating educator resources for online simulation-based pedagogies in tourism and hospitality. In Wilson, E. & Witsel, M. (eds). CAUTHE 2015: Rising Tides and Sea Changes: Adaptation and Innovation in Tourism and Hospitality (pp. 67-78). Gold Coast, QLD: School of Business and Tourism, Southern Cross University, 2015. ISBN: 9780987050762.

Bento, L. D. M. S. (2014). What are the key success factors of MOOC platforms? (Master's thesis, Católica Lisbon School of Business and Economics, Portugal). Retrieved from http://bit.ly/2ftq5XO.

References

Boisevert, L. (2000). Web-based learning, the anytime, anywhere classroom. *Information Systems Management*, *17* (1), 35–40.

Botturi, L., Cantoni, L., Lepori, B., & Tardini, S. (2006). Fast prototyping as a communication catalyst for e-learning design. *Making the transition to e-learning: Strategies and issues*, 266–283.

Bozkurt, A., Keskin, N. O., & De Waard, I. (2016). Research Trends in Massive Open Online Course (MOOC) Theses and Dissertations: Surfing the Tsunami Wave. *Open Praxis*, *8*(3), 203–221.

Bradley, K., & Connors, E. (2007). Training Evaluation Model: Evaluating and Improving Criminal Justice Training. Retrieved from http://bit.ly/2dkiU4j.

Brailas, A., Avani, S. M., Gkini, C., Deilogkou, M. A., Koskinas, K., & Alexias, G. (2017). Experiential Learning in Action: A Collaborative Inquiry. *The Qualitative Report*, *22*(1), 271.

Breakwell, N., & Cassidy, D. (2013). Surviving the Avalanche: Improving Retention in MOOCs. Paper presented at the 6th International Conference of MIT's Learning International Networks Consortium (LINC), Cambridge, MA.

Brinton, C. G., Buccapatnam, S., Chiang, M., & Poor, H. V. (2016). Mining MOOC Clickstreams: Video-Watching Behavior vs. In-Video Quiz Performance. *IEEE Transactions on Signal Processing*, *64*(14), 3677–3692. https://doi.org/10.1109/TSP.2016.2546228

Brownell, J. E., & Swaner, L. E. (2010). Five high-impact practices: Research on learning outcomes, completion and quality. Association of American Colleges and Universities. DOI 10.1111/teth.12035

Bujak, K. R., Baker, P. M., DeMillo, R., & Sandulli, F. D. (2012). The evolving university: Beyond disruptive change and institutional innovation. Retrieved from http://bit.ly/2ftoaCn.

Bulger, M., Bright, J., & Cobo, C. (2015). The real component of virtual learning: motivations for face-to-face MOOC meetings in developing and industrialised countries. *Information Communication and Society*, *18*(10), 1200–1216. DOI 10.1080/1369118X.2015.1061571

Busby, G. & Fiedel, D. (2001). A Contemporary Review of Tourism Degrees in the United Kingdom. *Journal of Vocational Education and Training*, *Vol. 53*(4), 501–521.

Butler, B. (2012). Massive open online courses: Legal and policy issues for research libraries. Retrieved from http://bit.ly/2fttcip.

References

Cabiria, J. (2012). Connectivist learning environments: Massive open online courses. In The Proceedings of 2012 World Congress in Computer Science Computer Engineering and Applied Computing (pp. 16-19). Las Vagas, July 16-19, 2012. Retrieved from http://bit.ly/2ftrGNk.

Calonge, D. S., & Shah, M. A. (2016). MOOCs, Graduate Skills Gaps, and Employability: A Qualitative Systematic Review of the Literature. *The International Review of Research in Open and Distributed Learning*, *17*(5), 67–90. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2675/3881

Cantoni, L., Kalbaska, N., & Inversini, A. (2009). E-learning in tourism and hospitality: A map. *Journal of Hospitality, Leisure, Sports and Tourism Education (Pre-2012)*, *8*(2), 148.

Carenzio, A., Triacca, S., & Rivoltella, P. C. (2014). Education technologies and teacher's professional development. The project Motus (Monitoring Tablet Utilization in School) run by Cremit. *Rem–Research on Education and Media*, *6*(1), 25-38.

Carver, L., & Harrison, L. M. (2013). MOOCs and democratic education. *Liberal Education*, *99*(4), 20–25.

Cerf, V. G. (2013). Running AMOOC. *IEEE Internet Computing*, *17*(3), 88. DOI 10.1109/MIC.2013.53

Chen, P. S. D., Gonyea, R., & Kuh, G. (2008). Learning at a Distance: Engaged or Not?. *Innovate: Journal of Online Education*, *4*(3), 3.

Chen, S.-C., Yang, S. J. H., & Hsiao, C.-C. (2016). Exploring student perceptions, learning outcome and gender differences in a flipped mathematics course. *British Journal of Educational Technology*, *47*(6), 1096–1112. DOI 10.1111/bjet.12278.

Chew, L. K. (2015). Instructional strategies and challenges in MOOCs. *Advances in the Scholarship of Teaching and Learning*, *2*(1), 41–50.

China.org.cn (2007) Most People Think Tuition Fees 'Too Expensive'. Retrieved from http://www.china.org.cn/english/education/196185.htm.

Chunwijitra, S., Junlouchai, C., Laokok, S., Tummarattananont, P., Krairaksa, K., & Wutiwiwatchai, C. (2016). An Interoperability Framework of Open Educational Resources and Massive Open Online Courses for Sustainable e-Learning Platform. *IEICE TRANSACTIONS on Information and Systems*, *99*(8), 2140–2150.

Cirulli, F., Elia, G., Lorenzo, G., Margherita, A., & Solazzo, G. (2016). The use of MOOCs to support personalized learning: An application in the technology entrepreneurship field. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, *8*(1), 109–123.

Cisel, M. (2014). Analyzing completion rates in the First French xMOOC. In U. Cress & C. D. Kloos (Eds.), Proceedings of the European MOOC Stakeholder Summit (pp. 26–32).

Class Central. (2015). By the Numbers: MOOCS in 2015. Retrieved from http://bit.ly/2e1XmIF.

Clow, D. (2013, April). MOOCs and the funnel of participation. In The Proceedings of the Third International Conference on Learning Analytics and Knowledge (pp. 185–189). Leuven, Belgium. ACM. Retrieved from http://bit.ly/2ftrTQC.

Coughlan, S. (2016) Tuition fees: Is England more expensive than US?. Retrieved from http://www.bbc.com/news/business-35745324.

Comeau, J. D., & Cheng, T. L. (2013). Digital "tsunami" in higher education: Democratisation Movement towards Open and Free Education. *Turkish Online Journal of Distance Education*, *14*(3), 198–224.

Comer, D., Baker, R., & Wang, Y. (2015). Negativity in Massive Online Open Courses: Impacts on Learning and Teaching and How Instructional Teams May Be Able to Address It. *InSight: A Journal of Scholarly Teaching*, *10*, 92–113. Retrieved from http://bit.ly/2kFIRwJ.

Conole, G. G. (2014). A new classification schema for MOOCs. *The International Journal for Innovation and Quality in Learning*, *2*(3), 65–77.

Cook, D. A., & Triola, M. M. (2014). What is the role of e-learning? Looking past the hype. *Medical Education*, *48*(9), 930–937. DOI 10.1111/medu.12484.

Cook, M. (2016). State of the MOOC 2016: A year of massive landscape change for massive open online courses. Retrieved from http://bit.ly/2qZbn1i.

Corbi, A., & Burgos, D. (2015). Semi-Automated Correction Tools for Mathematics-Based Exercises in MOOC Environments. *IJIMAI*, *3*(3), 89–95.

Cordero, A., Jordan, C., Sanabria-Codesal, E., & Torregrosa, J. R. (2015). Towards a better learning models through OCWs and MOOCs. *International Journal of Interactive Multimedia and Artificial Intelligence*, *3*(4, SI), 26–30. DOI 10.9781/ijimai.2015.345.

Corke, P., Greener, E., & Philip, R. (2016). An innovative educational change: Massive open online courses in robotics and robotic vision. *IEEE Robotics & Automation Magazine*, *23*(2), 81–89. DOI 10.1109/MRA.2016.2548779.

Cormier, D. (2011). What is a MOOC?. Retrieved from https://www.youtube.com/watch?v=eW3gMGqcZQc.

References

Creelman, A., Ehlers, U., & Ossiannilsson, E. (2014). Perspectives on MOOC quality-An account of the EFQUEL MOOC Quality Project. *INNOQUAL-International Journal for Innovation and Quality in Learning*, *2*(3), 78–87.

Creswell, J. W. (2012). Qualitative inquiry and research design: Choosing among five approaches. Sage Publications.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.

Cross, S. (2013). Evaluation of the OLDS MOOC curriculum design course: participant perspectives, expectations and experiences. Retrieved from http://bit.ly/2eiihJL.

Daniel, J. (2012). Making sense of MOOCs: Musings in a maze of myth, paradox and possibility. *Journal of interactive Media in education*, *2012*(3).

Daniel, S. J., Vázquez Cano, E., & Gisbert, M. (2015). The Future of MOOCs: Adaptive Learning or Business Model? RUSC. *Universities and Knowledge Society Journal*, *12*(1), 64. DOI 10.7238/rusc.v12i1.2475.

Daradoumis, T., Bassi, R., Xhafa, F., & Caballé, S. (2013, October). A review on massive e-learning (MOOC) design, delivery and assessment. In The Proceedings of 2013 Eighth International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC) (pp. 208–213). IEEE. Retrieved from http://bit.ly/2fttsxV.

De Barba, P. G., Kennedy, G. E., & Ainley, M. D. (2016). The role of students' motivation and participation in predicting performance in a MOOC. *Journal of Computer Assisted Learning*, *32*(3), 218–231.DOI 10.1111/jcal.12130.

De Waard, I. (2015). MOOC factors influencing teachers in formal education. *Revista Mexicana de Bachillerato a distancia*, *7*(13), 1–8.

De Waard, I., Gallagher, M. S., Zelezny-Green, R., Czerniewicz, L., Downes, S., Kukulska-Hulme, A., & Willems, J. (2014). Challenges for conceptualising EU MOOC for vulnerable learner groups. In The Proceedings of the European MOOC Stakeholder Summit 2014 (pp. 33–42). Retrieved from http://bit.ly/2ftsW2C.

Deale, C. S. (2014). Exploring how MOOCs might be effectively used in hospitality and tourism education. In 32nd EuroCHRIE conference: Hospitality and Tourism Futures, Dubai 6–9 October 2014. EuroCHRIE.

Deale, C. S. (2015). An exploratory study of hospitality and tourism educators' use and perceptions of MOOCs. *Journal of Teaching in Travel & Tourism*, *15*(2), 150–165. DOI 10.1080/15313220.2015.1026470.

Deimann, M., & Vogt, S. (2015). Towards a European Perspective on Massive Open Online Courses: The Past, the Present and the Future. *The International Review of Research in Open and Distributed Learning*, *16*(6).

DeRousie, J. C. (2014). An exploration of the diffusion and adoption of four innovations in higher education. (Doctoral dissertation). Pennsylvania State University.

Dijck, J. V., & Poell, T. (2015). Higher Education in a Networked World: European Responses to U.S. MOOCs. *International Journal of Communication*, *9*(1), 19.

Diwanji, P., Simon, B. P., Märki, M., Korkut, S., & Dornberger, R. (2015). Success Factors of Online Learning Videos. *International Journal of Interactive Mobile Technologies (iJIM)*, *9*(4), 17. DOI 10.3991/ijim.v9i4.4460.

Dodge, L., & Kendall, M. E. (2004). Learning communities. *College Teaching*, *52*(4), 150–155.

Dodson, N. M., Kitburi, K., & Berge, Z. L. (2015). Possibilities for MOOCs in corporate training and development. *Performance Improvement*, *54*(10), 14–21. DOI 10.1002/pfi.21532.

Doherty, I., Harbutt, D., & Sharma, N. (2015). Designing and developing a MOOC. *Medical Science Educator*, *25*(2), 177–181. DOI 10.1007/s40670-015-0123-9.

Don, N. F. S., Alias, R. A., & Ohshima, N. (2016). A Conceptual Business Model for MOOCs Sus-tainability in Higher Education. In the Proceedings of the European Stakeholder Summit on experiences and best practices in and around MOOCs (EMOOCS 2016) (p.173).

Don, N. F. S., Alias, R. A., & Ohshima, N. (2014). Nascent research trends in MOOCs in higher educational institutions: A systematic literature review. In *The Proceedings of 2014 International Conference on Web and Open Access to Learning (ICWOAL)* (pp. 1–4). IEEE.

Don, N. F. S., Alias, R. A., & Ohshima, N. (2015). Stakeholders' view on MOOCs sustainability in Malaysian higher education: A preliminary study. *ARPN Journal of Engineering and Applied Sciences*, *10*(23), 18104–18112. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84953410868&partnerID=40&md5=6356e142b2a0dd66aa7f6d377a078127.

Douglas, K. A., Mihalec-Adkins, B. P., Hicks, N. M., & Diefes-Dux, H. A. (2016). Learners in Advanced Nanotechnology MOOCs: Understanding their Intention and Motivation. Retrieved from http://bit.ly/2eoIIIm.

Downes, S. (2013a). What the 'x' in 'xMOOC' stands for. Retrieved from http://bit.ly/2fto6mg.

References

Downes, S. (2013b). The quality of massive open online courses. Retrieved from http://bit.ly/2eij9Ou.

Durksen, T. L., Chu, M. W., Ahmad, Z. F., Radil, A. I., & Daniels, L. M. (2016). Motivation in a MOOC: a probabilistic analysis of online learners' basic psychological needs. *Social Psychology of Education*, *19*(2), 241–260. DOI 10.1007/s11218-015-9331-9.

Ebben, M., & Murphy, J. S. (2014). Unpacking MOOC scholarly discourse: A review of nascent MOOC scholarship. *Learning, Media and Technology*, *39*(3), 328–345. DOI 10.1080/17439884.2013.878352.

Egerstedt, M. (2013). Controls for the masses [focus on education]. *IEEE Control Systems*, *33*(4), 40–44. DOI 10.1109/MCS.2013.2258762.

Epelboin, Y. (2013). MOOC in Europe. Retrieved from http://goo.gl/zVglJ6.

Erwen, Z., & Wenming, Z. (2017). Construction and application of MOOC-based college english micro lesson system. *International Journal of Emerging Technologies in Learning*, *12*(2), 155–165. DOI 10.3991/ijet. v12i02.6374.

Ettenger, K. (2009). Students as tourists and fledgling researchers: The value of ethnographic field courses for tourism education. *Journal of Teaching in Travel & Tourism*, *9*(3–4), 159–175.

Evans, H. K., & Cordova, V. (2015). Lecture videos in online courses: A follow-up. *Journal of Political Science Education*, *11*(4), 472–482. DOI 10.1080/15512169.2015.1069198.

Evans, S., & McIntyre, K. (2014). MOOCs in the humanities: Can they reach underprivileged students? *Convergence: The International Journal of Research into New Media Technologies*, *22*(3), 313–323. DOI 10.1177/1354856514560311.

Evans, S., & Myrick, J. G. (2015). How MOOC instructors view the pedagogy and purposes of massive open online courses. *Distance Education*, *36*(3), 295–311. DOI 10.1080/01587919.2015.1081736.

Fidalgo-Blanco, Á., Sein-Echaluce, M. L., & García-Peñalvo, F. J. (2016). From massive access to cooperation: Lessons learned and proven results of a hybrid xMOOC/cMOOC pedagogical approach to MOOCs. *International Journal of Educational Technology in Higher Education*, *13*(1), 1–13.

Fini, A. (2009). The technological dimension of a massive open online course: The case of the CCK08 course tools. *The International Review of Research in Open and Distance Learning*, *10*(5).

Firmin, R., Schiorring, E., Whitmer, J., Willett, T., Collins, E. D., & Sujitparapitaya, S. (2014). Case study: using MOOCs for conventional college coursework. *Distance Education*, *35*(2), 178–201. DOI 10.1080/01587919.2014.917707.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, *12*(2), 219–245.

Funieru, L. M., & Lazaroiu, F. (2016). Massive Open Online Courses (MOOCs): A Comparative Analysis of the Main Platforms. *Informatica Economica*, *20*(2), 35.

Gamage, D., Fernando, S., & Perera, I. (2015). Quality of MOOCs: A review of literature on effectiveness and quality aspects. *Education*, *121*, 2.

Gašević, D., Kovanović, V., Joksimović, S., & Siemens, G. (2014). Where is research on massive open online courses headed? A data analysis of the MOOC Research Initiative. *The International Review of Research in Open and Distributed Learning*, *15*(5). DOI 10.19173/irrodl.v15i5.1954.

Gaskell, A. (2016). MOOCs and Open Education around the world. Open Learning: The *Journal of Open, Distance and E-Learning*, *31*(3), 291–293. DOI 10.1080/02680513.2016.1227965.

Gulsecen, S. and Kubat, A., (2006). Teaching ICT to teacher candidates using PBL: A qualitative and quantitative evaluation. *Educational Technology & Society*, *9* (2): 96–106.

Gomez-Zermeno, M. G., & Aleman De La Garza, L. (2016). Research analysis on mooc course dropout and retention rates. *Turkish Online Journal of Distance Education*, *17*(2), 3–14. DOI: 10.17718/tojde.23429.

Grainger, B. (2013). Massive open online course (MOOC) report 2013. Retrieved from http://bit.ly/2fttANQ.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations. *Milbank Quarterly*, *82*: 581–629. DOI 10.1111/j.0887-378X.2004.00325.x.

Grimmelmann, J. (2014). Merchants of MOOCs. *Seton Hall Law Review*, *44*(4). Retrieved from http://bit.ly/2dZuRKL.

Hansch, A., McConachie, K., Schmidt, P., Hillers, L., Newman, C., & Schildhauer, T. (2015). The Role of Video in Online Learning: Findings from the Field and Critical Reflections. Retrieved from http://bit.ly/2rh6Nf8.

Hara, T., Moskal, P., Saarinen, C., & Instructure Sr, I. D. (2013). Preliminary analyses of a cutting-edge knowledge distribution method of MOOC (Massive, Open, Online Course) to teach tourism as an industry. Paper presented at the 3rd International

References

Conference: Measurement and Economic Analysis of Regional Tourism, in Medellin, Columbia, November 6–7, 2011.

Harper, S. R., & Quaye, S. J. (2009). Beyond Sameness, with Engagement and Outcomes for All. In Stephen, J.Q., Shaun, R.H. (eds.) Student Engagement in Higher Education. pp. 1-15. New York and London: Routledge.

Hayes, S. (2015). MOOCs and Quality: A review of the recent literature. Retrieved from http://bit.ly/2ftn4GK.

Hew, K. F. (2016). Promoting engagement in online courses: What strategies can we learn from three highly rated MOOCs. *British Journal of Educational Technology*, *47*(2), 320–341. DOI 10.1111/bjet.12235.

HEFCE. (1998). Review of Hospitality Management. London: HEFCE.

Hew, K. F., & Cheung, W. S. (2014). Students' and instructors' use of massive open online courses (MOOCs): Motivations and challenges. *Educational Research Review*, *12*, 45–58.

Hlinak, M. (2016). Flipping and MOOCing your class or how I learned to stop worrying and love the MOOC. *Journal of Legal Studies Education*, *33*(1), 23–35. DOI 10.1111/jlse.12033.

Hollands, F. M., & Tirthali, D. (2014a). MOOCs: Expectations and Reality. Full Report. New York: Teachers College, Columbia University.

Hollands, F. M., & Tirthali, D. (2014b). Resource requirements and costs of developing and delivering MOOCs. *The International Review of Research in Open and Distributed Learning*, *15*(5).

Hollands, F. M., & Tirthali, D. (2014c). Why do institutions offer MOOCs? *Online Learning*, *18*(3). DOI 10.1145/2556325.2566250

Hossain, M. S., Islam, M. S., Glinsky, J. V., Lowe, R., Lowe, T., & Harvey, L. A. (2015). A massive open online course (MOOC) can be used to teach physiotherapy students about spinal cord injuries: a randomised trial. *Journal of physiotherapy*, *61*(1), 21–27.

Huang, R. H., Li, B. Y., & Zhou, L. H. (2016). Information literacy instruction in Chinese universities: MOOCs versus the traditional approach. *Library Hi Tech*, *34*(2), 286–300. DOI 10.1108/lht-02-2016-0013.

Iiyoshi, T., & Kumar, M. V. (2008). Opening up education: The collective advancement of education through open technology, Open Content, and open knowledge. Cambridge, MA: MIT Press.

Impey, C. D., Wenger, M. C., & Austin, C. L. (2015). Astronomy for Astronomical Numbers: A Worldwide Massive Open Online Class. *The International Review of Research in Open and Distributed Learning*, *16*(1), 57–79.

Ingolfsdottir, K. (2014). Impact of MOOCs and other forms of online education [point of view]. *Proceedings of the IEEE*, 102(11), 1639–1643.

Iniesto, F., Rodrigo, C., & Teixeira, A. (2014). Accessibility analysis in MOOC platforms. A case study: UNED COMA and UAb iMOOC. In The Proceedings of V International Conference on Quality and Accessibility in eLearning 2014 (pp. 545–550). Antigua Guatemala, Guatemala. Retrieved from http://goo.gl/PC4vfT.

Inui, Y., Wheeler, D., & Lankford, S. (2006). Rethinking tourism education: What should schools teach. *Journal of Hospitality, Leisure, Sport and Tourism Education*, *5*(2), 25–35.

Jansen, D., & Schuwer, R. (2015). Institutional MOOC strategies in Europe: Status report based on a mapping survey conducted in October–December 2014. Retrieved from http://goo.gl/OWgSXq.

Jansen, D., Schuwer, R., Teixeira, A., & Aydin, C. H. (2015). Comparing MOOC Adoption Strategies in Europe: Results from the HOME Project Survey. *The International Review of Research in Open and Distributed Learning*, *16*(6), 116–136.

Jao, J.-C. (2016). Implementation and reflection of a MOOC. *World Transactions on Engineering and Technology Education*, *14*(4), 451–456.

Jennings, J. M., & Angelo, T. (2006). Student Engagement: Measuring and Enhancing Engagement with Learning. In: Proceedings of a symposium, New Zealand Universities Academic Audit Unit.

Johnston, T. C. (2015). Lessons from MOOCS: Video lectures and peer assessment. *Academy of Educational Leadership Journal*, *19*(2), 91.

Johansson, S., & Frolov, I. (2014). An Adaptable Usability Checklist for MOOCs: A usability evaluation instrument for Massive Open Online Courses (master's thesis). Umeå University, Umeå, Sweden. Retrieved from http://goo.gl/sgx4I7.

John, D. S. (2014). Foreword to the Special Section on Massive Open Online Courses: MOOCs – Evolution or Revolution? *MERLOT Journal of Online Learning and Teaching*, *10*(1). Retrieved from http://jolt.merlot.org/vol10no1/daniel_foreword_0314.pdf.

Johnston, T. C. (2015). Lessons from MOOCs: video lectures and peer assessment. *Academy of Educational Leadership Journal*, *19*(2), 91–97.

References

Jones, M. L., & Regner, L. (2015). Users or students? Privacy in university MOOCS. *Science and engineering ethics*, 1–24.

Jordan, K. (2014). Initial trends in enrolment and completion of massive open online courses. *The International Review of Research in Open and Distributed Learning*, *15*(1).

Kalz, M., Kreijns, K., Walhout, J., Castaño-Munoz, J., Espasa, A., & Tovar, E. (2015). Setting-up a European cross-provider data collection on open online courses. *The International Review of Research in Open and Distributed Learning*, *16*(6).

Kaplan, A. M., & Haenlein, M. (2016). Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster. *Business Horizons*, *59*(4), 441–450. DOI 10.1016/j.bushor.2016.03.008.

Kassens-Noor, E. (2012). Twitter as a teaching practice to enhance active and informal learning in higher education: The case of sustainable tweets. *Active Learning in Higher Education*, *13*(1), 9–21. DOI 10.1177/1469787411429190.

Kelly, A. V. (1999). The Curriculum. Theory and practice 4e, London: Paul Chapman.

Kennedy, J. (2014). Characteristics of massive open online courses (MOOCS): A research review, 2009-2012. *Journal of Interactive Online Learning*, *13*(1), 1–16. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84901291025&partnerID=40&md5=f35ed7c10a037c58857c94e6a4969245.

Khalil, H., & Ebner, M. (2014). MOOCs Completion Rates and Possible Methods to Improve Retention-A Literature Review. In: *EdMedia: World Conference on Educational Media and Technology*, Vol. 2014, No. 1 (pp. 1305–1313).

Khalil, M., Brunner, H., & Ebner, M. (2015). Evaluation Grid for xMOOCs. *International Journal of Emerging Technologies in Learning (iJET)*, *10*(4).

Kiers, J. (2016). MOOCs and their Effect on the Institution: Experiences in Course Design, Delivery and Evaluation; Research; Faculty Development; Unbundling and Credits for MOOCs. *Foro de Educación*, *14*(21), 133–149.

Kim, P. (2014). Massive Open Online Courses: The MOOC Revolution. Routledge.

Kim, T. dong, Yang, M. young, Bae, J., Min, B. A., Lee, I., & Kim, J. (2017). Escape from infinite freedom: Effects of constraining user freedom on the prevention of dropout in an online learning context. *Computers in Human Behavior*, *66*, 217–231. DOI 10.1016/j.chb.2016.09.019.

Kirkpatrick, D. (1975). Evaluating training programs. Tata McGraw-Hill Education.

Kirkpatrick Partners. (2016). The Kirkpatrick Model. Retrieved from http://bit.ly/2edF4U8.

Klobas, J. E., Mackintosh, B., & Murphy, J. (2014). The anatomy of MOOCs. In P. Kim (ed.) Massive open online courses: The MOOC revolution (pp. 1–22). New York: Routledge.

Kolowich, S. (2013). How EdX plans to earn, and share, revenue from its free online courses. The Chronicle of Higher Education, 21.

Kop, R., & Hill, A. (2008). "Connectivism: Learning Theory of the Future or Vestige of the past?". *The International Review of Research in Open and Distance Learning*, *9*(3): 1–13.

Koutropoulos, A., & Zaharias, P. (2015). Down the Rabbit Hole: An initial typology of issues around the development of MOOCs. *Current Issues in Emerging e-Learning*, *2*(1), 4.

Kovanović, V., Joksimović, S., Gašević, D., Siemens, G., & Hatala, M. (2015). What public media reveals about MOOCs: A systematic analysis of news reports. *British Journal of Educational Technology*, *46*(3), 510–527.

Kuh, G. D. (2001). Assessing What Really Matters to Student Learning: Inside The National Survey of Student Engagement. *Change*, *33*(3), 10–17.

Krippendorff, K. (1980). Content Analysis: An Introduction to its Methodology. London: Sage.

Langley, D. (2006). The Student Engagement Index: A Proposed Student Rating System Based on the National Benchmarks of Effective Educational Practice. University of Minnesota: Center for Teaching and Learning Services.

Lauri, S., & Kyngäs, H. (2005). Developing nursing theories. Werner Söderström, Dark Oy: Vantaa, Finland.

Lebron, D., & Shahriar, H. (2015, June). Comparing MOOC-based platforms: Reflection on pedagogical support, framework and learning analytics. In *The Proceedings of 2015 International Conference on Collaboration Technologies and Systems (CTS)* (pp. 167–174). IEEE.

Lee, Y., & Rofe, J. S. (2016). Paragogy and flipped assessment: experience of designing and running a MOOC on research methods. *Open Learning: The Journal of Open, Distance and E-Learning*, *31*(2), 116–129. DOI 10.1080/02680513.2016.1188690.

Leito, I., Helm, I., & Jalukse, L. (2015). Using MOOCs for teaching analytical chemistry: experience at University of Tartu. *Analytical and Bioanalytical Chemistry*, *407*(5), 1277–1281. DOI 10.1007/s00216-014-8399-y.

References

Lentell, H. (2014). Invasion of the MOOCs: the promise and perils of massive open and online courses. *Open Learning: The Journal of Open, Distance and E-Learning, 29*(3), 256–258. DOI 10.1080/02680513.2015.1011113.

Leontyev, A., & Baranov, D. (2013). Massive open online courses in chemistry: A comparative overview of platforms and features. *Journal of Chemical Education*, *90* (11), 1533–1539.

Lesjak, B., & Florjancic, V. (2014). Evaluation of MOOC: Hands-On Project or Creative Use of ICT in Teaching. In *Human Capital without Borders: Knowledge and Learning for Quality of Life; Proceedings of the Management, Knowledge and Learning International Conference 2014* (pp. 1147–1155). ToKnowPress.

Lewis, A. (2004). Rationalizing a tourism curriculum for sustainable tourism development in small island states: A stakeholder perspective. *Critical Issues in Tourism Education*, 9–15.

Li, Y., Zhang, M., Bonk, C. J., Guo, J., & Guo, Y. (2015). Integrating MOOC and flipped classroom practice in a traditional undergraduate course: Students' experience and perceptions. *International Journal of Emerging Technologies in Learning*, *10*(6), 4–10. DOI 10.3991/ijet.v10i6.4708.

Lin, J. (2017). Massive Open Online Courses: Expand the Horizon of the Visible. Manuscript submitted for publication.

Lin, J., & Cantoni, L. (2017) Assessing the Performance of a Tourism MOOC Using the Kirkpatrick Model: A Supplier's Point of View. In: Schegg R., Stangl B. (Eds) Information and Communication Technologies in Tourism 2017 (pp. 129–142). Springer, Cham. DOI 10.1007/978-3-319-51168-9_10.

Lin, J., & Cantoni, L. (In press). Decision, Implementation, and Confirmation: Experiences of Instructors behind Tourism and Hospitality MOOCs. *The International Review of Research in Open and Distributed Learning*.

Lin, J., Cantoni, L., & Kalbaska, N. (2016) How to develop and evaluate an eTourism MOOC: An experience in progress. *e-Review of Tourism Research (eRTR), 7*:1–5.

Lin, J., Cantoni, L., & Murphy, J. (In press) Tourism and Hospitality MOOCs: A Review. *Journal of Teaching in Travel & Tourism*.

Lin, J., Kalbaska, N., Tardini, S., Decarli Frick, E., & Cantoni, L. (2015). A Journey to Select the Most Suitable MOOCs Platform: The Case of a Swiss University. In S. Carliner, C. Fulford & N. Ostashewski (Eds.), Proceedings of EdMedia 2015–World Conference on Educational Media and Technology (pp. 273–283). Montreal, Quebec, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved from http://bit.ly/2pc2voY.

References

Lin, M. F. G., Hoffman, E. S., & Borengasser, C. (2013). Is social media too social for class? A case study of Twitter use. *TechTrends, 57*(2), 39. DOI 10.1007/s11528-013-0644-2

Literat, I. (2015). Implications of massive open online courses for higher education: mitigating or reifying educational inequities? *Higher Education Research and Development*, *34*(6), 1164–1177. DOI 10.1080/07294360.2015.1024624

Litteljohn, D., & Watson, S. (2004) Developing Graduate Managers for Hospitality and Tourism. *International Journal of Contemporary Hospitality Management*, *16*(7), 91–99.

Liu, M., McKelroy, E., Kang, J., Harron, J., & Liu, S. (2016). Examining the use of Facebook and Twitter as an additional social space in a MOOC. *American Journal of Distance Education*, *30*(1), 14–26. DOI 10.1080/08923647.2016.1120584.

Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCs: A systematic study of the published literature 2008-2012. *The International Review of Research in Open and Distributed Learning*, *14*(3), 202-227. DOI 10.19173/irrodl.v14i3.1455

Liyanagunawardena, T. R., & Williams, S. A. (2014). Massive open online courses on health and medicine: review. *Journal of Medical Internet Research*, *16*(8), e191.

López-Meneses, E., Vázquez-Cano, E., & Román, P. (2015). Analysis and implications of the impact of MOOC movement in the scientific community: JCR and scopus (2010-13). *Comunicar*, *22*(44), 73–80. DOI 10.3916/C44-2015-08.

Lukeš, D. (2012). What is and what is not a MOOC: A picture of family resemblance (working undefinition). Retrieved from http://bit.ly/2ftwIZQ.

Lushnikova, N., Chintakayala, P.K., & Rodante, A. (2012). Massive Open Online Courses from Ivy League Universities: Benefits and Challenges for Students and Educators. Retrieved from http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21DBN=UJRN&P21DBN=UJRN&Z21ID=&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/Npd_2013_1.2_53.pdf.

Mackness, J., Mak, S., & Williams, R. (2010). The ideals and reality of participating in a MOOC. In Proceedings of the 7th International Conference on Networked Learning 2010 (pp. 266–275).

Mandernach, B. J. (2015). Assessment of Student Engagement in Higher Education: A Synthesis of Literature and Assessment Tools. *International Journal of Learning, Teaching and Educational Research*, *12*(2).

References

Marchiori, E., & Cantoni, L. (2017). Applying the counselling-learning approach to a tourism-related massive open online course. *Journal of Teaching in Travel & Tourism*, (2017), 1–17. DOI 10.1080/15313220.2018.1404697.

Marshall, S. (2013). Evaluating the strategic and leadership challenges of MOOCs. *Journal of Online Learning and Teaching*, *9*(2), 216. Retrieved from http://bit.ly/2l0w9Z1.

Martinez, S. (2014). OCW (OpenCourseWare) and MOOC (open course Where?). *Proceedings of OpenCourseWare Consortium Global*.

Martinez-Nuñez, M., Borras-Gene, O., & Fidalgo-Blanco, A. (2016). Virtual Learning Communities in Google Plus, Implications, and Sustainability in MOOCs. *Journal of Information Technology Research (JITR)*, *9*(3), 18–36.

Masters, K. (2011). A brief guide to understanding MOOCs. *The Internet Journal of Medical Education*, *1*(2), 2.

MastersPortal. (2017). Tuition Fees at Universities in Europe in 2017 – Overview and Comparison. Retrieved from http://www.mastersportal.eu/articles/405/tuition-fees-at-universities-in-europe-in-2017-overview-and-comparison.html.

Maté, A., De Gregorio, E., Cámara, J., Trujillo, J., & Luján-Mora, S. (2016). The improvement of analytics in massive open online courses by applying data mining techniques. *Expert Systems*, *33*(4), 374–382.

Matkin, G. W. (2013). MOOCs in the Real World: Deconstructing the Impact. Retrieved from http://bit.ly/2ejPfWI.

McAuley, A., Stewart, B., Siemens, G., & Cormier, D. (2010). The MOOC model for digital practice. Retrieved from http://bit.ly/2ftwaDw.

McGreal, R. (2015). OER to MOOCs: In Defence of Open. *The International Review of Research in Open and Distributed Learning*, *16*(5). Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2440/3443.

McLeod, J. M., & Pan, Z. (2005). Concept explication and theory construction. In S. Dunwoody, L. B. Becker, D. M. McLeod, & G. M. Kosicki (eds) The evolution of key mass communication concepts: Honouring Jack M. McLeod (pp. 14–76). Cresskill, NJ: Hampton Press.

McNamara, P. (2015). The influence of MOOCs to enhance graphic design education. *Art, Design & Communication in Higher Education*, *14*(1), 57–69.

Meek, S. E. M., Blakemore, L., & Marks, L. (2016). Is peer review an appropriate form of assessment in a MOOC? Student participation and performance in formative peer

review. *Assessment & Evaluation in Higher Education*, *2938* (September), 1–14. DOI 10.1080/02602938.2016.1221052.

Melicherikova, Z., & Piovarci, A. (2016). Experience with Massive Open Online Courses in Slovakia. *Journal of e-Learning and Knowledge Society*, *12*(1). Retrieved from http://bit.ly/2BySCY9.

Mercado Varela, M. A., Jesús, B., Villegas Pérez, M., Rivera Vazquez, N., & Ramírez Montoya, M. S. (2017). Connectivity of learning in MOOCs: Facilitators' experiencies in team teaching. *Turkish Online Journal of Distance Education-TOJDE*.

Metcalfe, M., & Sastrowardoyo, S. (2016). Sense ‐ making Innovative Systems: Prestigious MOOCs. *Systems Research and Behavioral Science*, *33*(3), 437–451.

Myller, N., Suhonen, J., & Sutinen, E. (2002). Using data mining for improving web-based course design. In Proceedings of the International Conference on Computers in Education (ICCE'02). Auckland, New Zealand (December 3 – 6, 2002): International Conference on Computers in Education (pp. 959-963). DOI: 10.1109/CIE.2002.1186125.

Monedero-Moya, J. J., Cebrián-Robles, D., & Desenne, P. (2015). Usabilidad y satisfacción en herramientas de anotaciones multimedia para MOOC. *Comunicar*, *22*(44).

MOOCs Directory (2015). About MOOCs. Retrieved from http://www.moocs.co.

Morris, N. P., Livesey, S., & Elston, C. (2014). First time MOOC provider: reflections from a research-intensive university in the UK. In U. Cress, & C. Delgado Kloos, (eds) Proceedings of the European MOOC Stakeholder Summit 2014 (pp. 259–263). Lausanne, Switzerland: European MOOC Summit. ISBN 978-84-8294-689-4. Retrieved from http://goo.gl/rkOcGk.

Morgado, L., Mota, J., Quintas-Mendes, A., Fano, S., Fueyo, A., Tomasini, A., Giannatelli, A., Silva, A., Jansen, D., & Brouns, F. (2014). ECO D2. 2 Instructional design and scenarios for MOOCs version 1. Retrieved from http://bit.ly/2ftzdf5.

Moskal, P., Thompson, K., & Futch, L. (2015). Enrollment, Engagement, and Satisfaction in the BlendKit Faculty Development Open, Online Course. *Journal of Asynchronous Learning Network*, *19*(4). Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84944809734&partnerID=40&md5=652eaae385311613b17051bb1068b25c.

Muñoz-Merino, P. J., Ruipérez-Valiente, J. A., Delgado Kloos, C., Auger, M. A., Briz, S., de Castro, V., & Santalla, S. N. (2017). Flipping the classroom to improve learning

References

with MOOCs technology. *Computer Applications in Engineering Education*, *25*(1), 15–25. DOI 10.1002/cae.21774.

Murphy, J., Horton-Tognazzini, L., & Williams, A. (2014). Exploring effective diffusion of tourism and hospitality MOOCs. In C. Schott, K. Caton and C. Herzog (eds) Proceedings of the Eight TEFI Conference (TEFI8) 'Transformational Learning: Activism, Empowerment and Political Agency in Tourism Education'. Guelph, Canada (4–7 June 2014): Tourism Education Futures Initiative (pp.190–202).

Murphy, J., Kalbaska, N., Cantoni, L., Horton-Tognazzini, L., Ryan, P., & Williams, A. (2016). Massive Open Online Courses (MOOCs) in tourism. In P. Benckendorff & A. Zehrer (eds) Edward Elgar Handbook of Teaching & Learning in Tourism.

Murphy, J., Kalbaska, N., Williams, A., Ryan, P., Cantoni, L., & Horton-Tognazzini, L. C. (2014). Massive open online courses: Strategies and research areas. *Journal of Hospitality & Tourism Education*, *26*(1), 39–43. doi:10.1080/10963758.2014.880618.

Murphy, J., Kalbaska, N., Horton-Tognazzini, L., & Cantoni. L. (2015). Online learning and MOOCs: A framework proposal. In Information and Communication Technologies in Tourism - Proceedings of the International Conference in Lugano (Switzerland) (pp. 847–858). New York: Springer.

Murphy, J., Tracey, J. B., & Horton-Tognazzini, L. (2016). MOOC Camp: A Flipped Classroom and Blended Learning Model. In Information and Communication Technologies in Tourism 2016 (pp. 653–665). Springer International Publishing.

Murphy, J., Williams, A., & Lennox, A. (2013). MOOCs in vocational education and training and higher education. In O'Connor, L. (ed). The 22nd National Vocational Education and Training Research Conference "NO FRILLS" (pp. 76–82). Mooloolaba, Queensland, Australia.

Murphy, J., Williams, A., Ryan, P., Kalbaska, N., & Cantoni, L. (2013). Massive Open Online Course (MOOC) Adoption and Implementation. In Proceedings of EuroCHRIE 2013 Cooperative Education and Research for Hospitality and Tourism. Freiburg, Germany, October 16–19, 2013.

Naidu, S. (2013). Transforming MOOCs and MOORFAPS into MOOLOS.

Najafi, H., Rolheiser, C., Harrison, L., & Håklev, S. (2000). International review of research in open and distance learning. *The International Review of Research in Open and Distributed Learning*, *16*(3). Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2073/3341.

Najafi, H., Rolheiser, C., Harrison, L., & Håklev, S. (2015). University of Toronto instructors' experiences with developing MOOCs. *The International Review of Research in Open and Distributed Learning*, *16*(3). DOI 10.19173/irrodl.v16i3.2073.

Nascimbeni, F., & Burgos, D. (2016). In search for the Open Educator: proposal of a definition and a framework to increase openness adoption among university educators. *The International Review of Research in Open and Distributed Learning*, *17*(6).

Nawrot, I., & Doucet, A. (2014). Building Engagement for MOOC Students: Introducing Support for Time Management on Online Learning Platforms. In Proceedings of the 23rd International Conference on World Wide Web (pp. 1077–1082). ACM.

O'Mahony, B., & Salmon, G. (2014). The role of massive open online courses (MOOCs) in the democratization of tourism and hospitality education. Handbook of Tourism and Hospitality Education, 130–142.

O'Malley, P. J., Agger, J. R., & Anderson, M. W. (2015). Teaching a Chemistry MOOC with a Virtual Laboratory: Lessons Learned from an Introductory Physical Chemistry Course. *Journal of Chemical Education*, *92*(10), 1661–1666. DOI 10.1021/acs.jchemed.5b00118.

Onah, D. F., Sinclair, J., & Boyatt, R. (2014). Exploring the use of MOOC discussion forums. In *Proceedings of London International Conference on Education* (pp. 1–4). LICE.

Onah, D. F., Sinclair, J., & Boyatt, R. (2014) Dropout Rates of Massive Open Online Courses: Behavioral Patterns. In EDULEARN14 Proceedings (pp. 5825–5834).

Open Education Europa. (2015). The infographic of the European MOOCs Scoreboard. Retrieved from http://goo.gl/GbxMhx.

Ortega, S., Brouns, F., Fueyo Gutiérrez, A., Fano, S., Tomasini, A., Silva, A., Rocio, V., Jansen, D., Gutiérrez, A., Dornaletetxe, J., López, E., Dolores Fernández Pérez, M., Barbas, A., & Manuel Saez, J. (2014). D2. 1 Analysis of existing MOOC platforms and services. Retrieved from http://bit.ly/2ftAPFz.

Ospina-Delgado, J. E., Zorio-Grima, A., & García-Benau, M. A. (2016). Massive open online courses in higher education: A data analysis of the MOOC supply. *Intangible Capital*, *12*(5).

Ouimet, J. A., & Smallwood, R. A. (2005). CLASSE: The Class-Level Survey of Student Engagement. *Journal of Assessment Update: Progress, Trends, and Practices in Higher Education*, *17*(6), 13–15.

References

Ozturk, H. T. (2015). Examining value change in MOOCs in the scope of Connectivism and Open Educational Resources movement. *The International Review of Research in Open and Distributed Learning*, *16*(5).

Pang, Y., Jin, Y., Zhang, Y., & Zhu, T. (2017). Collaborative filtering recommendation for MOOC application. *Computer Applications in Engineering Education*, *25*(1), 120–128.

Pappano, L. (2012). The Year of the MOOC. Retrieved from http://nyti.ms/2ftBTZR.

Pappas, C. (2012). The History of eLearning Infographic 2012. Retrieved from https://elearningindustry.com/history-of-elearning-infographic-education-2012.

Parra, J. (2016). Moving Beyond MOOC Mania: Lessons from a Faculty-Designed MOOC. *Current Issues in Emerging eLearning*, *3*(1), 10.

Peters, G., & Seruga, J. (2016). A supply sided analysis of leading MOOC platforms and universities. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, *8*(1), 158-181.

Peterson, R. (2013). What do MOOCS cost. Retrieved from http://goo.gl/FEqNNC.

Piedra, N., López, J., Jorge, C., & Tovar, E. (2015). Seeking Open Educational Resources to Compose Massive Open Online Courses in Engineering Education An Approach Based on Linked Open Data. *Journal of Universal Computer Science*, *21*(5), 679–711. Retrieved from http://jucs.org/jucs_21_5/seeking_open_educational_resources/jucs_21_05_0679_0711_piedra.pdf.

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of educational psychology*, *82*(1), 33.

Poce, A. (2015). Developing Critical Perspectives on Technology in Education: A Tool for MOOC Evaluation. *European Journal of Open, Distance and E-learning*, *18*(1).

Porter, S. (2015). The economics of MOOCs: a sustainable future? *The Bottom Line*, *28*(1/2), 52–62. DOI 10.1108/BL-12-2014-0035.

Power, A., & Coulson, K. (2015). What are OERs and MOOCs and what have they got to do with prep? *British Journal of Midwifery*, *23*(4), 282–284. DOI 10.12968/bjom.2015.23.4.282.

Pujar, S. M., & Bansode, S. Y. (2014). MOOCs and LIS education: A massive opportunity or challenge. *Annals of Library and Information Studies*, *61*(1), 74–78. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84898851034&partnerID=40&md5=ecc8cf1f734b435fb581b3ef3197ab78.

Purser, E. R., Towndrow, A., & Aranguiz, A. (2013). Realizing the Potential of peer-to-peer learning: Taming a MOOC with social media. Retrieved from http://bit.ly/2rh1Umk.

Qu, H., & Chen, Q. (2015). Visual analytics for MOOC data. *IEEE computer graphics and applications*, *35*(6), 69–75.

Rachel, R. F., Maggie, M. A., & Thompson, R. (2015). Adding value: Open online learning and the MBA. *Electronic Journal of E-Learning*, *13*(4), 250–259.

Raffaghelli, J., Cucchiara, S., & Persico, D. (2015), Methodological approaches in MOOC research: Retracing the myth of Proteus. *British Journal of Educational Technologies*, *46* (3) 488–509, Special Issue: Massive Open Online Courses (MOOCs): 'disrupting' teaching and learning practices in higher education. DOI 10.1111/bjet.12279.

Ramesh, A., Goldwasser, D., Huang, B., Daume III, H., & Getoor, L. (2014). Uncovering Hidden Engagement Patterns for Predicting Learner Performance in MOOCs. In *Proceedings of the first ACM conference on Learning@ Scale conference* (pp. 157–158). ACM.

Rapanta, C., & Cantoni, L. (2013). Being in the Users' Shoes: Anticipating Experience While Designing Online Courses. *British Journal of Educational Technology*, *45* (5), 765–777.

Rizvi, S., Donnelly, K., & Barber, M. (2013). An Avalanche is Coming: Higher Education and the Revolution Ahead. London: Institute for Public Policy Research. Retrieved from http://www.ippr.org/assets/media/im ages/media/files/publication/2013/04 /avalanche-is- coming_Mar2013_10432.pdf.

Robinson, R. (2016). Delivering a medical school elective with massive open online course (MOOC) technology. *PeerJ*, *4*, e2343. DOI 10.7717/peerj.2343.

Rodrigo, C., Read, T., Santamaría, M., & Sánchez-Elvira, A. (2014). OpenupEdLabel for MOOC quality assurance: UNED COMA initial self-evaluation. In *Actas del V Congreso Internacional sobre Calidad y Accesibilidad en la Formación Virtual (CAFVIR 2014)* (pp. 551–555).

Rodrigues, R. L., Ramos, J. L. C., Silva, J. C. S., & Gomes, A. S. (2016). Discovery engagement patterns MOOCs through cluster analysis. *IEEE Latin America Transactions*, *14*(9), 4129–4135.

Rogers, E. M. (2003). Diffusion of innovations. Simon and Schuster.

Rogers, E. M., Eveland, J. D., & Klepper, C. A. (1977). The innovation process in public organizations: Some elements of a preliminary model: Final report. Dept. of Journalism, University of Michigan.

References

Romero, M., & Usart, M. (2014). The Time Factor in MOOCS-Time-on-Task, Interaction Temporal Patterns, and Time Perspectives in a MOOC. In The Proceedings of CSEDU 2014 – 6th International Conference on Computer Supported Education (pp. 53-62). Retrieved from http://bit.ly/2ftssd3.

Ross, J., Sinclair, C., Knox, J., & Macleod, H. (2014). Teacher experiences and academic identity: The missing components of MOOC pedagogy. *Journal of Online Learning and Teaching*, *10*(1), 57. DOI 10.1080/02680930701754047.

Ryan, P., Horton-Tognazzini, L., & Williams, A. (2016). A snapshot of MOOCs in hospitality and tourism. *Journal of Hospitality & Tourism Education*, *28*(2), 107–112. DOI 10.1080/10963758.2016.1163497.

Saadatdoost, R., Sim, A. T. H., Jafarkarimi, H., & Mei Hee, J. (2015). Exploring MOOC from education and Information Systems perspectives: a short literature review. *Educational Review*, *67*(4), 505–518.

Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory. *TOJET: The Turkish Online Journal of Educational Technology*, *5*(2).

Salmon, G., Gregory, J., Dona, K. L., & Ross, B. (2015). Experiential online development for educators: The example of the Carpe Diem MOOC. *British Journal of Educational Technology*, *46*(3), 542–556. DOI 10.1111/bjet.12256.

Salmon, G., Pechenkina, E., Chase, A.-M., & Ross, B. (2016). Designing Massive Open Online Courses to take account of participant motivations and expectations. *British Journal of Educational Technology*. DOI 10.1111/bjet.12497.

Salmon, G., Ross, B., Pechenkina, E., & Chase, A. M. (2015). The space for social media in structured online learning. *Research in Learning Technology*, 23. DOI 10.3402/rlt.v23.28507.

Sánchez Gordón, S., & Luján Mora, S. (2014). MOOCs gone wild. In The Proceedings of INTED2014 Conference (pp. 1449–1458). *IATED*. Retrieved from http://bit.ly/2fts1iO.

Sánchez-Vera, M. D. M., Leon Urrutia, M., & Davis, H. C. (2015). Challenges in the Creation, Development and Implementation of MOOCs: Web Science Course at the University of Southampton. *Comunicar*, *22*(44), 37–44. DOI 10.3916/C44-2015-04.

Sancho, J. (2016). Learning Opportunities for Mass Collaboration Projects through Learning Analytics: A Case Study. *IEEE Revista Iberoamericana de Tecnologias del Aprendizaje*, *11*(3), 148–158.

Sangpikul, A. (2009). Internationalization of hospitality and tourism higher education: a perspective from Thailand. *Journal of Teaching in Travel & Tourism*, *9*(1–2), 2–20.

Sangrà, A., González-Sanmamed, M., & Anderson, T. (2015). Meta-analysis of the research about MOOC during 2013–2014. *Educación XX1*, *18*(2).

Santos-Espino, B. J. M., Afonso-Suárez, M. D., & Guerra-Artal, C. (2016). Speakers and Boards: A Survey of Instructional Video Styles in MOOCs. *Technical Communication*, *63*(2), 101–115.

Schmid, L., Manturuk, K., Simpkins, I., Goldwasser, M., & Whitfield, K. E. (2015). Fulfilling the promise: Do MOOCs reach the educationally underserved? *Educational Media International*, *52*(2), 116–128.

Schuwer, R., Gil-Jaurena, I., Aydin, C. H., Costello, E., Dalsgaard, C., Brown, M., Jansen, D., & Teixeira, A. (2015). Opportunities and Threats of the MOOC Movement for Higher Education: The European Perspective. *The International Review of Research in Open and Distributed Learning*, *16*(6), 20–38.

Selwyn, N., Bulfin, S., & Pangrazio, L. (2015). Massive open online change? Exploring the discursive construction of the 'MOOC'in newspapers. *Higher Education Quarterly*, *69*(2), 175–192.

Sementelli, A. J., & Garrett, T. M. (2015). MOOCs: meaningful learning tools for public administration education or academic simulacra? *Education and Training*, *57*(4), 461–470. DOI 10.1108/ET-03-2014-0031.

Shah, D. (2016). By the Numbers: MOOCs in 2015. Retrieved from http://bit.ly/2e1XmIF.

Sheldon, P., Fesenmaier, D., Woeber, K., Cooper, C., & Antonioli, M. (2008). Tourism education futures, 2010–2030: Building the capacity to lead. *Journal of Teaching in Travel & Tourism*, *7*(3), 61–68.

Siemens, G. (2004). Connectivism: A learning theory for the digital age. Retrieved from http://www.elearnspace.org/Articles/connectivism.htm.

Siemens, G. (2013). Massive open online courses: Innovation in education. In R. McGreal, W. Kinuthia, & S. Marshall (eds) Open educational resources: Innovation, research and practice (pp. 5–15). Vancouver: Commonwealth of Learning and Athabasca University. Retrieved from http://bit.ly/2fttu8V.

Siemens, G., Gašević, D., & Dawson, S. (2015). Preparing for the digital university: A review of the history and current state of distance, blended, and online learning. Retrieved from http://linkresearchlab.org/PreparingDigitalUniversity.pdf.

References

Sinclair, J., & Kalvala, S. (2016). Student engagement in massive open online courses. *International Journal of Learning Technology*, *11*(3), 218–237. DOI 10.1504/IJLT.2016.079035.

Singleton Jr, R. A., & Straits, B. C. (1999). Approaches to social research. New York: Oxford University Press.

Slomanson, W. R. (2014). Blended learning: A flipped classroom experiment. *Journal of Legal Education*, *64*(1), 93. Retrieved from http://bit.ly/2CXQMMN.

Smith, M. K. (1999). Learning theory. The encyclopedia of informal education. Retrieved from www.infed.org/biblio/b-learn.htm.

Soffer, T., & Cohen, A. (2015). Implementation of Tel Aviv University MOOCs in Academic Curriculum: A Pilot Study. *The International Review of Research in Open and Distributed Learning*, *16*(1), 80–97. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2031/3207.

Sparke, M. (2017). Situated Cyborg Knowledge in Not so Borderless Online Global Education: Mapping the Geosocial Landscape of a MOOC. *Geopolitics*, *22*(1), 51–72. DOI 10.1080/14650045.2016.1204601.

Spoelstra, H., Rosmalen, P. V., Houtmans, T., & Sloep, P. (2015). Team formation instruments to enhance learner interactions in open learning environments. *Computers in Human Behavior*, *45*, 11–20.

Spyropoulou, N., Pierrakeas, C., & Kameas, A. (2014). Creating MOOC guidelines based on best practices. In EDULEARN14 Proceedings (pp. 6981–6990). Barcelona, Spain. Retrieved from http://goo.gl/eVTuKM.

Stephens-Martinez, K., Hearst, M. A., & Fox, A. (2014, March). Monitoring MOOCs: Which information sources do instructors value? In Proceedings of the First ACM Conference on Learning@ Scale Conference (pp. 79–88). ACM.

Stevens, V. (2013). What's with the MOOCs? *The Electronic Journal for English as a Second Language*. *16*(4).

Succi, C., & Cantoni, L. (2005). Quality Benchmarking for eLearning in European Universities. In P. Kommers & G. Richards (eds) Proceedings of ED-MEDIA 2005 – World Conference On Educational Multimedia, Hypermedia & Telecommunications (pp. 116–123). Montréal, Canada: AACE. Retrieved from http://goo.gl/FhiJ1Z.

Succi, C., & Cantoni, L. (2008). A Map of eLearning Acceptance (MeLA) and a Corporate eLearning Readiness Index (CeLeRI). *iJAC – International Journal of Advanced Corporate Learning*, *1*(1), 39–47.

Teplechuk, E. (2013). Emergent models of Massive Open Online Courses: An exploration of sustainable practices for MOOC institutions in the context of the launch of MOOCs at the University of Edinburgh (master's thesis). University of Edinburgh, Edinburgh, United Kingdom. Retrieved from http://goo.gl/LqsJo0.

Thomas, D. R. (2006). A general inductive approach for analysing qualitative evaluation data. *American Journal of Evaluation*, *27*(2), 237–246. DOI 10.1177/1098214005283748.

Toven-Lindsey, B., Rhoads, R. A., & Lozano, J. B. (2015). Virtually unlimited classrooms: Pedagogical practices in massive open online courses. *Internet and Higher Education*, *24*, 1–12. DOI 10.1016/j.iheduc.2014.07.001.

Tracey, J. B., Murphy, J., & Horton-Tognazzini, L. (2016). A Framework for Evaluating MOOCs in Applied Hospitality and Tourism Settings. In Information and Communication Technologies in Tourism 2016 (pp. 667–679). Springer International Publishing.

Tribe, J. (2002) The Philosophic Practitioner. *Annals of Tourism Research*, *29*(2), 338–357.

UNESCO Institute for Lifelong Learning. (2010). Belém Framework for Action. Retreived from http://bit.ly/2ftBoiI.

Universities UK. (2013). Massive open online courses: Higher education's digital moment?. Retrieved from http://www.universitiesuk.ac.uk/highereducation/Documents/2013/MassiveOpenOnlineCourses.pdf.

UNWTO. (2015). UNWTO tourism highlights. Retrieved on March 16, 2016, from DOI 10.18111/9789284416899.

Veletsianos, G., & Navarrete, C. (2012). Online social networks as formal learning environments: Learner experiences and activities. *The International Review of Research in Open and Distributed Learning*, *13*(1), 144–166. DOI 10.19173/irrodl.v13i1.1078.

Veletsianos, G., & Shepherdson, P. (2015). Who studies MOOCs? Interdisciplinarity in MOOC research and its changes over time. *The International Review of Research in Open and Distributed Learning*, *16*(3).

Veletsianos, G., & Shepherdson, P. (2016). A systematic analysis and synthesis of the empirical MOOC literature published in 2013–2015. *The International Review of Research in Open and Distributed Learning*, *17*(2). DOI 10.19173/irrodl.v17i2.2448.

References

Viswanathan, R. (2012). Teaching and Learning through MOOC. *Frontiers of Language and Teaching*, *3*(1), 32–40.

Waldrop, M. M. (2013, July 17). Education online: The virtual lab. Retrieved from http://www.nature.com/news/education-online-the-virtual-lab-1.13383.

Wang, J., Ayres, H., & Huyton, J. (2010). Is tourism education meeting the needs of the tourism industry? An Australian case study. *Journal of Hospitality & Tourism Education*, *22*(1), 8–14.

Warburton, S., & Mor, Y. (2015). A set of patterns for the structured design of MOOCs. *Open Learning*, *30*(3), 206–220. DOI 10.1080/02680513.2015.1100070.

Weir, B., Dale, N., & Deery, M. (2014). Student engagement in tourism problem-based learning: A comparison of online and face-to-face delivery modes. In C. P. Monica (Ed.), CAUTHE 2014: Tourism and Hospitality in the Contemporary World: Trends, Changes and Complexity. Brisbane: School of Tourism, University of Queensland, 2014 (pp. 1186–1190). Retrieved from http://bit.ly/2zg4Crg.

Weissmann, J. (2012). The Single Most Important Experiment in Higher Education. *The Atlantic*, 18. Retrieved from http://www.theatlantic.com/business/archive/2012/07/the-single-most-important-experiment-in-higher-education/259953.

Wintrup, J., Wakefield, K., & Davis, H. C. (2015). Engaged Learning in MOOCs: A Study Using the UK Engagement Survey. Retrieved from http://bit.ly/2ftn4GK.

Wise, A. F., Cui, Y., & Vytasek, J. (2016, April). Bringing order to chaos in MOOC discussion forums with content-related thread identification. In Proceedings of the Sixth International Conference on Learning Analytics & Knowledge (pp. 188–197). ACM.

Wise, A. F., Cui, Y., Jin, W., & Vytasek, J. (2017). Mining for gold: Identifying content-related MOOC discussion threads across domains through linguistic modeling. *Internet and Higher Education*, *32*, 11–28. DOI 10.1016/j.iheduc.2016.08.001.

Wong, T.M. (2015). Pedagogic orientations of MOOC platforms: influence on course delivery. *Asian Association of Open Universities Journal*, *10*(2), 49–66.

Woodgate, A., Macleod, H., Scott, A. M., & Haywood, J. (2015). Differences in Online Study Behaviour between Sub-Populations of MOOC Learners. *Educación XX1*, *18*(2), 147.

Xia Education. (2016). More Information about Distance Learning. Retrieved from http://bit.ly/2wRFuJS.

Xiao, F., & Pardamean, B. (2016). MOOC model: Dimensions and model design to develop learning. New Educational Review, 43(1), 28–40. DOI 10.15804/tner.2016.43.1.02

Xing, W. W., Chen, X. X., Stein, J. J., & Marcinkowski, M. M. (2016). Temporal predication of dropouts in MOOCs: Reaching the low hanging fruit through stacking generalization. *Computers in Human Behavior, 58*, 119–129. DOI 10.1016/j.chb.2015.12.007.

Yang, L. (2015, November). Dilemma and development strategy of MOOC localization. In Information Technology in Medicine and Education (ITME), 2015 7th International Conference (pp. 439–442). IEEE.

Yin, R. K. (1994). Case study research: Design and methods. Sage Publications.

Yin, R. K. (2004). Case Study Methods. Retrieved from http://bit.ly/2CVv8vW.

Yousef, A. M. F., Chatti, M. A., Ahmad, I., Schroeder, U., & Wosnitza, M. (2015). An evaluation of learning analytics in a blended MOOC environment. In Proceedings of the Third European MOOCs Stakeholders Summit EMOOCs (pp. 122–130).

Yousef, A. M. F., Chatti, M. A., Schroeder, U., & Wosnitza, M. (2014). What drives a successful MOOC? An empirical examination of criteria to assure design quality of MOOCs. In The Proceedings of 2014 IEEE 14th International Conference on Advanced Learning Technologies (pp. 44–48). IEEE.

Yousef, A. M. F., Chatti, M. A., Schroeder, U., & Wosnitza, M. (2015). A usability evaluation of a blended MOOC environment: An experimental case study. *The International Review of Research in Open and Distributed Learning*, *16*(2).

Zagano, P. (2016). Taming the MOOS: Massive online open seminars in religion. *Religion & Education*, *43*(3), 301–316. DOI 10.1080/15507394.2016.1215682.

Zainal, Z. (2017). Case study as a research method. *Jurnal Kemanusiaan*, *5*(1).

Zancanaro, A., & Domingues, M. J. C. D. S. (2017). Analysis of the scientific literature on Massive Open Online Courses (MOOCs). *Ried-Revista Iberoamericana De Educacion A Distancia*, *20*(1), 59–80. DOI 10.5944/ried.20.1.15910.

Zancanaro, A., Nunes, C. S., & Domingues, M. J. C. D. S. (2017). Evaluation of Free Platforms for Delivery of Massive Open Online Courses (MOOCS). *Turkish Online Journal of Distance Education*, *18*(1), 166–181.

Zary, L., & Hernwall, P. (2014). Design considerations when adopting the OpenEdx MOOC platform in campus-based courses: A comparative case study. *PeerJ PrePrints*, *2*: e459v1. Retrieved from http://goo.gl/SjEsrE.

References

Zemsky, R., Wegner, G.R., & Massey, W.F. (2006). Remaking the American university: Market-smart and mission- centered. New Brunswick, NJ: Rutgers University Press.

Zhan, Z., Fong, P. S., Mei, H., Chang, X., Liang, T., & Ma, Z. (2015). Sustainability education in massive open online courses: A content analysis approach. *Sustainability*, *7*(3), 2274–2300.

Zhang, J., Perris, K., Zheng, Q., & Chen, L. (2015). Public response to "the MOOC movement" in China: Examining the time series of microblogging. *The International Review of Research in Open and Distributed Learning*, *16*(5).

Zhang, J., Skryabin, M., & Song, X. (2016). Understanding the dynamics of MOOC discussion forums with simulation investigation for empirical network analysis (SIENA). *Distance Education*, *37*(3), 270–286. DOI 10.1080/01587919.2016.1226230.

Zhao, C. M., & Kuh, G. D. (2004). Adding Value: Learning Communities and Student Engagement. *Research in Higher Education*, *45*(2), 115–138.

Zheng, S., Wisniewski, P., Rosson, M. B., & Carroll, J. M. (2016, February). Ask the instructors: Motivations and challenges of teaching massive open online courses. In Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (pp. 206–221). ACM. DOI 10.1145/2818048.2820082.

Zhuhadar, L., Kruk, S. R., & Daday, J. (2015). Semantically enriched Massive Open Online Courses (MOOCs) platform. *Computers in Human Behavior*, *51*, 578–593.

Zutshi, S., O'Hare, S., & Rodafinos, A. (2013). Experiences in MOOCs: The perspective of students. *American Journal of Distance Education*, *27*(4), 218–227.

(Notes: All web links in references had been verified on August 14, 2017.)

Appendix 1. Hospitality and Tourism MOOCs Offered by HEIs

Year	No.	Hospitality and Tourism MOOCs	HEIs	Platforms
2008-2012	0	-	-	-
2013	2	Tourism Industry Analysis	Central Florida University	Canvas Network
		Projecting Your Brand Through New Media	eCornell	Canvas Network
2014	1	Introduction to Wines 101	Taylor's University	Openlearning
2015	15	Introduction to Global Hospitality Management	Cornell University	edX
		World of Wine: From Grape to Glass	University of Adelaide	edX
		Science and Cooking: From Haute Cuisine to the Science of Soft Matter	Harvard University	edX
		Innovators of American Cuisine	New School, USA	Canvas Network
		Writing American Food	New School, USA	Canvas Network
		eTourism: Communication and Perspectives	Università della Svizzera italiana	iversity
		Essential Cuisine Techniques	Taylor's University	Openlearning
		Basic Pastry Making	Taylor's University	Openlearning
		HOS 60102 Business of Tourism & Hospitality	Taylor's University	Openlearning
		Wonderful Styles of Food and Beverage Around the World	Taylor's University	Openlearning
		Housekeeping Operations 101	Taylor's University	Openlearning
		Food & Beverage Management	Università Bocconi	Coursera
		The Fundamentals of Revenue Management: The Cornerstone of Revenue Strategy	ESSEC Business School	Coursera
		The Fundamentals of Hotel Distribution	ESSEC Business School	Coursera
		Demand management: Breaking down today's commercial silos	ESSEC Business School	Coursera
2016	7	Arts and Heritage Management	Università Bocconi	Coursera

		Heritage under Threat	Universiteit Leiden	Coursera
		International Hospitality & Healthcare Services Marketing	Yonsei University	Coursera
		Recovering the Humankind's Past and Saving the Universal Heritage	Sapienza University of Rome	Coursera
		A Business Journey with Caffeine Café	Taylor's University	Openlearning
		The Politics and Diplomacy of Cooking and Hospitality	École Hôtelière de Lausanne Grenoble Ecole de Management (GEM)	FutureLearn
		Hospitality and Tourism in China: A Global Perspective	Hong Kong Polytechnic University	edX
2017	5	Hospitality and Tourism Technology and Innovation	Hong Kong Polytechnic University	edX
		International Hospitality Luxury Management	Hong Kong Polytechnic University	edX
		Managing Human Resources in the Hospitality and Tourism Industry	Hong Kong Polytechnic University	edX
		Managing Marketing in the Hospitality and Tourism Industry	Hong Kong Polytechnic University	edX
		International Hospitality Management	Hong Kong Polytechnic University	edX

Appendix 2. MOOC Instructor Perspectives and Experiences – Consent Form

Dear Participant,

The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that you are free to decide not to participate or to withdraw at any time.

The purpose of this study is to explore MOOC instructors' experiences and perspectives in three major phases: pre-MOOC, before MOOC goes online; in-MOOC, during its online teaching period when the instructors actively engage with the MOOC learners; post-MOOC, after the MOOC goes offline or archived when instructors are not actively engaged with the MOOC learners. In the pre-MOOC phase, the topic is "readiness" of the MOOC instructors, represented by firstly their innovation adoption in the case of the MOOC, secondly knowledge of content/pedagogy/technology, and lastly course development. In the in-MOOC phase, three aspects related to "MOOC learners" from the perspectives of instructors are investigated: instructors' understanding of learners, course interactions, and how learning analytics is used. In the post-MOOC phase, "overall reflections" are requested, by asking about post-experiences and attitudes, as well as the supports and trainings received in all aforementioned three phases.

The procedure will be a multiple case study. Data will be collected through two major sources. MOOC course observation, with the principal investigator observing the website pages in each involved MOOC using a pre-designed observation protocol. Skype audio interview, conducted by the principal investigator by asking a series of questions to the involved MOOC instructors.

Do not hesitate to ask any questions about the study either before participating or during the time that you are participating. I would be happy to share my findings with you after the research is completed. However, your name will not be associated with the research findings in any way. They will be published with anonymous references.

There are no known risk and/or discomforts associated with this study. The expected benefits associated with your participation are the opportunity to participate in a qualitative research study, and the results together with suggestions related to MOOC design to be shared with you after the research is completed.

Please sign your consent with full knowledge of the nature and the purpose of the procedures. A copy of this consent form will be given to you to keep.

Jingjing Lin | PhD student
Researcher in: MOOCs in tourism and hospitality
Institute for Communication Technologies
Faculty of Communication Sciences,
USI Università della Svizzera italiana

Signature of participant: **Date:**

Appendices

Appendix 3. MOOC Instructor Perspectives and Experiences – Interview Protocol

INTRODUCTION

Good afternoon. My name is Jingjing Lin, a PhD candidate at Università della Svizzera italiana, in Lugano, Switzerland. Thank you for your support in this research and agreed to participate in the interview activity. This interview serves for collecting data to explore the perspectives and experiences of MOOCs instructors in particular in the field of tourism and hospitality. The interview has 13 questions and will take approximately 40-50 minutes to finish. The audio of our conversation will be recorded. It is because this will help to get all the details and meanwhile I can carry on an attentive conversation in the interview.

FOR INTERVIEWER USE ONLY:	
Interviewee Index Number:	
Interview Date:	
Interview Starts on:	
Interview Ends on:	
Interviewee Name:	
Interviewee Skype:	
Interviewee Email:	
MOOC(s) Title(s):	

CONSENT FORM

The consent form is available online: https://goo.gl/forms/32SzeSi3PHuOTAxs2

INTERVIEW QUESTIONS

1. Can you please introduce yourself, in particular your previous online teaching experiences before MOOCs?
2. Can you describe your overall understanding of Massive Open Online Course (MOOC)? [characteristics, advantages and disadvantages].
3. How did you decide to offer a MOOC and what were the main motivations of such decision?
4. How do you perceive your role of a MOOC instructor?
5. Can you introduce your whole MOOC experience as an instructor from three stages: preparation, delivery, and course evaluation? [*If ID was not covered, continue to ask: Can you further explain the instructional design process of the MOOC(s)?*]
6. How did you decide the topic and prepare the contents for your MOOC(s)? [Was the MOOC relevant to any of your teaching and research activities at campus?]
7. From a pedagogical or instructional design perspective, what teaching approaches or strategies have you used to help learners achieve better learning in your MOOC(s)?
8. Can you describe your relationship with internet based technologies as an educator? How did you select the platform and the technologies for your MOOC(s)?

9. Can you describe your observations of the learners in your MOOCs? (E.g., their characteristics, motivations, learning strategies, etc.; What is your opinion of multicultural and multilingual support for MOOC learners?)
10. Can you describe the interaction in your MOOC(s)? [What is your attitude to the social networking tools as a channel to facilitate the interactions for MOOC?]
11. Can you talk about the learning analytics in your MOOC(s)? [E.g., availability of such learning data to instructor(s), influence on the MOOC(s), utilization by the instructor(s), etc.]
12. What is your attitude to MOOC and being a MOOC instructor now? Are you willing to continue? Why yes or why not? [Any new MOOCs from you are coming online?]
13. Please share available supports and trainings along the process and your opinions of them.

Appendix 4. eLearning Engagement Survey

Welcome to Chapter 5 of "eTourism: Communication Perspectives" MOOC! We are very happy that you stay with us along this journey. You have done a wonderful job in this MOOC. Now let's talk about how you and all the others have engaged with this course so far. There are in total 19 questions and it may take you 5 to 10 minutes to finish. Once you submit your answers, you are able to see others' responses by clicking on "See previous responses". Enjoy!

1. **Your gender is:**

○ Female
○ Male

2. **Your age group is:**

○ Under 18 years of age
○ 18-25 years old
○ 26-35 years old
○ 36-45 years old
○ 46-55 years old
○ 56-65 years old
○ 66 years old or over

3. **You currently live in (please state country): _____**
4. **Your highest education level so far is:**

○ Less than high school / secondary school
○ High school / secondary school
○ University / college (Degree level)
○ University / college (Masters level)
○ University / college (Doctorate level)

5. **Your highest education level is in the following field: _____**
6. **In terms of employment, you are:**

○ Working fulltime (35 or more hours per week)
○ Working part time (less than 35 hours per week)
○ In fulltime education
○ Not available for work
○ Looking for work
○ Retired

7. **If you are working, in which field are you? (optional)**

○ Destination Management Organization
○ Tour Operator/Travel Agency
○ Hospitality
○ Restoration
○ Event Management

○ Transportation
○ Cultural institution (museum, theater, etc.)
○ Consultancy
○ Education/Academic institution
○ Other: _____

8. How do you mainly upgrade your knowledge/skills nowadays in the field of tourism and hospitality? (Please choose at maximum three items from the list below. Tick all that apply.)

☐ Follow academic courses in presence
☐ Follow courses by nonacademic
☐ institutions/companies in presence
☐ Attend seminars/conferences in presence
☐ Attend webinars
☐ Read books/magazines
☐ Follow specialized websites/blogs/mailing lists
☐ Follow relevant groups on social networks
☐ Take eLearning courses (including MOOCs)
☐ Other: _____

9. Have you ever taken eLearning courses on tourism and hospitality related subjects prior to this MOOC ("eTourism: Communication Perspectives")?

○ Yes
○ No

10. If yes to question 9, which types of online training courses have you completed (optional)? (Tick all that apply)

☐ Online academic courses (provided by universities, colleges or training schools)
☐ Online corporate/product courses (provided by cruise companies, hotel chains, car
☐ rental firms, etc.)
☐ Online destination courses (provided by tourist destinations, ministries of tourism)
☐ Other: _____

11. **If yes to question 9, please choose up to three best examples of eLearning courses (separated by commas) you have followed within the topic of tourism and hospitality (optional):**

_____

12. Please, name up to three most important factors, which made you participate in this MOOC ("eTourism: Communication Perspectives")? (Please choose at maximum three items from the list below. Tick all that apply.)

☐ It's enjoyable
☐ It's interesting
☐ It's quick
☐ It's free of charge

☐ It's useful
☐ It's easy to learn and familiarize myself with the help of online training
☐ I am interested in eLearning from a technical point of view (to see how it works)
☐ I can study on my pace in the office (e.g., when there are no clients)
☐ I am able to access training away from work (e.g., from home)
☐ My learning is assessed
☐ Information is structured to suit my needs
☐ Training content is relevant for my job, as it was created specifically for travel
☐ professionals
☐ I can get personal satisfaction and enrichment
☐ I can keep myself updated
☐ It improves the quality of my learning
☐ It helps me keep my skills updated
☐ Because my manager does it
☐ Because my colleagues do it
☐ It enriches my CV
☐ It helps me better serve clients
☐ I feel more confident in my job
☐ I can sell more and earn more
☐ It helps me get a competitive advantage over other professionals in my
☐ company/region
☐ I receive an official certificate
☐ I receive some form of explicit compensation (e.g., salary, promotion)
☐ Other: _____

13. During this MOOC, you...

	Very often	Often	Sometimes	Never
13.1) Asked questions or contributed to course discussions	□	□	□	□
13.2) Explained course material to one or more learner	□	□	□	□
13.3) Discussed ideas from the course with others outside the course, including by email/online	□	□	□	□
13.4) Asked another learner to help you understand the course material	□	□	□	□

13.5) Connected your learning to societal problems or issues	□	□	□	□
13.6) Examined the strengths and weaknesses of your own views on a topic or issue	□	□	□	□
13.7) Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	□	□	□	□
13.8) Learned something that changed the way you understood an issue or concept	□	□	□	□
13.9) Connected ideas from your course to prior experience and knowledge	□	□	□	□

14. During this MOOC, you...

	Very much	Quite a bit	Some	Very little
14.1) Memorised course content	□	□	□	□
14.2) Applied facts, theories, or methods to new situations	□	□	□	□
14.3) Analysed ideas or theories in depth by examining their parts	□	□	□	□
14.4) Evaluated or judged a point of view, decision, or information source	□	□	□	□
14.5) Formed a new understanding from various pieces of the course	□	□	□	□

15. During this MOOC, you have been challenged to do your best:

○ Very much
○ Quite a bit
○ Some
○ Very little

16. During this MOOC, you...

	Very much	Quite a bit	Some	Very little
16.1) Wrote clearly and effectively	□	□	□	□
16.2) Thought critically and analytically	□	□	□	□
16.3) Analyzed numerical and statistical information	□	□	□	□
16.4) Acquired job or workrelated knowledge and skills	□	□	□	□
16.5) Became an independent learner	□	□	□	□
16.6) Were innovative and creative	□	□	□	□
16.7) Developed or clarified personal values	□	□	□	□
16.8) Understood people of other backgrounds (economic, racial/ethnic, political, religious, nationality, etc.)	□	□	□	□

17. During the course, you…

	Very often	Often	Sometimes	Never
17.1) Found the given resources useful	□	□	□	□
17.2) Used additional resources that were not suggested within the course	□	□	□	□
17.3) Chose to purchase resources directly related to the course subject matter	□	□	□	□

18. You are willing to take other online courses about tourism and hospitality in the next twelve months?

○ Yes
○ No

19. If yes to question 18, in what kind of eLearning courses would you like to participate in the future?

_____

All Journeys have a secret destination of which the traveller is unaware. (Martin Buber)

In memory of my three years' doctoral studies between 2015 and 2017.