Have disruptive innovations arrived at the gates of academia?

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Abstract

Disruptive technologies in education and particularly Massive Open Online Courses (MOOCs) continue to be one of the polarising and most controvertible topics in postsecondary education, as they have yet to deliver on their promises. Existing academic literature on MOOCs, the main example of disruptive technology of this thesis, is primarily concerned with student participation, persistence, completion rates and learning in MOOC platforms. There seems however to be very limited scholarly research in the UK investigating the democratising effects and impact of disruptive technologies in Higher Education, particularly the extent to which MOOCs might unlock the gates to accessibility and their impact on universities, teaching and academics, through the lens of critical theory. It is however crucial to evaluate their impact (s) to inform policy decision-making on technology enhanced-learning implementation at tertiary institutions and design of curricula. The Main Research Question (MRQ) and sub-question designed for this study were addressed by conducting eighteen semi-structured interviews (Skype and face-to-face) with participants (academic and senior administrators) from nine countries and nine institutions. The theoretical position was informed by Critical Theory. The research methods used were primarily qualitative. Analysis incorporated grounded theory methods. This thesis contributes to the field of technology-enhanced learning by addressing the current pedagogical limitations of the MOOC format which seem to be the critical impediments that prevent MOOCs, as they are currently designed, from genuinely democratising Higher Education to those who most need it in developed and developing countries. My main original contribution to knowledge is an integrated and adaptive model with critical success factors that would influence the MOOC model's effectiveness, which, to the best of the author's knowledge, is unique in the published literature.

The findings of this study indicate that MOOCs have democratised access to Higher Education to a certain degree but they are not considered comparable to an on-campus experience and not suitable, in their current form and design, to the needs of the underrepresented in higher education, in developed and developing countries. The findings also indicate that MOOCs are challenging the current economic, business and pedagogical models and delivery mechanisms of traditional Higher Education and these might have an important effect on the academic role and identity. Furthermore, this investigation finds that MOOCs have aroused institutions and academics' interest in and exploration of technology-enhanced learning, particularly blended learning approaches. Finally, the findings of this study indicate that MOOCs have impelled institutions and academics to rethink the design of more engaging courses and programmes and refocus on student learning to improve online and face-to-face teaching and this added pressure might have created a schism between the educational conservatives and the advocates of reform.

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

The issue, context, background and significance of this study are set in Chapter one. Chapter one presents, succinctly, some of the current issues in Higher Education (HE), which are developed at length in the Literature Review (Chapter Two /part one and part two): access to HE, the value of degrees, access and success, social inequalities, skills' mismatch, disruptive technologies and Massive Open Online Courses (MOOCs) as a democratising force, disruptive technologies and MOOCs as remediation, the potential impacts of MOOCs, on institutions, academics and students, MOOCs and the skills' gap. Chapter one briefly introduces the major differences between a disruptive innovation and a disruptive technology, providing specific examples of both in the industry to differentiate them. In short, Chapter one provides an overview of the research, introduces the thesis and the research questions generated after an initial review of the current literature on disruptive technologies in education and MOOCs. It also presents the existing gaps identified in the literature. Moreover, it defines the key terms within the thesis as they are used in the context of this research.

1.1 Introduction to the Field of Study

Higher Education is widely recognised by all as playing a critical role in economic development (Seltzer and Bentley, 1999; Coates, 2013). The democratisation of knowledge and widening access to higher education, particularly for disadvantaged students and in developing countries, seems to be one of the most urgent priorities for governments. A university degree in many societies provides the opportunities for social and economic mobility and for many from emergent nations, a potentially more affluent lifestyle. The current situation is unfortunately far less positive than it seemed to be, only a few decades ago (Fry, 2002; Ellis, 2013, Tett, 2013; Barber *et al*, 2013). U.S. postsecondary institutions are, for instance, facing one of the most serious crises in their history: They have spent lavishly, whilst largely remaining unmonitored (Taylor, 2009; Denneen and Dretler, 2012; Tamny, 2013; Vedder, 2013a), and their economic model is suffering a severe identity crisis. According to Denneen and Dretler (2012), colleges in the U.S. are overleveraged, do not generate enough revenue and do not have sufficient cash reserves as back up. Ohio University economics professor Richard Vedder stated that colleges were "drifting away from their basic mission" and spent a substantial amount of money on features not related to their core activity, which was to teach students (Vedder, 2013a, *FoxBusiness*).

Student debt in many developed countries, such as the U.S., The UK or Australia, is at an all-time high. Higher Education has become increasingly unaffordable in many parts of the world, seemingly unable to deliver the transferable skills and therefore the career it promised, and failing to adapt to new student demographics. Employers are more and more dissatisfied with graduates' work readiness, have difficulties filling jobs (Talent Shortage Survey, 2013; Hart Research Associates, 2015), think universities do not address their needs and are not adequately teaching the necessary skills (specific and transferable) they require. According to the YouGov Good University Guide Survey of 635 senior managers (UK, 2013) for instance, 52 per

cent of graduate employers said “none” or “few” recruits with a university degree were “work ready”. Stephen Isherwood, former head of graduate recruitment at Ernst & Young argued that only around 25 percent of their interviewees are employable (Harris, 2013). Mona Mourshed, partner and director of education at McKinsey and Company and author of *Education to Employment*, a survey of 8,000 graduates, educators and employers in nine countries around the world stated that the once seamless connexion between getting a degree and finding a job is currently ruptured (Mourshed *et al*, 2012).
The survey showed that a better alignment between the worlds of education and employment was necessary, warning that education providers had an inflated confidence in the relevance of what they were teaching: fewer than half of students and employers believed that new graduates were adequately prepared for entry-level positions while education providers were much more optimistic: 72 percent of them believed new graduates are ready to work.

These results were confirmed by the 2014 McKinsey *Education to Employment: Getting Europe's Youth into Work survey,* (5,300 youth, 2,600 employers, and 700 postsecondary-education providers across 8 countries): while the education providers’ confidence seemed to be rather positive (74 percent of education providers were confident that their graduates were prepared for work), only 38 percent of youth and 35 percent of employers agreed. A possible explanation might be the possible disconnection between what universities thought they were doing, the skills employers needed from the graduates and the career readiness perception of the students (Mourshed *et al*, 2014), as confirmed by another survey by Hart Research Associates (2015).

In a BBC interview, European Commissioner for Education and Youth, Androulla Vassiliou, argued the issue was reaching “crisis” level when she stated:

> “In Europe the mismatch between what our education systems are delivering and the needs of employers is resulting in a serious skills shortage and damaging the aspirations of Europe's young people and, ultimately, our future prosperity. Policymakers, educators and business must all break out of their silos and work together more closely to avert what is a growing crisis” (Coughlan, 2014, para.6)

A Stanford Social Innovation Report (Gergen and Rego, 2014) *New Generation of Entrepreneurial Leaders* argued that there was a skills’ mismatch. In *Expanding the Leadership Equation* (Van Velsor and Wright, 2012), a Centre for Creative Leadership survey on workforce readiness, executives highlighted that transferable skills such as problem solving, leadership, teamwork, empathy, and social/emotional intelligence were still being left out of the curricula of most schools and this contributed to the widening of the skills’ gap. A November 2013 Apollo Lightspeed IT Hiring Manager survey of 300 IT and technology hiring managers in the U.S. found that 73 percent had a difficult time finding qualified applicants in IT/technology and 94 percent had to turn down candidates at least in part due to a deficiency in specific skills areas (The Wall Street Journal, 2014).

Many students in the United States are still left behind (Fry, 2002) despite the high potential for economic growth that higher numbers of university graduates would bring. The value of a degree in people's psyche seems to have decreased dramatically too (Ellis, 2013) and numerous alternatives to universities such as Minerva https://minerva.kgi.edu/admissions/#! or Enstitute (http://www.enstituteu.com/) that promote apprenticeships and transferable skills have emerged that question the exclusive role higher education institutions have as providers of knowledge and credentials (Mazoue, 2013). Canon *et al.* (2013), Tolgay (2013), Hu (2013) and Featherstone (2014) indicated that there was a labour mismatch and that universities should rethink their programmes, better screen students' applications and reduce student intakes. They also warned against graduate oversupply (Featherstone, 2014). Featherstone (2014) also argued that university graduates achieved comparatively, higher employment and wage outcomes than non-graduates but only the *right* student, those who were *ready*, "at university level, *academically and emotionally* would benefit from a university experience.

The launch in the past decades of various innovative and promising disruptive eLearning initiatives, to cater to today's developed countries "digitally literate, constantly connected, socially-driven, engaged, visually-driven learners" (Oblinger and Oblinger, 2004, p.4) needs and wants, has not helped improve the overall quality of learning, skills and students' learning experience, according to a number of studies (Arum and Roksa, 2010 and 2014). Various eLearning plans have been also trialled to support developing countries in building skills for the knowledge economy, bridge social gaps, promote growth and provide job opportunities e.g. World Bank's New Economy Skills for Africa Program-Information and Communication Technologies (NESAP-ICT), with often disappointing results (Kamau, 2001; Trucano, 2012). Crucial factors were often underestimated: absence of underpinning pedagogy, limited infrastructures for ICT-enhanced learning, lack of financial resources and/or political will (Table 1-1).

Table 1-1: Key constraints to eLearning (Africa)

Rank	Constraining factor	%	The country most likely to identify this as a constraint	The country least likely to identify this as a constraint
1	Bandwidth is limited	17	Zambia	Kenya
2	Financial resources are lacking	11	Zambia	Nigeria
2	Human resource capacity is inadequate	11	South Africa	Tanzania
2	Electricity is limited	11	Nigeria	South Africa
5	Appropriate training is lacking	8	Kenya	Uganda
6	Appropriate hardware is lacking	7	Tanzania	Ghana
7	Lack of trained teachers	6	South Africa	Nigeria
8	Appropriate software is lacking	6	Tanzania	Ghana
8	Political will is lacking	4	Nigeria	Uganda
8	Corruption and theft of resources	4	Uganda	Zambia
11	Lack of good quality educational content	4	Tanzania	Nigeria
12	Pressure of poverty	3	Kenya	Uganda
12	Sustainability is not prioritised	3	Kenya	Tanzania
12	Leadership is lacking	3	Nigeria	Uganda
15	Instability and lack of security	1	South Africa	Zambia
15	Other factors	1	N/A	N/A

Source: eLearning Africa 2012 Report | *Used with permission of Rebecca Stromeyer (14/10/2015)*

According to Trucano (2012), staff development programmes in Africa mainly focused on presenting the benefits and features of technology (the tool) instead of helping staff rethink their practices to incorporate the technology into their pedagogical practices (its uses) (Trucano, 2012).
A frustration shared by Unwin (2013), when he described the lack of success and vision of ICT for education initiatives in developing countries to really be transformative (Unwin, 2013). Angwin (2013) warned that Africa needed simple-to-use but sustainable technology solutions. According to Bogost (2013), technologies were merely tools and political and economic forces determined whether those who needed education could actually have access to it.

Christensen (2008) predicted that disruptive innovations would change the way the world learned. In 2011, Christensen *el al*. argued that disruptive Innovations could deliver quality and affordability to postsecondary education (Christensen et al, 2011) and therefore help solve the Higher Education issue of the student debt.
The term *disruptive technology*, coined for the first time by Bower and Christensen (and anterior to the term disruptive innovation) appeared in an article for the Harvard Business Review in 1995 titled *Disruptive technologies: catching the wave* and was described further in a book (Christensen, 1997) *The Innovator's Dilemma; How New Technologies Cause Great Firms to Fail*. It essentially referred to new technologies that have, originally, lower cost and performance, but with the potential to revolutionise an industry.

A disruptive innovation is, according to Christensen *et al*. (2011)

> "the process by which a sector that has previously served only a limited few because its products and services were complicated, expensive, and inaccessible, is transformed into one whose products and services are simple, affordable, and convenient and serves many no matter their wealth or expertise" (Christensen *et al*, 2011, p.2).

1.1.1 Disruptive *Technologies* versus Disruptive *Innovations*

Both terms are used interchangeably in the business and education literature and this often leads to ambiguity and confusion. According to Christensen (1997), disruptive technologies are typically innovations in technology, whereas disruptive innovations change radically entire markets and this is the major difference: the consequences of the latter and the threats they (might) pose have a bigger impact and are felt more deeply and by more people. A technology is considered disruptive when it affects an existing business model and/or the core values in the organisation where the technology is to be implemented. The author of this thesis argues that disruptive technologies or innovations do not appear suddenly or in a vacuum. They are the result of evolving customer needs or a significant need for change. At the end of the 18th century for instance, bank holidays were introduced in many countries; factory workers and clerks had more time for leisure activities, such as going to the seaside or the countryside, but often did not have the means to purchase their own mode of transportation. At the same time, as towns grew in size and trade developed between cities and countries, new and more efficient ways of

transporting goods and people to work or to their holiday destinations had to be invented: Steam ships, trams and trains. When the Benz Patent-Motorwagen car was invented in 1885, it was first considered a revolutionary innovation in technology, but it was not yet a *disruptive innovation*, because only the wealthy had the means to buy automobiles. It took years before the automobile industry disrupted the horse-drawn carriage business. Some lost their jobs, others learned a new trade (such as driver), new jobs were created (mechanics, etc.). Trains were the first *disruptors* as they became the transport of choice for poorer people: they were fast, relatively safe and affordable. To cater to this new wave of tourists, seaside resorts and services such as hotels, inns, ice cream vendors and restaurants started to appear. The wealthy purchased lands and built holidays homes, which in turn helped create and develop a real estate market. Christensen argued in The Innovator's Solution (2003) that it is rarely the technology *per se* that is intrinsically disruptive but rather the business model that the technology is enabling that creates the disruptive impact. In other words, the uses companies or people make of it and the further innovations that it enables them to undertake. It is also the use people make of it that often seems to set in motion the decline of a product or a service. The invention of the printing press by Johannes Gutenberg in the 15th century was a disruptive technology first before becoming a disruptive innovation. It gradually made the manual copying of manuscripts obsolete and new jobs started to appear e.g. movable-type printer, as this industry developed, improved and expanded. In 2016, mobile phones have often replaced landlines and emails are more commonly sent than letters. Public telephones have almost disappeared from the streets and the postal services or public libraries have had to rethink their services. Another important point worth mentioning is that certain particular elements of a technological change can be more or less disruptive and the level of disruption may differ and impact to a greater or lesser extent different/specific areas, within various timeframes, shorter or longer. William Ogburn's cultural lag's theory (1964) described in *On Cultural and Social Change*, suggested for instance that the effects of a technology would not be visible to social actors for some time after its introduction to a society, in other words, a period of incubation or maturation was needed, similar to a virus. Telephones and computers are such examples of technologies. A more recent example of a possible interesting game-changer in the art industry is the use of big data in art galleries and museums to identify and understand audience behaviour (journey maps), design future exhibits and tailor-make messages to visitors' smartphones (Gamerman, 2014).

For centuries, memory and memorisation ruled learning and teaching at universities and it took months of painstaking human effort to copy a single book. The printing press fostered faster propagation of new ideas and literacy and rapid development in the sciences, philosophy, medicine, education, arts and religion throughout medieval Europe. This changed the nature of and access to knowledge. Printed books, despite their high cost originally, could now be read (by the literate), kept, sold, transmitted, transported and shared. The 'high-tech revolution' of the 20th century, with the launch and quick expansion of the Internet, the massification of personal computers and mobile devices, has again disrupted worldwide access to and control of knowledge and information. Both are now accessible (almost)

everywhere and anytime through increasingly affordable mobile devices (which seem to have displaced personal computers for browsing the Internet for example), by (almost) anyone, literally (almost) free of charge (Friesen, 2008). Memorising something is increasingly replaced by "googling" something: a quick access to information without the need to remember it. When the Massachusetts Institute of Technology (MIT) published in 2002 its first courses online through its MITOpenCourseWare platform, it was again seen as revolutionary: content from an elite university was suddenly widely available to everyone with an access to a computer, at almost no cost. A decade later, Udacity, edX and Coursera were launched to offer university classes for free, online (Massive Open Online Courses), in an unprecedented partnership with top schools, because ultimately, in this day and age "people want to learn" (Silberzahn, 2014, Title).

1.1.2 The Advent of Massive Open Online Courses (MOOCs)

According to Terwiesch and Ulrich (2014, p.10), a MOOC has the following attributes (reproduced here):

- A very large number of participants per offering of the course. Thus, massive
- Very low cost, often free, with no admission requirement. Thus, open.
- Content delivered asynchronously via the World Wide Web. Thus, online.
- Structured and sequenced content, with periodic assessment. Thus, course.

Massive Open Online Courses (MOOCs) have experienced remarkable growth and momentum since their launch and have been labelled as 21st century's new revolution by many, "the single most important experiment in Higher Education"(Weissmann, 2012), the magic bullet, "the change needed after 1000 years of higher education calcification" (Chafkin, 2013): Statements online and in the media such as [MOOCs revolutionise higher education and learning; MOOCs change the world; MOOCs democratise access to education; MOOCs expand the audience for education to people ill-served or completely shut out from the current system; MOOCs bridge digital and social divides; MOOCs will unlock the gates to accessibility and affordability in education; MOOCs will replace universities] (Bulfin *et al*, 2014) have attracted the attention of educators and have raised hopes of change in academic circles (Shirky, 2012). MOOCs have stimulated widespread interest, discussion and heated debate around the potential to "expand access to HE to all" (Yuan and Powell, 2013, p.8), simultaneously reach thousands of students, from every connected corner of the globe and every socio-economic background (Valenza, 2012), at a fraction of the cost and with potentially high Returns on Investment.

Carr (2012), thought that MOOCs could be one of the answers to the issues of Higher Education (Carr, 2012). Shirky (2013) argued that MOOCs could be a reasonable response to the failures of the U.S. Education system (Shirky, 2013). Stacey (2013) agreed that MOOC platforms had done a superb job at offering courses open to massive enrolments from anywhere on the planet but questioned their value.

Govindarajan and Desai (2013) argued that the current Higher Education business model was dysfunctional and the Internet was going to play an increasing role in democratising education (Govindarajan and Desai, 2013).

Is that really all a student needs? Govindarajan and Desai seemed to forget the importance of technological infrastructures, social support networks for teachers and most importantly pedagogy in learning, which seem to have been the Achilles' heel of programmes in developing countries, as mentioned above by Trucano (2012), Angwin (2013) and Bogost (2013): MOOCs' drop-out figures and the disappointing results (Watters, 2012) of the minimally-invasive education initiatives launched by Nicholas Negroponte (one laptop per child / OLPC) and Sugata Mitra (Hole in the Wall) are vivid examples that show that online education without academic support and appropriate infrastructures is not really working (Benbunan-Fich et al, 2005) and this raises serious concerns about the benefits of online learning to democratise education in underprivileged contexts. A study by Cristia *et al.* (2012) of 319 primary schools in rural Peru using OLPC conducted over a period of 15 months, found for instance limited effects on academic achievement: the children who received the laptops under the OLPC initiative showed no improvement in test scores (maths and language) or increased motivation to learn. Leaning (2010, p.232) stated that the OLPC project was an example of technological determinism, a model in which technology dissemination is considered to "lead directly and unarguably to discreet and discernible social benefits", with little concern for the local conditions or context. As early as 2012, Shirky predicted that MOOCs would not replace universities (Shirky, 2012). Others such as Moe (2013) were even more dubious of the need to disrupt the system or that MOOCs could be the only viable solution. Sebastian Thrun, founder and CEO of Udacity, gloomy statements (November 2013) "MOOCs are not a viable model for education" and "we have a lousy product" (Chafkin, 2013, para.10) sounded like a surprising and disappointing conclusion to the hype cycle (defined in the literature review). As bad news never seem to come alone, edX announced in 2013 that its plan to directly connect MOOCs students with potential employers, which could have been a source of revenue for MOOC developers, was unsuccessful (Kolowich, 2013).

Is the announced revolution already over or as Westservelt (2014) put it "drifted off course"?

A review of the posts at a MOOCs research conference (December 2013), described by George Siemens in his eLearnSpace blog as the best MOOC conference in MOOCs' history, seemed to confirm that the absence of [revenue generation models] and [low student engagement] were the most critical issues researchers were concerned about. Solutions were currently being sought by MOOC developers (signature track and certification fees for example) but, according to the MOOCs' enthusiasts, more experimentation was needed (Straumsheim, 2013). But is that all?

While these are important issues, are there any more fundamental questions to be asked? Do the existing Higher Education models (e.g. economic/pedagogical) need disruption for instance? The following questions also arise: What has gone wrong in the MOOC experiment? Was it an ill-conceived experiment gone wrong? What has changed in the Education World since their launch? Are MOOCs THE alternative to universities?

Daphne Koller, co-founder and co-CEO of the MOOC platform Coursera argued that Coursera had no plan to bypass traditional universities and provide fully-accredited degrees: She thought nevertheless that MOOCs have already had a strong and long-lasting impact on democratising education (High, 2013).

Printing presses displaced the scriptorium and changed the role of the monastic scribes (Eisenstein 1980) forever. The expansion of the railroads and the invention of steam-powered locomotives gradually replaced slow canal barges pulled by horses, facilitated the transportation of goods and the migration of people to other parts of the country, changed the way in which the local social organisation around the canals functioned (Jenks, 1944) and also influenced the local economy (Schumpeter, 1934): News towns were built, small villages were deserted, new shops and schools opened, people moved in, other left town forever.

Nowadays, Google maps and GPS devices have become an indispensable tool and make 'navigation' and how we get around in unfamiliar places easier but have they entirely replaced Michelin maps or have they encouraged them to evolve into their current mobile form [http://www.viamichelin.com/]? Camera/video smartphones have democratised photography and sharing of information, formal or informal _ a soundless click and your photo is immediately uploaded on Twitter, Snapchat or Instagram _ but have they totally displaced point-and-shoots or have they been the incentive to design more efficient and more user-friendly digital cameras?

According to Weise and Christensen (2014), disruption is a process, not an event. Convenience, the search for cheaper alternatives and ever-changing consumer needs have actually inspired innovation and the launch of new services/new products, i.e. WhatsApp, GoPro, Snapchat, Netflix, Trivago or Airbnb. Apps such as Instagram or Tripadvisor are used by millions of persons around the planet to express their joy, their fights, their good and bad experiences, their lifestyle choices or their fears. Low-cost airlines, labelled as *disruptive* by the industry, have opened new markets by launching new flight-routes undeserved by other more established airlines and consequently impacted on local economies. They did not initially compete directly with bigger airlines; they avoided heads-on confrontation by first proposing another previously unavailable choice. And this is also a feature of a disruptive innovation (further explored in the literature review). They democratised air travel and have allowed thousands to take flights at an affordable price. Low-cost airlines have not displaced more established airlines such as Singapore Airlines or Lufthansa; they offer however another *competitive* and cheaper option to customers. In response to the loss of business, Qantas has for instance adapted its business model and launched its own low-cost airline, Jetstar, following the launch by Virgin Atlantic of Virgin Blue. Hotels, restaurant tables, cars and flight ticket bookings are now mostly made on the internet, via mobile devices, through for example Hotels.com or Booking.com. This change in customer behaviour has not however totally destroyed travel agencies. Uber [https://www.uber.com/] has also brought *competition* and changed the way people view ridesharing services, offering an alternative. Para-pharmacies sell prescription drugs, often at a cheaper price. Pharmacies had to lower their prices and highlight their medical expertise to keep their customers.

Alibaba offers convenient worldwide shopping (and delivery) online but has not replaced local bricks-and-mortar shops. These changes in customer behaviour and threats to existing business models have not been easily accepted by the incumbents (the example of Uber lawsuits in many cities around the world or the fears of the Paris luxury hoteliers following the success of Airbnb in the French capital [http://www.theaustralian.com.au/news/world/airbnb-is-stealing-our-business-say-paris-luxury-hotels/story-fnb64oi6-1227479327797]), they have nevertheless transformed/impacted on parts of the value network in tourism or shopping, new jobs and new services were created, inspired by the success of these newcomers and existing businesses had to adjust to those changes, by for instance downsizing or recruiting.

In other words, the derived effects and impact of a disruptive innovation are more profound than only *technological*; it also impacts on societies and people.

Disruption or modernisation is however frequently seen by the soon-to-be disrupted and those generally opposed to change, as being a rather negative force, as its outcomes are rather unpredictable, it disrupts the status quo; According to Salathe (2014), disruption often suggests knocking down things. When the enemy or the invaders are at the gates, odds are that something rather dreadful is going to happen. Lepore (2014) argued that disruption is a theory of change, founded on panic and anxiety. But in many ways and on many occasions, disruption has fostered inspiration, brought positive changes, progress, more efficient products (e.g. medicine) or processes (e.g. computerisation in the aviation industry). Oakley (sunglasses) s' slogan is for instance *Disruptive by Design* implying that disruption could be a good and creative thing. Drone technology, extensively used in the military, is for example being tested by companies like Matternet [https://mttr.net/] to deliver products (Amazon), gather scattered cattle or spot sharks (Australia), deliver mail in Alpine areas in Switzerland or humanitarian aid and medicine to war/disaster zones or remote areas (Haiti, Nepal). Is Apple Pay *forever changing the way we pay for things* as argued by Tim Cook at the Apple Keynote 2015 March Event? Will it replace credit cards and cash to pay for a can of soft drink at vending machines? Only time will tell. It has nevertheless inspired Swatch Group to launch in 2015 watches with near field communication (NFC) chips to make quick and easy payments. "EBay is just another flea market and an auction system _ nothing new here _ but with the scale and speed of the Internet applied to them" stated Leadbeater (2009, Prologue, p.xxv). In other words different existing parts put together to create a new product or experience that can reach a large number of people, more conveniently, often cheaply and at a faster pace. Edgerton (in Sutherland, 2006, para.8) argued that we develop new things (innovations) but old things are constantly being rediscovered, redeveloped and sometimes applied in new ways: "Ships are the most important agent of globalisation - but we think of them as a very old-fashioned technology… But ships have been transformed so as to make the carriage of freight around the world virtually costless - which is why we can import so many cheap goods from China".
Disruptive processes or products have also brought realisation that something was not completely right and in need of change or iteration. The title and subtitles of an

article published in The Economist in March 2015 is self-explanatory: *Shock treatment. A wasteful and inefficient industry is in the throes of great disruption*.
Kaplan (2012) stated that disruptive innovations often go hand-in-hand with uncertainty. "Unexpected events, inevitable failures, and a fundamental lack of control are inherent to the process" (Kaplan, 2012, p.1). One of the positives effects of disruption is the learning and reflection opportunities (in retrospect) they might provide (Kaplan, 2012)

Massive Open Online Courses have often been criticised in the media and in the literature as just an improved eLearning tool. Kathryn Jablokow, at Penn State University argued for instance that MOOCs were nothing new, just a different way of using online learning. "Online isn't new. Massive isn't new. But this particular way of doing it is new" (Appleman, 2013, para.4)
The last two decades have shown that despite widespread implementation of e-learning policies and infrastructures (e.g. Learning Management Systems) in many universities around the world and despite the wealth of reflection opportunities they already provided (which could have been valuable lessons when designing the MOOC format), there is still little evidence of significant impact on teaching practices as indicated by Blin and Munro (2008), Selwyn (2007) and Conole (2004). Laurillard (2007) argued for instance that academics were not using technology to its full potential. Selwyn (2007) stated that the day-to-day experience of students with ICT was limited.
A year after their initial launch, there seemed to be a slight change of media headlines' tune. MOOCs were, once again, another eLearning initiative major disappointment: [MOOCs aren't revolutionising College; The failure of MOOCs; Why MOOCs are failing the people they are supposed to help? Why MOOCs fail. Where is the engagement? The MOOC revolution that wasn't].

Are we at the stages of "that honeymoon period coming to an end"? (Kolowich, 2013b, para.3) or are we entering a new constructive era in learning and teaching, a slope of enlightenment after the dust has settled?

Despite an increasing negative publicity, Philippe Zilberzahn, professor of entrepreneurship at EM Lyon (France) was nevertheless certain that MOOCs would "revolutionise the way we teach", as well as impact learning and teaching. He suggested that MOOCs were key players in Higher Education and were here to stay (Lewandowski, 2013, para.24). Others such as Simon Nelson of FutureLearn had a more unequivocal opinion on the transformative effects of MOOCs in the grand scheme of things: MOOCs would not transform higher education (Parr, 2014).

And this is what makes MOOCS very interesting: they seem to have polarised the debate. Researchers are still trying to figure out the impact MOOCs will have for various parts of higher education (Kolowich, 2013a) and even K-12 education (Atkeson, 2014), the impact they will have and the learning opportunities they might bring. They have also restarted the conversation about alternatives to Higher Education with the use of technology, refocused the debate on learning and student engagement online and face-to-face and generally got people to realise that there

are different and perhaps more efficient ways of designing and delivering Higher Education, particularly to the new so-called non-traditional generation of students.
Are MOOCs just an "evolution of existing principles and practice—of access, costs, quality and equity"? (Kanwar, 2014, p.7), a "useful addition to the growing array of educational opportunities" (Hollands, 2014, para.4) or do they have a more important role to play and a place in the education ecology? As Bates (2014) stated it, "the massiveness of MOOCs, their accessibility, and the wide range of questions they raise make the topic a very fertile area for research, and this is likely to generate new methods of research and analysis in the educational field" (Bates, 2014, para.15).

In summary, MOOCs' experiment is still ongoing and many questions remain to be answered or as Jansen and Schuwer (2015) have pointed out, "the literature on MOOCs in Europe is still developing" (p.6).

Literature on disruptive innovations in education and specifically Massive Open Online Courses is primarily concerned with its development, pedagogy, processes, course formats, user/subpopulations data, enrolments, participation and completion/dropout rates, and Business models. While this study will briefly address these themes in various chapters to illustrate some of the points, these will not be the main purpose of this thesis.

In the context of the above overview, I am now in a position to set the scene by stating that the purpose of this thesis and my original contribution to knowledge is to explore, through a critical theory lens, the extent to which disruptive innovations and particularly Massive Open Online Courses (MOOCs) might democratise access to Higher Education and might impact on academics.

1.2 Statement of the Problem

Literature on online learning and e-technologies is plentiful. Scholarly research on disruptive technologies in education and MOOCs is still emerging in the UK with mostly university reports and articles published on Higher Education websites such as The Chronicle of Higher Education, Times Higher or the Education pages of Wired, The Australian, the Wall Street Journal, The Guardian or Forbes. Most academic articles available to date focus on MOOCs' development, course designs (Rodriguez, 2012), user/subpopulations data, enrolments and completion/dropout rates (Kizilcec et al, 2013). The MOOC Research Hub (http://www.moocresearch.com/), funded by the Bill & Melinda Gates Foundation, also contributes to the scholarly literature on MOOCs.
Few published academic studies however, apart maybe from Sheard *et al* (2014), investigated the effect MOOCs have on the academic role.

Since Christensen *et al* report (2011) *Disrupting College* and the recent *Hire Education, Mastery, Modularization, and the Workforce Revolution* (Weise and Christensen, 2014), little academic work has been written on how disruptive innovations will impact education and if they will indeed deliver quality and affordability in postsecondary education. Massive Open Online Courses have struck a nerve among a few universities stakeholders since 2012 and yet few studies to date

have discussed their democratising impact and the pedagogical base that would ensure their success or failure. Will they provide an opportunity to "rethink many of the age-old assumptions about higher education—its processes, where it happens, and what its goals are" (Christensen, 2011, para.12) and redesign Higher Education? What threats will they pose to faculty and university teaching? will they destroy Academia (Vardi, 2012)? Or as David Brooks, columnist at Times puts it: "if a few star professors can lecture to millions, what happens to the rest of the faculty?" (Green, 2013, p.10), will they be able to increase access to education in developed and developing countries and bridge divides? (Perris, 2013), will they be transformative in markets where there is not enough capacity to meet demand for university education (Khemkha, 2013; Liyanagunawardema *et al*, 2013)?

In summary, many important questions still remain unanswered and the purpose of this thesis was to bring some answers.

1.3 Background to the Study

Student loan debt worldwide, and particularly in the U.S., has soared in recent years, affecting lower-middle-income students (Sheehy 2013) and forming a dangerous economic bubble, a "dot.edu bubble" (Trounson, 2013) ready to bust (Jacoby, 2012). Richard Vedder, distinguished professor of economics at Ohio University, and Matthew Denhart, administrative director of the Centre for College Affordability and Productivity stated that the amount of spending for postsecondary education in the U.S. was greater than the GDP of some European countries (Vedder and Denhart, 2011).

According to Wang (2013), following large federal and state cuts in the U.S., public universities have increasingly shifted their aid, giving less to the lowest quartile of family income and more to the wealthiest. In consequence, borrowings from middle to low-income families have increased. As university fees rose, so too did the amount each student had to borrow, and repay (Woo, 2013). Furthermore, research indicated that a vast majority of very high-achieving students from low-income backgrounds did not tend to apply to any selective college or university (despite generous financial aid available to them) limiting the prospective advantages they would have upon graduation (Hoxby and Avery, 2012; Wang, 2013; Pallais, 2013; Hoxby and Turner, 2013; Rampell, 2013c; Hoxby and Turner, 2015). Wealth gaps and inequalities in the U.S. are growing instead of declining and upward mobility is strongly affected (Archibald and Feldman, 2010). For Bowles (2014), "the school system [in the U.S] has been increasingly unable to support the myth of equal opportunity and full personal development" (Bowles, 2014, p.4).
Boehner and McKeon (2003) reiterated that Higher Education was still a social equaliser but raised concerns over the ongoing rise in student debt and its inevitable consequences.

Consequently the following questions arise.
Are these major issues, who is responsible and what can be done for those who can't afford Higher Education?

A Harvard University Institute of Politics Survey of Young Americans' Attitudes toward Politics and Public Service (2013) showed for instance that 68 percent of adults aged 18 to 24 considered rising student debt levels as a "major problem," while 42 percent believed that universities were responsible for its rising amount.

New more affordable alternative models have surfaced, which disrupt the notions that universities have the monopoly on developing the curriculum and granting degrees. One of the most controversial is Massive Open Online Courses (MOOCs) thought to be the 'transformative' revolution (Friedman, 2013), the tsunami, the Saviour (Butin, 2012), the one-size-fits-all approach to online education HE needs. The Oxford Dictionaries [Online] (2013) defined a MOOC as "a course of study made available over the Internet without charge to a very large number of people". MOOCs are an "elite Education for the Masses" announced Anderson (2012, title) in the Washington Post. In an interview, the University of Melbourne vice-chancellor Glyn Davis summarised the *scale* situation at his institution when he said: "We took 160 years to build up a student body of 47,000 on our campus and in 10 months we recruited 300,000 people online. That's the speed of change" (Dodd, 2013, para.3). This velocity, unanticipated worldwide interest for an eLearning technology and alleged success have nevertheless created widespread controversy, strong concerns and sometimes rejection, reaching its negative peak with the laconic and straightforward [San Jose State University department of philosophy] open letter statement: "Professors who care about public education should not produce products that will replace professors, dismantle departments, and provide a diminished education for students in public universities".
[http://chronicle.com/article/The-Document-an-Open-Letter/138937/] (para.17).
While some described MOOCs as [a fad], [poor quality], [still in its Precambrian stage] (Broughton, 2013) or a [flash in the pan] (Donaldson *et al*, 2013), highlighted the absence of pedagogy, the lack of business model, Butin (2012, para.7) argued that MOOCs would become the de facto way to remediate and "educate a broad swath of postsecondary students in a wide variety of content areas". Could MOOCs open up access to education and hence foster social inclusion? Diana Laurillard, professor of learning at the Institute of Education (UK) dismissed the "hype" about MOOCs transforming access to higher education to those who most need it when she stated that expert learners with sufficient financial means were the current audience of MOOCs (Palin, 2014).

Do MOOCs have one or multiple pedagogic forms and intentions (cMOOC/xMOOC, defined *Definition of terms*)? Or should current MOOCs be more adequately described as the MOOC format or model? Other critical questions are as follows. Are MOOCs targeting the right student segment? Should they, in fact, be targeting any segment at all? Will high-quality MOOCs taught by world-class academics change students' expectations at their local university?

Anant Agatwal, edX CEO, attempted to explain massive dropouts when he stated that they did not really consider the users when they designed the courses (Palin, 2014). Selingo argued that four in ten freshmen arrived on U.S. campuses unprepared for college-level work (are at higher risk of dropping out) and often had

to enrol in remedial reading, writing, or math courses. According to Selingo, MOOCs could be a way of solving this problem (Selingo, 2013). A study, published in November 2013 by Penn researchers in the journal Nature (Emanuel, 2013; Christensen et al, 2013), indicated however that a large majority of students who had taken MOOCs on Coursera were highly educated and career-oriented. This was confirmed by a University of London International Programmes report (Grainger, 2013) and a Qualtrics and Instructure survey (2013). *One of the Lessons Learned from Vanderbilt's First MOOCs* (Bruff, 2013) which indicated that retention rates were very low and successful participants were well-motivated students (Bruff, 2013). Bruff (2013) warned however against the risks of substituting any course with a MOOC (Bruff, 2013).

What happens to the hundreds of thousands who are not so highly motivated? According to Tracy Wheeler, a 52-year-old education consultant who completed three MOOCs, the experience without any kind of human mediation was more alienating than rewarding (Westervelt, 2014).

Despite the flaws mentioned above, MOOCs have nevertheless become a significant force to be reckoned with (Conole, 2013) and the San Jose State University statement showed that a number of institutions felt/feel threatened by it.

This research developed from the gaps identified in the literature as well as the author's interests. The focus of the study was initially kept broad to allow the issues to emerge from the participants' experiences. The research for this thesis began with an exploration of the relevant literature on knowledge-based economies, the Higher Education economic/business models in the U.S (where the first MOOCs were launched, to understand the reasons for their launch), the U.K and Australia, their historical context (s) and policy changes over time, the skills mismatch in the labour markets, and on the possible disruptive solutions Higher Education could adopt to prevent a total assumed meltdown.
Due to a larger availability of articles and scholarly studies, particularly related to the difficulties faced by the Higher Education sector, the first part of this thesis focuses on the U.S. context. As the main research question of this study relates to the larger picture of the democratisation of Higher Education, it was necessary however to gather as many perspectives as possible to better understand the impact of MOOCs in different educational contexts. Participants in the study were purposively selected based on their domain of expertise (theoretical sampling), their involvement with MOOCs, either as designer, participant, critic or commentator, the particularity of the educational context in the country in which they were based (developed or developing country) and for their potential to refine theory. As there were insufficient studies with a theoretical basis to form hypotheses for this study, the author selected an inductive approach and research method (Glaser & Strauss 1967). As this method allowed the concerns of study participants to inform the development of a model, it was considered most suitable for meeting the aims of this research.

After a preliminary review of the existing literature on disruptive innovations and Massive Open Online Course (MOOCs), a main research question (see below) was generated in response to the recognised gaps in the literature.

1.4 Research Questions

This study seeks to answer the following main research question (MRQ):

To what extent might disruptive technologies democratise access to higher education?

A number of Guiding Questions were also originally generated to refine the study:

- Are Higher Education economic and business models fit for purpose?
- Is disruptive innovation needed in Higher Education?
- Can disruptive technologies flip the Higher Education planet and render the current traditional/business model (s) obsolete?
- Can MOOCs be a catalyst for broader change in the industry and potentially undermine the ultra-dominant role that campus-based institutions have as exclusive providers of knowledge and credentials (Mazoue, 2013)
- What risks/threats do disruptive technologies such as MOOCs pose to universities?
- What impact will MOOCs have on faculty, teaching and universities?
- Can MOOCs increase access to education in developing countries?

The review of the literature helped identify important gaps but while the focus of this thesis was considered to be right, the scope was found to be too broad. According to King and Horrocks (2010), when the research questions are too broad, they may in effect be unanswerable. The researcher therefore narrowed down the scope and focused on one particular disruptive technology: Massive Open Online Courses (MOOCs).

The MRQ was kept and a sub-question was generated following a grounded theory approach: **What impact will MOOCs have on faculty, teaching and universities?**

The method used to gather data in this study was a mini demographic survey and individual semi- structured interviews (face-to-face and on Skype) with each selected participant (See Appendices).
Because the data was personal and experience-based, a qualitative study was found appropriate. Maxwell (2012) argued that the strengths of qualitative research derive primarily from its inductive approach, its focus on specific situations or people, and its emphasis on words rather than numbers. A Grounded Theory approach does not involve gaining a statistically representative sample of respondents. The number of participants (eighteen) was determined by the achievement of 'theoretical saturation'. According to Patton (2002), "there are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of

the inquiry, what's at stake, what will be useful, and what will have credibility, and what can be done with available time and resources" (Patton, 2002, p.184).

The main research question and the sub-question designed for this study imply that there might be a longitudinal aspect to this research. The approach adopted however was not longitudinal *per se*. As, according to the most recent literature, we are still in the midst of the MOOC format (s) development, data gathered for this study is based on a snapshot in time, contexts and locations. The only longitudinal aspect of this study was in the development of the literature from the hype to the beginning of the after-hype. The future is hard to predict and the MOOC model as we currently know it might not be long lasting, might evolve into various shapes and forms (already is) or quickly become obsolete but the lessons learned and the insights provided by the research findings of this study will make a valuable contribution and have long-term relevance to research on disruptive technologies in Education, technology-enhanced /open learning and particularly Massive Open Online Courses.

Figure 1-1a: Schema of the research context, main objectives and contributions (next page)

A graphical representation of interview themes and how they relate to each other is provided in Figure 1-1b. Interview questions are in Appendix A of this thesis.

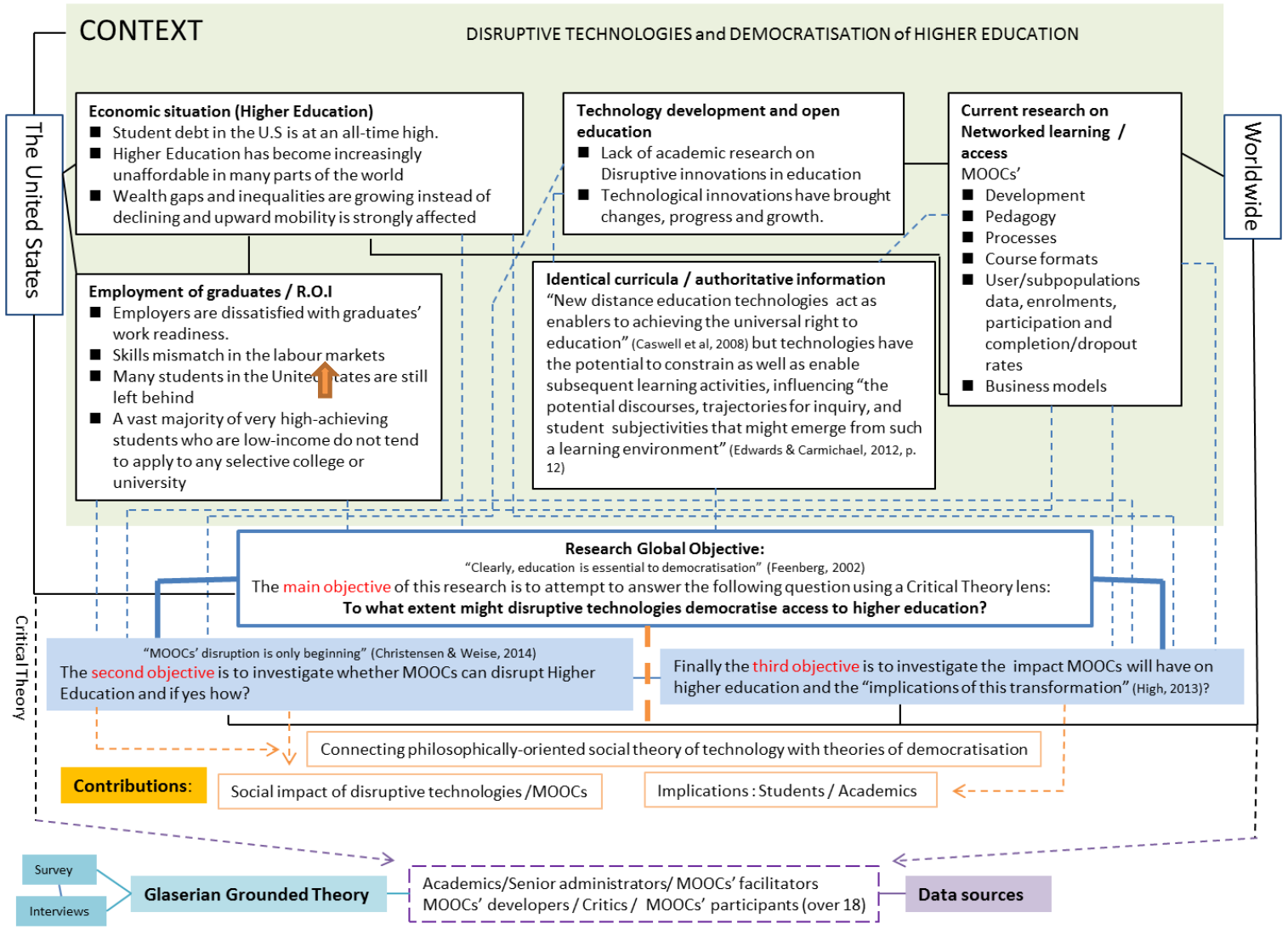
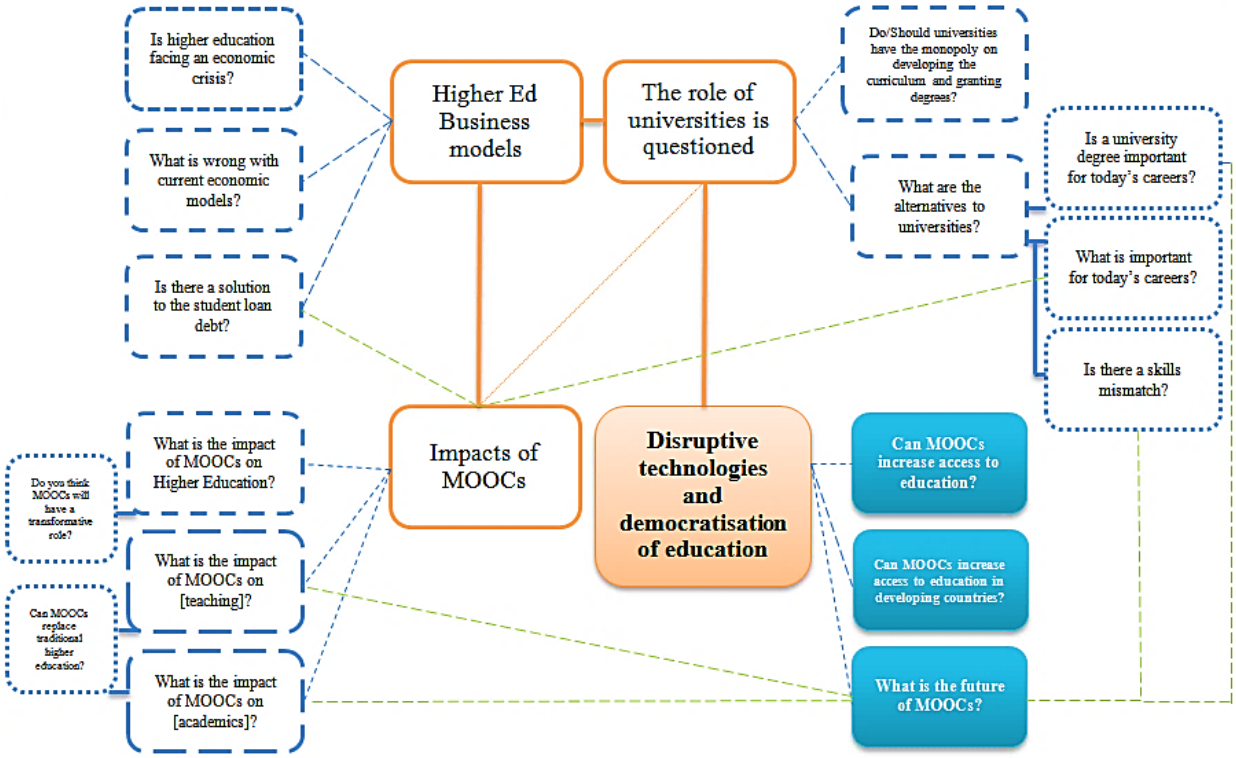

CONTEXT
DISRUPTIVE TECHNOLOGIES and DEMOCRATISATION of HIGHER EDUCATION
The United States
Worldwide
Economic situation (Higher Education)
Student debt in the U.S is at an all-time high.
Higher Education has become increasingly unaffordable in many parts of the world
Wealth gaps and inequalities are growing instead of declining and upward mobility is strongly affected
Technology development and open education
Lack of academic research on Disruptive innovations in education
Technological innovations have brought changes, progress and growth.
Current research on Networked learning / access
MOOCs'
Development
Pedagogy
Processes
Course formats
User/subpopulations data, enrolments, participation and completion/dropout rates
Business models
Employment of graduates / R.O.I
Employers are dissatisfied with graduates' work readiness.
Skills mismatch in the labour markets
Many students in the United States are still left behind
A vast majority of very high-achieving students who are low-income do not tend to apply to any selective college or university
Identical curricula / authoritative information
"New distance education technologies act as enablers to achieving the universal right to education" (Caswell et al, 2008) but technologies have the potential to constrain as well as enable subsequent learning activities, influencing "the potential discourses, trajectories for inquiry, and student subjectivities that might emerge from such a learning environment" (Edwards & Carmichael, 2012, p. 12)
Research Global Objective:
"Clearly, education is essential to democratisation" (Feenberg, 2002)
The main objective of this research is to attempt to answer the following question using a Critical Theory lens:
To what extent might disruptive technologies democratise access to higher education?
Critical Theory
"MOOCs' disruption is only beginning" (Christensen & Weise, 2014)
The second objective is to investigate whether MOOCs can disrupt Higher Education and if yes how?
Finally the third objective is to investigate the impact MOOCs will have on higher education and the "implications of this transformation" (High, 2013)?
Connecting philosophically-oriented social theory of technology with theories of democratisation
Contributions:
Social impact of disruptive technologies /MOOCs
Implications : Students / Academics
Survey
Interviews
Glaserian Grounded Theory
Academics/Senior administrators/ MOOCs' facilitators
MOOCs' developers / Critics / MOOCs' participants (over 18)
Data sources

Figure 1-1b: Graphical representation of interview themes



1.5 Contributions to the Existing Literature

This thesis makes five noteworthy methodological, theoretical and practical contributions to the existing literature
(See Section 7.3 Thesis contributions and implications (Chapter 7), for a detailed explanation).

This thesis contributed on a methodological level by using a qualitative approach to identify five major issues that influence the democratisation effect of MOOCs in developed and developing countries: Infrastructural issues, social issues, political issues, design, and pedagogical issues. Within these categories, this study identified the main additional barriers participants face when accessing MOOCs: Cost of technology, cultural and language issues, lack of fundamental skills, choice and support. While a number of published articles had examined these themes in a particular context, there was no study of this length that explored these issues in a number of developing and developed countries using a Grounded Theory approach. This thesis indicated that a significant shift in perspective is required to address the shortcomings of the current MOOC model. The main focus of the academic debate should be on improving MOOCs' curriculum/instructional design quality, on collaborating to rethink/redesign the current unsuitable and inefficient pedagogical MOOC format, its uses and necessary adaptations across various contexts, rather than on focusing on the technology, its mechanisms and its potential revenue model (s). This thesis makes a significant contribution to knowledge and addresses a

significant gap in the literature by proposing an integrated and adaptive model with critical success factors that would influence the MOOC model's effectiveness (Figure 7-6, p.232), which, to the best of the author's knowledge, is unique in the published literature. The purpose of this model is to attempt to address the limitations and weaknesses of the current MOOC model and help all stakeholders understand the crucial elements that influence its effectiveness in terms of student learning. The approach selected for this study enabled the data from various sources to be compared and analysed. This informed the development of the model.

The principal theoretical implication of this study is that this study is one of the few lengthy scholarly works in the UK (and in most of the research literature) that investigated the MOOC model in a range of developed and developing countries and addressed the main research question related to MOOCs' potential to democratise access to postsecondary institutions, through a Critical Theory prism. This contrasts with a large number of studies in the literature which mainly focus on demographic differences, participants' experiences, perceptions of learning and patterns of engagement in some MOOCs, in other words Big Data on learners, why do participants join a MOOC, why do they persist and why do they drop, from the participants' perspective. The author proposed improved Meta-Design Principles that shape how future work in this area should proceed.

This study has raised important questions about the nature of the MOOC format. This thesis investigated issues often neglected in the current literature such as the level of impact (s) MOOCs would have on universities, teaching and particularly academics, in various educational contexts, in developed and developing countries. It used a Grounded Theory approach that adds to the research gap in MOOCs' research. A study by Bozkut et al (2016) of fifty one theses and dissertations related to MOOCs and published between 2008 and 2015, indicated that whilst one thesis had employed a Critical Theory approach, no thesis to date had used Grounded Theory. Furthermore, as indicated in the literature review, very few peer-reviewed scholarly studies to date have examined at length MOOCs' impact on academics. To the author's knowledge, there are no studies that explore this topic across various countries.

The main practical contributions of this study and particularly the new integrated and adaptive model for a more effective MOOC model proposed in Figure 7-6 are to the field of technology-enhanced learning, disruptive innovations/technologies in Education and Massive Open Online Courses (MOOCs). This study has helped clarify the debate related to whether MOOCs are a disruptive innovation or rather a disruptive technology, an issue that has not been widely discussed in the literature.

1.6 Definition of Terms

This part of the chapter defines various terms as they will be used throughout the dissertation: disruptive innovations, particularly in the context of education, Massive Open Online Courses and its two main forms (cMOOC/xMOOC) and Connectivism.

In order to understand the extent to which disruptive innovations might democratise Higher Education, it is important first to clarify what the terms mean.

1.6.1 *Disruptive Innovations*

Clayton Christensen (Website) described a disruptive innovation as "a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors" (http://www.claytonchristensen.com/key-concepts/). In short a new technology that unexpectedly supplants an established technology.

1.6.2 *Democratisation*

Refers in the context of this study as the potential of disruptive innovations to widen access and participation to higher education to reduce inequalities

1.6.3 *Massive Open Online Courses (MOOCs)*

The Oxford Dictionaries Online (2013) defines a MOOC as "a course of study made available over the Internet without charge to a very large number of people". Educause Library (2013) defines it as [*a model for delivering learning content online to any person who wants to take a course, with no limit on attendance*]. According to Downes (2013, para. 8) the term derives from a "theory of learning based on engagement and interaction within a community of practitioners, without predetermined outcomes, and without a body of knowledge that we can simply 'transfer' to the learner". A difference in pedagogical approaches has led to the differentiation between cMOOCs and xMOOCs.

1.6.3a *c*MOOCs

C for "connectivist", the educational theory that initially inspired them
Their pedagogical model focuses on peer learning. cMOOCs focus on harnessing the power of social media and **interaction with peers**, adopting a connectivist learning approach (Conole, 2013). Siemens *et al*. created the first MOOC in 2008, called 'Connectivism and Connective Knowledge'.

1.6.3b *x*MOOCs

Are online versions of traditional learning formats (lecture, videos, discussion forums etc.) on platforms such as edX, Udacity and Coursera, owned or funded by private enterprises. xMOOCS are based around **interaction with content** and essentially adopt a behaviourist learning approach (Conole, 2013).

Note: In this thesis, the researcher adopted the terms MOOC [model] and [format] to describe MOOCs as they are currently offered on MOOC platforms.

1.6.4 Connectivism

According to Downes (2008), a theory of learning emphasising on how knowledge and skills emerge from making connections between different domains of activity such as experience, learning and knowledge, as well as between individuals in a social network (Downes, 2008).

1.7 Summary

This section has provided an overview of the research, introducing the thesis, the main research question and the sub-question generated after an initial review of the current literature on MOOCs. This chapter has also presented the existing gaps identified in the literature, which will be detailed in the next chapter. Moreover, this chapter has defined the key terms within the thesis as they will be used in the context of this research.

1.8 Organisation of this thesis

This thesis consists of eight chapters. Chapter One introduces the field of study, states the problem, gives the backgrounds to the study, presents the research question (and sub-question) and details briefly the contribution to new knowledge. Chapter Two is the literature review of this dissertation. Chapter Three presents the theoretical framework (critical Theory) and the methodological approach (Glaserian Grounded Theory) adopted for this study. Chapter Four describes the instruments and methods adopted to gather the qualitative data used in this thesis. Chapter Five presents the findings relevant to the main research question (MRQ) and the sub-question. Chapter Six discusses the findings in light of the literature. Chapter Seven discusses a more effective MOOC model. Chapter Eight is the general conclusions chapter and provides recommendations for future research.

1.9 Overview of the Literature Review (Chapter Two)

This chapter reviews prior literature informing this study. The literature review serves the four following objectives:

1 Informs the research paradigm that underpins this study,
2 Identifies related current research on disruptive innovations and MOOCs,
3 Identifies gaps in previous published research,
4 Adds further dimensions and perspectives to the research question and sub-question to be investigated in this study.

Chapter Two reviews the literature relevant to the Higher Education model in the U.S. The second part of the chapter reviews the literature pertaining to technology in education, disruptive innovations and Massive Open Online Courses (MOOCs).

In short, the main purpose of this chapter is to summarise relevant aspects of the areas of literature which helped to locate the research to be carried out for this thesis and identifies specific research gaps.

This review is based on an analysis of disruptive innovations/technologies in education/MOOC-related literature – peer-reviewed journal articles, books, book chapters, reports, conference proceedings – supported by a selection of education-related newspaper articles that have been describing, analysing, criticising the MOOC phenomenon since their launch.

CHAPTER TWO: LITERATURE REVIEW

Literature Review Part I

> *"Let's face it, in the age of Google and Wikipedia the business model of the university and probably secondary schools is simply gonna have to change. We just can't sell facts for a living anymore. They are available with a click of a mouse"* (Firenstein, 2013, TED lecture).

2.1. Introduction

The Literature Review is divided into two main parts. As Glaser (1978) advocated to read the literature in an area which is different from the research and consistent with his views that preliminary reading is often necessary to put a study into some context (Glaser, 1998), Part 1 reviews and discusses the literature relevant to the Higher Education (HE) economic and business models in the U.S. and particularly the crisis affecting Higher Education in the U.S., affordability, the factors contributing to the rising costs of college (shrinking state funding for Higher Education, overspending by universities), its impacts (tuition increases, rising student debt, the relationship between a College education and future income, economic mobility, needs-based aid for those who can't afford).The review then turns to studies which have identified graduates' unemployment and demographics of the increasingly non-traditional student population, graduation rates, and unemployment of graduates, students' career readiness and skills' mismatch. Alternative university models are also presented in this section as well as drivers of change related to education in developing countries (African countries and India). The review continues by discussing the knowledge and digital divide, the links between education and civil engagement, neoliberalism, internet and democracy, and the control of knowledge. Finally Part 1 looks at studies which identify an increase in wealth gaps and inequalities in the U.S., and how these affect social mobility. Having identified a gap in knowledge about disruptive innovations in education, Part two of the literature review turns to areas related to technology and online education, particularly how technological innovations have brought significant changes, progress and growth (to people and society).

Creswell (2003) argued that the role of a literature review was for the review to evolve simultaneously with data collection, in other words literature had to be sampled according to its theoretical relevance to the emergent theory. An inductive Grounded Theory approach was selected as appropriate for this research study. The background literature was not used to generate any hypotheses and did not drive the data collection or analysis. The literature was considered relevant to the theory development and assisted the author's sensitivity to the data and the variables that relate to the area of research. Glaser (2004) asserted that Grounded theory can use any type of data and is not restricted to any particular method of data collection (Glaser, 2004). Collected documents were simply another source of data to be analysed through constant comparison, synthesised and integrated into the

emerging theory. As relationships became more evident, additional relevant literature was identified, which contributed to the analysis and development of the model presented in Chapter 7.
Determining the delimiters for the review required careful consideration of the context of this study. The author reviewed news media stories published in Higher Education websites such as The Chronicle of Higher Education, The Conversation, Times Higher or the Education Pages of Wired, The Australian, The Wall Street Journal, The Guardian or Forbes and searched six scholarly electronic databases between January 2013 and September 2016 to identify original books, research papers, reports, theses using search terms such as "MOOCs", "MOOCs and democratisation of education", "disruptive innovations in education", "disruptive technologies in education", "The crisis in Higher Education", "Massive Open Online Courses and employers". These databases included: Scopus, Science Direct, JSTOR, MERLOT, Sage, and Google Scholar.

Each article and research paper was initially screened (title, abstract, introduction and conclusions) to ensure that the review only included articles most relevant to the topic. Articles and papers that did not explicitly focus on the search terms were discarded. In the case of articles, the author obtained the full text that passed the first level of screening and classified them based on journal, location, impact and qualitative approaches used (e.g. interviews, surveys, case study).

To identify eligible studies, the author conducted a systematic qualitative literature review (Tranfield *et al*, 2003; Alasuutari *et al*, 2008) of empirical and peer-reviewed articles that aimed to minimise bias and provide a reliable and reproducible assessment of the research topic.

2.1.1 Higher Education is at a Crossroads

What is the value of a college degree? Asked Selingo (2013) in one of his posts on LinkedIn, a social networking platform for professionals. What's a college education worth these days? Wondered Miller (2013), President of Bethany College. What exactly is the point of a university? Pondered Tet (2013) of the Financial Times, after attending the World Economic Forum in Davos on the future of online education.

Numerous reports such as Arum and Roksa (2010) and Barber et al (2013) highlighted that companies found it increasingly very difficult to hire ready-to-work skilled employees. A McKinsey survey found for instance that almost 40 percent of employers struggled to find people with the right skills for entry-level positions, and 70 percent blamed this shortfall on adequate training. Furthermore, 70 percent of education providers believed they "suitably prepare graduates for the jobs market" (Barton, 2012, para.5). By contrast, in 2011 in the UK, 25 percent of graduates were unemployed (Osborne, 2012). According to the Georgetown Centre on Education and the Workforce, 62 percent of all jobs in the U.S. will require at least some college education by 2018. However, by 2018 the American system of higher education is expected to produce three million fewer college graduates than the labour market will demand (Carnevale *et al*, 2010). By 2022, India will also be short of more than 103 million skilled workers in the infrastructure sector, about 35

million in the automobile industry and 33 million in construction (Lakshmi, 2013). A Centre for College Affordability and Productivity study (Vedder et al, 2013) put the portion of those with a bachelor degree in the U.S. who had jobs that did not require a college education at around 48 percent. In 2012, the portion was about 52 percent, according to Andrew Sum, an economist at Northeastern University (Risberg, 2012) About 10 percent of U.S. jobs require training in science, technology, engineering and math fields, but don't require a four-year degree, according to a report from the Brookings Institution (Rothwell, 2013).

Accountability and pressure on universities has never been so strong and the debate has never been so global. Higher Education is challenged and in need of change.
The main questions are: what are the necessary changes and/or is there an alternative to the traditional model? Can disruptive innovations render the current traditional/business model (s) obsolete? Can disruptive technologies be the shock therapy (Klein, 2007) Higher Education needs?

Before we can attempt to answer these questions, we need to take a detailed look at the context of Higher Education in the U.S., where the first serious challengers to its current model initially appeared.

2.1.2 Is Higher Education in the U.S. actually Facing a Crisis?

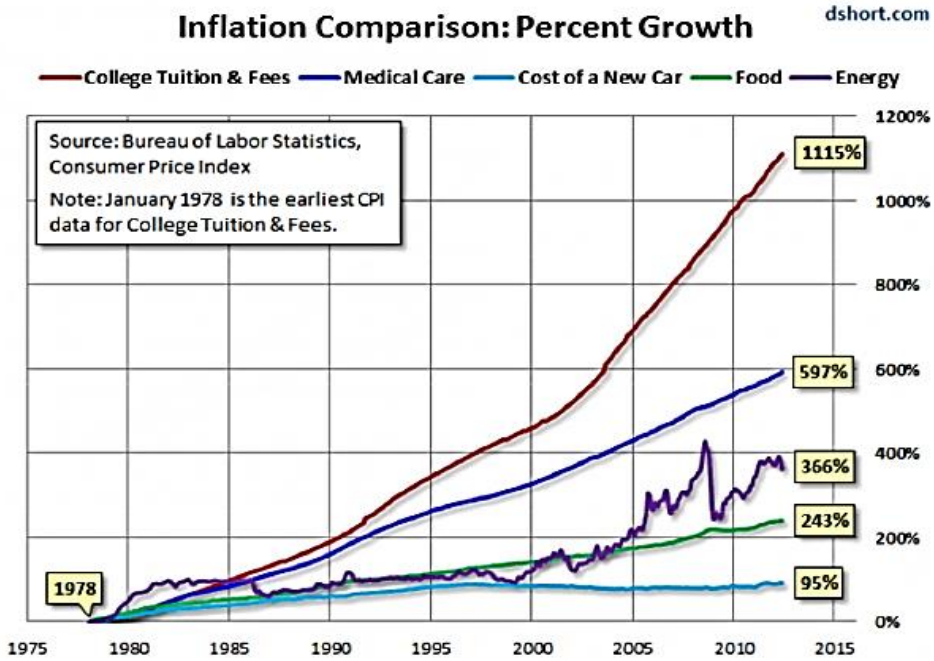
There is widespread agreement in the literature (Cuban, 2012; Addo, 2013; Lawrence, 2013; Meacham, 2013; Selingo, 2013; Bowles, 2014) that the U.S. higher education model is facing, for quite some time already, tremendous pressure (Rubin, 2013). The 20th century saw the rise and expansion of the almighty university with their transformative role, the main societal hub for knowledge and learning (Pew, 2012a). A university degree promised social advancement, a bright career and great financial prospects. While the promises still hold true (Pew, 2012b; AWPA, 2013) for many graduates, a significant number of degree holders struggle to find a job or are underemployed, as indicated above. Will the 21st century see the downfall of the university traditional model?
Drucker's wake-up call two decades ago (1997) sounds now like a prophecy:

> "Thirty years from now the big university campuses will be relics. Universities won't survive. The future is outside the traditional campus, outside the traditional classroom. Higher education is in deep crisis" (Drucker, 1997, quoted in Lenzner and Johnson, 1997, p. 126).

A blunt statement acknowledged by Barber who posited that the current university model was inadequate (Barber *et al*, 2013) to the needs of the industry. Microsoft co-founder Bill Gates described, a few years ago, universities as *an endangered species* (Tanner, 2011), a comment inspired by Delbanco's New York review (2005) of Kerr's (2001) *The Uses of the University* and Duderstadt and Womack (2004) books. Harden (2013) and Aoun (2012) predicted Higher Education *Armageddon*, acknowledging the "end of the university as we know it", massive and irreversible changes, a strong "shakeup" (Aoun, 2012). Jeffrey Selingo, editor-at-large at The Chronicle of Higher Education –referred to the period from 1999 to 2009 as the "lost decade" for the American Higher Education sector, which witnessed a sharp increase

of student and institutional debt (Selingo, 2013). Harden stated that most of the universities in the U.S. were doomed and predicted that a large number of academics would be losing their jobs. He also predicted that access to universities would soon be at no cost (Harden, 2013). Daphne Koller (Cadwalladr, 2012), Coursera's co-founder acknowledged that demand in Higher Education exceeded supply and argued about the transformative role technologies would play to offer an affordable alternative to students. College tuition in the U.S has in fact skyrocketed and outpaced medical care, as shown in Figure 2-1. Figure 2-1 shows the inflation comparison between college tuition, medical care, and cost of a new car, food and energy in the U.S. and percentage growth between 1975 and 2015. According to the Trends in College Pricing report from The College Board (2014), in the private non-profit four-year sector, the increases in tuition and fees were 24 percent over 10 years and 66 percent over 20 years.

Figure 2-1: Inflation comparison (USA)

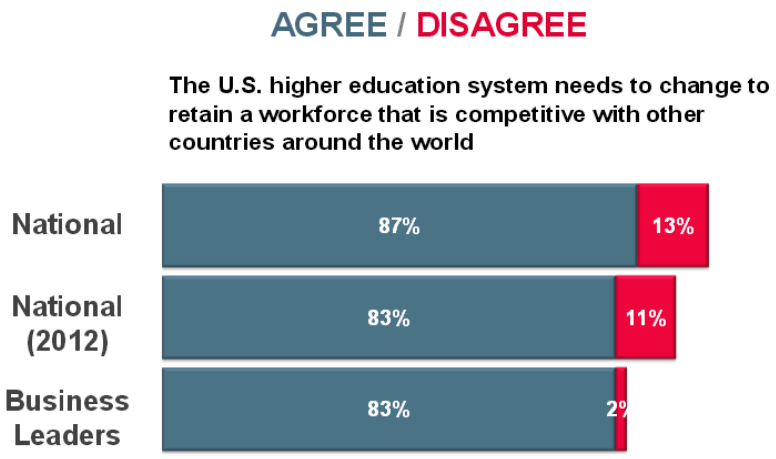


Source: dshort.com | *Used with permission of Doug Short (13/10/2015)*

2.1.3 Tipping Points and Identity Crisis

Some suggest that the entire model of higher education has reached its tipping point, is suffering from an identity crisis (Lawrence, 2013), is obsolete, faces a complete meltdown (Cuban, 2012) and needs to be disrupted or reinvented to avoid total calcification (Agarwal, 2013). A majority of Americans think that the system needs to change to remain competitive, as shown in Figure 2-2.

Figure 2-2: % of Americans who feel that the Higher Education system needs to change



Source: Northeastern University, 2013: Innovation Imperative: Enhancing Higher Education Outcomes. http://www.northeastern.edu/innovationsurvey/. *Used with permission of Michael Armini. (16/10/2015)*

Taylor (2009) compared Higher Education to the city of Detroit. He argued that failing to closely monitor, regulate and restructure HE would likely result in the scenario that caused the city to collapse financially. According to Taylor, Higher Education needed to be rigorously regulated and completely restructured to avoid a bubble. The September 15, 2008 'Black Monday' on Wall Street, following Lehman Brothers breakdown and the subsequent literal and sudden (but predictable) meltdown of Detroit, the largest municipal bankruptcy filing in American history in terms of debt, has proven that dire consequences happen when whole sectors are unmonitored, mismanaged (Davey and Walsh, 2013) or when whole systems such as the Nasdaq Stock Market are not called into question (Bunge, 2013). In other words, when bubbles are formed and burst (Reynolds, 2013).

This leads to the question: Is there already a Higher Education bubble and what would the consequences be if there was?
While according to John Tamny, columnist at Forbes, the next bubble is online education (Tamny, 2013), Peter Thiel, entrepreneur and venture capitalist thinks that there is in fact a Higher Education bubble because of the large amount of debt it has already generated (Lacy, 2011).

2.1.4 The Butterfly Effect

The interconnectivity of world markets and their interdependence has shown that the butterfly effect is real (Dowes, 2013) and constantly present. First described by Edward Lorenz, a meteorologist, in 1972, the term *butterfly effect* (sometimes referred as *ripple effect*) originates from chaos theory and particularly the idea that the slightest differences in initial conditions would make the prediction of future outcomes/consequences very difficult. In other words one slight change could potentially affect the events that follow, which in turn would have an impact on others events (or people) originally related or not related, making the whole

situation uncertain. The term is here particularly relevant to this study because of the initial predictions or promises made each time a disruptive technology or innovation appeared and the slight variations made by the early adopters that potentially had subsequent different and unpredictable effects.

The economic crisis has had ripple effects, affecting all sectors and many people and the Higher Education sector is no exception (Altundemir, 2012). While the global economy is dealing and struggling with one of the worst crisis in recent times, the liquidity crisis has also heavily impacted Higher education (Denneen and Dretler, 2012), taking its toll on families' income and retirement savings, or as Denhart (2013, title) put it *crippling students, parents and the economy*.

To attract more students to their campuses, universities had invested heavily in state-of-the-art infrastructures. When government, state and private funding started to dwindle because of the financial crisis, universities had to cut services, downsize and find additional sources of income: they increased tuition fees, which in turn made student debt swell, at undergraduate and graduate levels (Fearnow, 2014), particularly students from low-income backgrounds.

In short, changes (small or big) in initial conditions lead to a significant scale variation in the state of the system.

The [butterfly effect] term is also relevant because history has shown that the implications of the transformation brought by a technical or technological advance might be devastating.

It is finally very relevant to this study as the long-term impact of MOOCs (the incubation period), and particularly the various variations of MOOCs that have been/will be launched by universities or corporations, and how they will be felt differently by different educational contexts, universities, academics and students are very hard to foresee.

2.1.5 The Need for Transformation

An Ernst & Young report (2012) warned Australian universities to quickly adapt (offer new courses, merge with other institutions, cater to new student audiences, etc.), as they will not survive unless they radically overhaul their current business models (Ernst & Young, 2012). There are calls everywhere for transformation and the search for a disruptive innovation model is on (Bower and Christensen, 1995; Bush and Hunt, 2011; Christensen and Eyring, 2011) to shake the status-quo. Eva Bogaty, Moody's Assistant Vice President, thought that affordability was a very serious issue and the U.S. Higher Education business model was currently at the most crucial stage to ensure its financial sustainability (Moody, 2013).

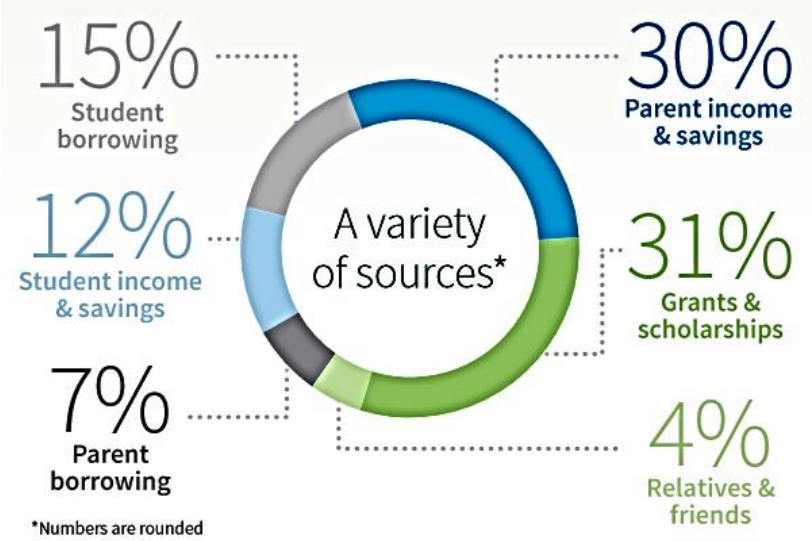
2.1.6 Affordability

Affordability seems to be the most discussed topic in American higher education circles in the last decade.

According to a poll (2012) sponsored by TIME and the Carnegie Corporation of New York, 89 percent of U.S. adults and 96 percent of senior administrators at colleges and universities said Higher Education was actually in crisis, and its main reason was that families were not able to afford anymore to send their kids to college. According to Bowdish (2013), in the past 50 years, more than 60 million Americans had used student loans to pay for college. In 1950, only 5 percent of Americans age 25 or older

held bachelor's degrees. Today, that figure had increased to 31 percent (Bowdish, 2013). Student loans have approximately tripled since 2004, and around 9 percent of all consumer debt is now student loans, up from 3 percent a decade ago argued Gellman (2013). Americans have also grown increasingly negative about their own finances: Less than a third (32 percent) rated their financial situation as "excellent" or "good", according to the Pew Economic Mobility Project (2013). But a Sallie Mae report (2013) suggested that despite significant financial challenges, parents continued to be willing to stretch themselves financially to send their children to college (58 percent in 2013, compared with 53 percent in 2012). Figure 2-3 shows how the typical American family payed for College in 2014.

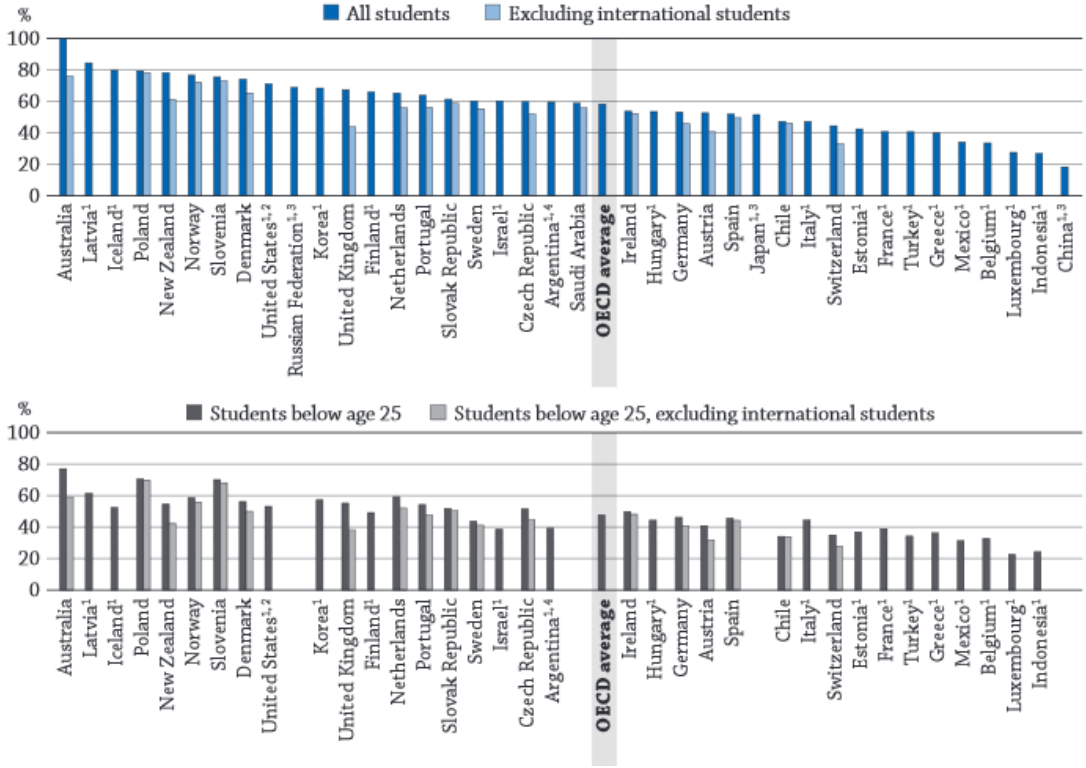
Figure 2-3: How the typical American family pays for College (2014).



Source: Sallie Mae (2014) | *Used with permission of Sallie Mae (16/10/2015)*

While 98 percent of families believed college was still a worthwhile investment (Sallie Mae, 2014), more than 90 percent of Americans said colleges were not doing enough to improve affordability (Time and Carnegie Corporation of New York survey, 2012). According to a report from the Lumina Foundation and Gallup (USA, 2013), an overwhelming majority of the 1000 interviewed had doubts about secondary and Higher Education quality and said college was unaffordable (74 percent), limiting their access to a tertiary education. The Pell Institute and The University of Pennsylvania Alliance for Higher Education and Democracy (2015) report has for example shown that in 2013, 77 percent of adults from families in the top income quartile earned bachelor's degrees by the time they turned 24 compared to 9 percent of people from the lowest income bracket (Korn, 2015), a 3 percent increase only for the poorest students if compared with 1965. Figure 2-4 shows the proportion of students who enter tertiary education in various countries as comparison.

Figure 2-4: Proportion of students who enter tertiary education.

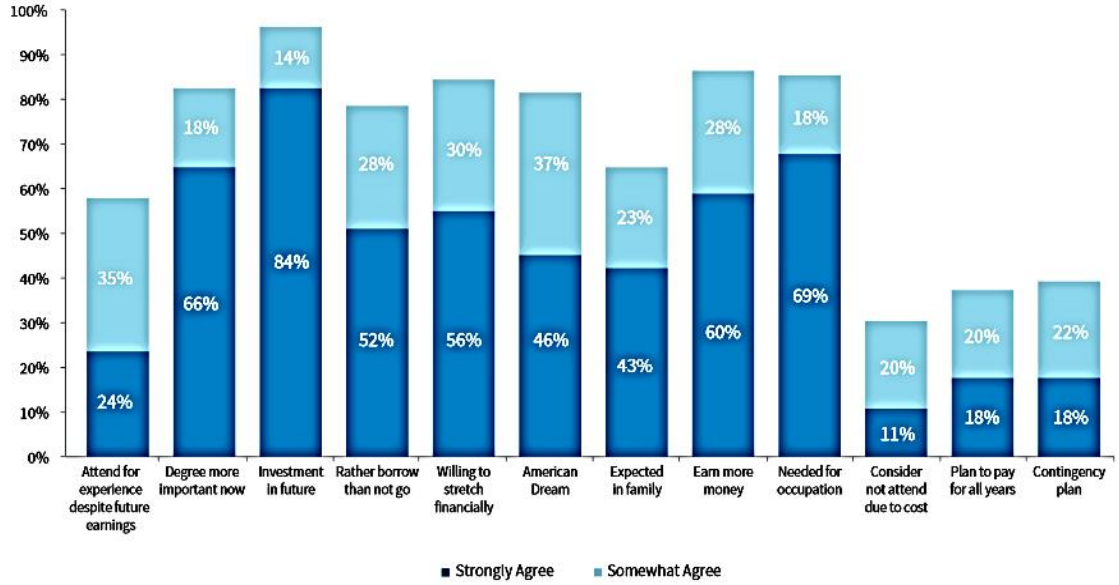


Source: OECD (2014), Education at a Glance 2014: OECD Indicators, OECD Publishing, Paris. http://dx.doi.org/10.1787/eag-2014-en | *Used with permission of Maria Laura Torres (14/10/2015)*

A report released by the College Board (2013) showed that less than half of the students who took their SATs in 2013 were ready to succeed in postsecondary education (Doubleday, 2013). The study also showed that 54 percent earned a bachelor's degree within four years, compared to only 27 percent of those who did not meet the benchmark (SAT report, 2013).

Graduating from a top college is one the most important things for an American family, as it ensures upward mobility and financial returns (Rampell, 2013a). It is also increasingly the new minimum requirement to find employment in a company, as employers think college graduates are better employees (Rampell, 2013b). According to a Sallie Mae report, in 2014, 98 percent of parents strongly agreed/agreed that a college education was an investment in their child's future, 83 percent that it was an important part of the "American Dream", as shown in Figure 2-5. However, nearly half of Americans who matriculated into four-year schools did not graduate, according to a study by the Organisation for Economic Cooperation and Development (Wells, 2013).

Figure 2-5: Parents attitude towards college, rated strongly agree, year-over-year.



Source: Sallie Mae report (2014) | *Used with permission of Sallie Mae (16/10/2015)*

Despite this, for many families, a degree is still a stepping stone to the middle class and the promise of a better financial future.

2.1.7 The Relationship between a College Education and Future Income

Eric Schmidt, Executive Chairman of Google argued that going to college played a fundamental role in boosting future earnings potential (Nisen, 2013). Oklahoma Governor Mary Fallin argued that higher education went hand-in-hand with economic competitiveness. In fact, she warned, "that's the only way America is going to stay competitive" (Alter, 2013). Alter (2013) stated that 50 years ago, a high school degree was enough to qualify a student for 75 percent of American jobs. He argued that the number had dropped to 40 percent, and two thirds of those jobs paid less than US$25,000 a year (Alter, 2013). While the United States still seems to be suffering from a jobs shortfall (Shierholz, 2014), four-year college graduates suffered less under the recession than two-year college graduates according to Pew Research (Pew 2013). A survey by the Graduate Management Admission Council (2013) found for instance that nine out of every ten MBAs in the Class of 2013 were employed in September 2013, a few months after their graduation. Overall, the employment rate for two-year MBAs was 92 percent, up from 90 percent in 2012 and 85 percent in 2009 (Byrne, 2013).

A degree seems therefore to be the ticket to better job prospects but it still comes with a hefty price tag and many, without a loan, can't afford it.

2.1.8 **Student Debt is Soaring** (Martin, 2012)

According to the official numbers from the Federal Reserve (as of September 2013), U.S. student debt reached US$1.18 trillion, a 61 percent surge since the end of 2008 (Phillips, 2013). A Board of Governors of the Federal Reserve System survey (2014) indicated that as of September 2013, debt was held by 24 percent of the American population. In a survey by Credit.com and GfK Custom Research (DiGangi, 2013), 23 percent of Americans defined the American dream as being debt-free, while 6.6

percent defined it as 'paying off student loans and graduating from College.' But is it that easy? Can Americans afford to be debt free when they send their children to college? Senator Elizabeth Warren argued that student loans were "the worst kind of consumer debt families faces today… because you can't get rid of them" (Kingkade, 2013, para.7). Lauren Asher, president of the Institute for College Access and Success stated that the decreasing number of available scholarships and the absence of additional income (difficulty to find part-time jobs for instance) were forcing families to apply for more than one loan (Smialek, 2014).

Is student debt "unmanageable" and is there a "student debt domino effect"? As observed by the Consumer Financial Protection Bureau (2013). Is it a curse? (Olen, 2013)

According to the College Board & Advocacy Policy Centre (2011), the cost of a private non-profit four-year college institution has risen 267 percent over the past 30 years. Within the same time frame, the cost of a public four-year college institution has risen by 357 percent (College Board & Advocacy Policy Centre, 2011). According to a Bloomberg report (2012), college tuition and fees have surged 1,120 percent since records began in 1978 (but seems to be slightly cooling down according to a College Board report (2013), Supiano (2013), Ogg (2013) and Hefling (2013). At an annual growth rate of 7.45 percent, tuition has considerably outstripped both the consumer price index and health care inflation, as indicated earlier in Figure 2-1. The average tuition today is absorbing nearly 40 percent of the median earnings in the United States (U.S. Education Department and the Bureau of Labour Statistics, 2012). Lee et al. (2014) found that between 2004 and 2012, the number of student debt borrowers increased by 70 percent, and the average debt per borrower also increased by 70 percent. A study by Delisle, Phillips and van der Linde (2014) for the New America Education Policy Program suggested that the largest changes in student borrowing in the last five years were taking place in postgraduate education as students, in an uncertain job market environment, seemed to borrow even more to finance their professional degree studies.

What makes higher education in the United States so expensive?

2.2 Two main factors are contributing to the overall rising costs of College

- Shrinking State funding for Higher Education
- Overspending by Universities

2.2.1 Shrinking State funding for Higher Education

According to a TIME and the Carnegie Corporation of New York survey (2012) of college leaders, cuts in government spending and costs associated to on-campus student amenities were the biggest factors contributing to the rising costs of fees (

Affordability is very closely linked to state funding levels. Universities in a majority of the American states have increased tuition to compensate for declining state and federal funding and lower enrolment and have in some occasions "cut faculty

positions, eliminated course offerings, closed campuses, shut down computer labs, and reduced library services" (Oliff et al, 2013, p. 2) to save costs.

Wang (2013) pointed out that in Pennsylvania for instance, public higher education had faced deep cuts, especially since the most recent recession (18 percent over the last five years) (Wang, 2013). David A. Hawkins, director of public policy and research at the National Association for College Admission Counselling argued that many institutions had now difficulties balancing enrolment numbers and financing (Perez-Pena, 2013).

In *The 2011 Inside Higher Ed Survey of College & University Business Officers* report (2011), business officers minimised the impact that the economic downturn has had so far on the quality of campus programmes and services. 92.9 percent disagreed/strongly disagreed that budget cuts in the past three years had "done major damage to the quality of our academic programmes," while 88.8 percent disagreed/strongly disagreed that budget cuts had "done major damage to the quality of student academic support services" (p.6). In other words, despite major cuts in budget, the quality of the programmes and the services offered to the students had, according to the interviewees, been preserved.

Later chapters will indicate that *cost* and *quality* are two of the major factors that trigger the emergence of disruptive innovations/technologies.

2.2.2 Overspending by Universities

According to a white paper by Bain & Company (Denneen and Dretler, 2012), despite expected cuts in state funding, regularly announced in the media by government officials, a growing percentage of non-elite colleges had consistently overspent, were either in trouble financially or overleveraged, and endowments for non-top-tier institutions were at an all-time low: In 2012, the average college endowment was around US$490 million (while seventy-one elite schools had endowments of over a billion, Munro, 2008, NACUBO 2013). To compete in the global arena and particularly with the Ivy League institutions, 57 percent of the second-tier institutions had increased their expenditures on campus operations, an average of 7.1 percent more in 2012 than 2011, in other words, they had spent beyond their means (The Economist, 2012; Troop, 2013b) and were now paying the price. Rosen (2011) called it the 'Harvard envy" in the first paragraph of his book *Change.edu: rebooting for the new talent economy* (Rosen, 2011): every university wants to be or at least be perceived as Harvard, an Ivy-league institution. In difficult economic times, endowments seem to go to the best universities, to those who know how to judiciously manage their finances to generate even more revenue. According to the Nacubo-Commonfund Study of Endowments, which looked at data from more than 800 education institutions in North America, institutions with endowments worth more than US$1-billion invested 61 percent of their money wisely, which generated an average return of 3.1 percent. The institutions with less than U$25-million gained 0.3 percent, largely because they had the bulk of their money invested in stocks (39 percent) and bonds (29 percent)(Troop, 2013a), which took a significant hit during the financial crisis.

In the words of Thomas Kean, former governor of New Jersey and president emeritus of Drew University, the arms race needs to stop. (Time Magazine, 2012).

According to Vedder (2013a) universities were not spending any substantial amount of money on improving programmes or teaching and learning while Arum (2013a) argued that students were not getting what they should for their money. He argued that the main focus of universities was to ensure that students had pleasant and constantly improved amenities such as a new stadium, a gym with a pool, and were "satisfied with their four years" experience (Arum, 2013a).

In other words, the main focus of universities was not on improving learning on campus or recruiting well-trained faculty to better engage students but rather to make students 'happy'.

Christensen (1997) described for instance how companies and brand spent too much effort and resources on *sustaining* innovations, improving and adding new gimmicks, additional and more complex (but usually unnecessary) features to existent services or products, which seems to be very relevant to Arum's description of an American college. Instead of simplifying products or services and making them more affordable, Christensen, Aaron and Clark (2003) argued that companies were complicating things, adding inessential functions and services (and charging more for it), "overshooting" customers' needs" (Christensen, Aaron and Clark, 2003, p. 7). Christensen *et al.* (2003) described non-consumers as customers who are interested in achieving some sort of outcome but can't because of a lack of skills or financial means.

Significant cuts in state funding, overspending on sustaining innovations as mentioned above and dwindling endowments have forced colleges to seek additional revenue sources.

2.2.3 Tuition Increases

Several studies have documented the ways in which funding cuts have led to large tuition increases (Boggs, 2004; Johnson et al, 2011). Declining state funding has pushed universities to pass most of their rising costs on to students and has forced parents and students to select more affordable colleges (and shorter programmes) closer to home, work longer hours and shoulder a bigger portion of the costs (from income and savings), as indicated above in Figure 2-3. According to Sallie Mae (2014), enrolment at 4-year public colleges declined from 46 percent to 41 percent while the percentage of students applying to two-year public colleges' programmes has increased to 34 percent (from 30 percent in 2013). 19 percent of parents increased work hours in 2014 to earn more in order to pay for their kid's college education (Sallie Mae, 2014). Moreover, time to degree completion had also increased, potentially due to students having to find day time/evening jobs to make college more affordable. Half of the students finish a four-year degree in six years (The White House (b), 2013).

As according to University of California President Janet Napolitano, “tuition goes right to the heart of accessibility and affordability” (Bose, 2013), some universities have attempted to attract more students by freezing tuition for their undergraduates (Bernstein, 2013). Despite high tuition fees many students still decide to go to college.

2.3 A Pathway to Social and Economic Opportunity

According to U.S. Senator Kirsten Gillibrand, “higher education remains one of the clearest paths to the middle class in this country, and it must be within reach for anyone willing to work their hardest and earn their degree” (Westerholm, 2013, para.10).

Two-thirds of students who graduate with a Bachelor degree in the U.S. are graduating with an average student loan debt of between US$26,000 and US$33,000 (Dossani, 2014). 1 in 10 students now graduates owing more than $54,000 in loans (Johnson *et al*, 2012; Williams, 2013; Dossani, 2014).

President Obama’s "We've got a crisis in terms of college affordability and student debt" (The White House (a), 2013, para.41) demonstrates that the issue has reached the highest levels of the government as its far-reaching and long-term effects for the economy and individuals (such as wealth accumulation) are not negligible (Fry, 2014; Elliot and Nam, 2013).

As indicated earlier, parents and students increasing need to work longer hours or find extra jobs. Tuition fees have risen faster than family incomes (Shierholz, 2014), making it harder for families to pay for college. Students and parents seem to have adopted strategies to save costs, help pay for college and ensure future return on investment. According to Sallie Mae (2014):

- Students have cut personal spending (66 percent)
- Students are choosing a college closer to their parents’ home (61 percent), usually within their own state
- Students try to get extra part-time work (48 percent)
- Students accelerate the coursework to graduate earlier
- Students apply for change to a more marketable major

Additionally, as parents or student borrowers often struggle to make their payments they are increasingly reluctant to spend for more durable goods (such as cars or household furniture) and services (such as health expenditure) (Son, 2013). Finally, according to Fry (2014) student debtors seem, comparatively, to owe significantly large amounts of other potentially long-lasting debt (car, credit card, and mortgage).

This presents significant challenges to various sectors of the American economy, including the retail, automobile and the residential construction sectors as high levels of indebtedness may automatically disqualify students or parents from purchasing a car or taking on mortgage debt to buy a house/apartment as indicated by Shand (2007), which might further explain the strategies mentioned above.

2.3.1 The Reduction in Earnings

The United States Bureau of Labour Statistics’ data show that weekly earnings of full-time wage and salary workers (with or without college degree) have decreased between 2003 and 2013, which complicates the repayment situation even more.

2.3.2 Rising Student Debt

High levels of student loan debt caused by the factors mentioned above have often direct educational and professional repercussions: lower completion rates or delayed completion, choice of major and/or university, and student performance (Gale, 2014). Bowen, Chingos and McPherson (2009) alert for instance about alarming high and increasing university drop-out rates (Bowen, Chingos & McPherson, 2009): around 400,000 drop out of U.S. colleges each year according to the U.S. Education Department (2012). According to Dossani (2014), only one third of students from low socio-economic backgrounds graduated in four years (Dossani, 2014). One or two more years at university to complete a degree often meant the need to find extra income (one or more part-time jobs, and /or more borrowing and more debt), which in turn likely extended the total repayment period, with the additional financial pressure stress it usually generates.

Once students graduate, student debt can also impact career choices and willingness to further their studies, as additional degrees, as indicated earlier, mean additional debt. Lastly, according to Gale (2014) and Gicheva (2011), heavy student loan can also influence personal decisions later in life such as the "quality and timing of marriage" (Gale *et al,* 2014, p.4).

Part-time/full-time employment while enrolled in college as student was also not associated with lower borrowing rates. In fact, a larger percentage of students who worked (full or part time) while enrolled had borrowed more than students who did not work. This seem to indicate that the promised path into the middle class is more taxing than before, as paying for college education requires a much larger share of a typical family's income and more students take on larger amounts of student and other debt to finance their increasingly more expensive Higher Education (Hiltonsmith and Draut, 2014) than often doesn't guarantee a well-paid career.

2.3.3 The U.S. Government's Response

Barrack Obama released in 2013 a new 'shake-up' plan for Higher Education (The White House (b), 2013) to 'combat rising college costs', make it 'more affordable for American families' and because 'so more than ever before, some form of Higher Education is the surest path into the middle class'(The White House (a), 2013).

According to the White House website (March 2015),

- US$75 million were awarded to colleges and universities "under the new First in the World (FITW) grant programme to encourage colleges to adopt cutting-edge innovations, expand college opportunity, improve student learning, and reduce costs".
- Pell Grant were raised to US$5,730 in 2014-15
- A college ratings system was launched in 2015-2016 to help "students and families compare the value offered by colleges and encourage colleges to improve by highlighting institutions that successfully educate students from all backgrounds"

2.3.4 Income Distribution, Higher Education and Social Mobility

According to a Hamilton report (2013), even though there was no doubt that education and particularly Higher Education had a pivotal role in improving social mobility, the increasing gap between families at the top and bottom of the income distribution, raised strong concerns about the ability of today's disadvantaged to work their way up the economic ladder (Greenstone *et al*, 2013).

2.3.5 Economic Mobility

In the U.S. context, according to the Economic Mobility Project of the Pew Charitable Trusts report (Risotto, 2013, reproduced below), a college degree was still, for some, a golden ticket:

- White, college-educated couples, both with and without children, had the highest levels of income and wealth and experienced high rates of absolute and relative upward mobility.

- Black, single men and women without college degrees, both with and without children, had the lowest levels of income and wealth, and those who started at the bottom of the income ladder had the lowest levels of relative upward mobility.

- Black, college-educated, single mothers showed a clear benefit from their college degrees: 83 percent moved to a higher rung on the income ladder, compared with only 9 percent of their non-college-educated counterparts.

Black, college-educated single mothers had a median income (US$32,514) comparable to that of black non-college-educated couples with children (US$33,029 (Risotto, 2013). Eighty-six percent of those who jumped out of the bottom quintile had a college degree, versus 55 percent of non-graduates, according to Risotto (2013).

According to Hoxby and Turner (2013) and a U.S. Department of Education, National Centre for Education Statistics report *The Condition of Education: Immediate Transition to College* (2013), there were still major economic disparities: in 2011, the college enrolment rate for high school graduates from low-income families was 52 percent, 30 percentage points lower than the rate for graduates from high-income families (82 percent).. The college enrolment rate for completers from middle-income families (66 percent) was 16 percentage points lower than the rate for their peers from high-income families.

2.3.6 Income and University Application

Rampell (2013) argued that financial aid had "a hugely positive impact on whether low-income students graduate." According to a study (Pallais, 2013) however, universities were missing out on opportunities to attract even more low-income students of high academic talent, as, according to the study, the vast majority of very high-achieving low-income students did not apply to any Ivy-league college (Dillon and Smith, 2013; Pallais, 2013). These findings confirm the findings of other similar

studies (Hoxby and Turner, 2013; Hoxby and Avery, 2012) on "under matching" (Bowen *et al*, 2009; Dillon and Smith, 2013; Hoxby and Turner, 2015) and "income typical" behaviour (Hoxby and Avery, 2012): According to Hoxby and Avery (2012) for instance, students tended to apply to the sorts of institutions where those of similar income and background tended to enrol (Table 2-1). For instance very high-achieving but low-income students would most likely apply to a two-year programme at their local second-tier college or community college (rather than a top-tier university) because their secondary school classmates with a similar economic background (but not necessarily similar academic potential) would apply to it. An opinion shared by Jaschik (2012). Sallie Mae's report in 2014 indicated for instance that seventy-seven percent of students had enrolled in a college located in their home state to save costs on commuting and accommodation. It also indicated that the enrolment in shorter two-year public colleges was gradually increasing.

Table 2-1: College-related characteristics of the high schools of high-achieving students. Achievement-typical versus Income-typical students

	High-income	Achievement-typical	Income-typical
%teachers graduated from close match college	8.90%	2.90%	1.10%
%teachers graduated from safety college	14.40%	7.50%	5.00%
# applicants to top 10 colleges in each cohort (average of last 10 cohorts)	12.9	7.6	1.6
# admits to top 10 colleges in each cohort (average of last 10 cohorts)	12.3	7.4	1.5
# who enrolled at top 10 colleges each cohort (average of last 10 cohorts)	12.3	7.4	1.5
%high school cohort who are high achievers	17.10%	11.20%	3.80%
radius to gather 20 high achievers	2.6 miles	7.7 miles	19.3 miles
radius to gather 50 high achievers	4.1 miles	12.2 miles	37.3 miles

Source: Hoxby and Avery, 2012. *Used with permission of Caroline Hoxby and Christopher Avery (17/10/2015)*

Hoxby and Avery (2012) argued that students from low-income backgrounds who applied to selective institutions would get a better educational experience and often have equal or better educational results as high-income students. They also stated that such selective institutions would usually provide additional financial aid to low-income student (Hoxby and Avery, 2012), (as indicated below in Price discrimination, and Paying the full rate for tuitions sections).

In a more recent study, Hoxby and Turner (2015) argued that low-income students were either misinformed or did not get enough information on the "generous financial aid" colleges might provide to them (Hoxby and Turner, 2015).
Recent research in the UK from Crawford et al (2014) from the Centre for Analysis of Youth Transitions (CAYT) and Platt and Eastwood (2015) from the Russell Group in the UK confirm that this phenomenon is not unique to the U.S.: According to both studies, misinformation, lack of confidence and misunderstandings were significant factors that influenced the number of disadvantaged students entering top ranking universities (Platt and Eastwood, 2015). In 2012-2013 for instance, only one in five

students from lower socio-economic groups entered a Russell Group institution (Platt and Eastwood, 2015).
Rampell (2013c) and Wang (2013) argued however that many universities, following state and federal funding cuts had increasingly shifted more of their financial aid away from students who most needed it "toward those whose résumés merit it (Rampell, 2013c, para. 3), as these, from wealthier backgrounds, relied less on institutional financial aid to complete their studies, might repay their debt earlier and might become substantial "sources" of income as alumni.

2.4 Demography

Uncertain economic times, demographic changes, a large increase in the unemployment and underemployment rate of college graduates in the U.S. in the past decade and the high cost of studying in Higher Education Institutions is starting to take its toll in terms of birth rate numbers, which might impact even further on tuition fees, as institutions have to compensate for a further decrease in revenue.
"Fewer students will be coming through the educational pipeline and moving into higher education," argued Lane (2013, para.6), director of education studies at the Rockefeller Institute. A prediction confirmed by a recent report, *Knocking at the College door* (2013): Numbers of high school graduates seemed to have peaked and for the first time since 2006 enrolments in Higher Education institutions dropped (Portlock, 2013), with the largest decreases taking place among four-year for-profits (-8.7 percent) and two-year public institutions (-3.6 percent).
The recession that began in 2007 incited more people to get a college education, particularly those considered as 'mature students' who mostly enrolled in short term programmes at community colleges to upgrade their skills. The improvement in job prospects and a slight recovery in the economy in the past few years might have been a positive sign. Studying at university seems however to have become a less attractive option to those without enough financial means, as Return on Investment of Education (RoIE) is often questioned (Lavelle, 2012; Pew Research Centre, 2012).
As indicated in previous sections, a lower enrolment means that many small universities and community colleges, which often do not get large enough endowments and which suffer the most when there are state and federal cuts, will find it even harder to balance their finances.
The overall decrease in university enrolment was driven by students age 24 and older. That group fell by 419,000 students from 2011, while enrolment of students under the age of 24 dropped by 48,000 (Sallie Mae, 2012).
Tuition and fees at public four-year colleges went up 72 percent last decade, even as the market value of a bachelor's degree fell by 15 percent.

2.4.1 A New Business Model for College Education

Apart from various options offered to potential students to avoid taking on long-lasting loan debt (Sheehy, 2013), i.e. federal need-based grants (Pell grants), employers' tuition reimbursement plans, subsidised Stafford loans (where the government pays the interests), the G.I Bill Funds for veterans (Jacobs, 2012) and the Say Yes to Education programme (described below in 2.4.6), providing high school students a tuition-free path to college (Thompson, 2013), a new business model for college education is possible, according to Robert Samuels, President of the

University Council-American Federation of Teachers President (University of California) in his new book 'Why Public Higher Education Should Be Free: How to Decrease Costs and Increase Quality at American Universities" (Samuels, 2013). He confirmed what was mentioned in earlier sections that universities functioned as hedge funds, made risky investments (as indicated above), borrowed heavily, built unnecessary luxurious facilities and spent tuition dollars towards administration costs and non-educational-related programmes, instead of making high-quality education and research their top priority. He argued that if current government funding to higher education were not mismanaged, public Higher Education institutions could be tuition free. According to NYC Sociology and Education Professor Richard Arum, in an interview for FOX business, *Are colleges providing less education for higher costs?* (Arum, 2013b), learning in Colleges is not happening (Arum, 2013b).

Govindarajan and Desai (2013) argued in *Should Higher Education Be Free*? That "this train wreck" (Govindarajan and Desai, 2013) needed to be put to a halt.

Is the situation so catastrophic? Are most of the American Universities on the verge of bankruptcy? Are most students drowned under huge debt after graduation day?

According to a U.S. News & World Report (Best Colleges 2014 (2013); Elliott 2013), despite economic volatility taking its toll on university endowments, the negative picture might, somewhat, be slightly different, as suggested by Akers and Chingos, 2014). According to the two authors for instance, the burden of loan repayment was similar to the burden young workers had to bear twenty years ago.

And this is partly due to price discrimination.

2.4.2 Price discrimination

Colleges subsidise the cost of college, essentially offering a discounted price to students who are less able or unable to pay full tuition. In other words, price discrimination allows colleges to charge high tuition prices to those willing and/or able to pay without excluding the less-wealthy students.
Seventy-one Ivy-League schools had endowments of over a billion, (Munson, 2008, NACUBO 2013), and 5 to 7-year aggressive fund raising campaigns, according to the universities' websites, were underway to bring in even more income.

2.4.3 Paying the Full Rate for Tuition

While competition to a) attract top students and b) for scholarships is extremely fierce and admission rates extremely low, according to Elliott (2013) half or more of the student population at Ivy League colleges did not pay the full sticker expenses (tuition, room and board, fees, books and other expenses), as indicated in the Ivy League Institutions section below. A message many parents, according to the literature mentioned earlier, seem to be unaware of. According to Richard Ekman, president of the Council of Independent Colleges, universities had not succeeded in spreading the message (Jaschik, 2013) that universities offered substantial aid to students (Heyboer, 2013), particularly to those high-achieving students from low-

income backgrounds. In the words of Lawrence Katz, Professor of Harvard University: "Sticker price matters a lot. It is a deterrent" (Porter, 2013), for cost-conscious parents, as indicated earlier. A view confirmed by Sallie Mae reports (2012 and 2014), a Moody report (2013) and an Inside Higher Ed/ Gallup survey (Jaschik, 2013) *The College decision-making process, a survey of parents of 5th through 12th grade-students*. Families narrowed college choices for financial reasons at some point in the college selection process and most elite universities faced diminished student demand (Moody, 2013).
In 2013, 67 percent of families eliminated colleges based on cost (69 percent in 2012). (Sallie Mae, 2013).

2.4.4 Graduation Rates

The Hamilton report (2013) *Thirteen Economic Facts about Social Mobility and the Role of Education* confirmed the above statement. As indicated earlier, low-income students were most likely to apply to less competitive universities or community colleges. According to Greenstone et al (2013), college graduation rates had increased sharply for wealthy students but stagnated for low-income students and a student at one of Ivy League's (most competitive) university was fourteen times more likely to be from a high-income family than from a low-income one. According to a report from the University of Pennsylvania's Alliance for Higher Education and Democracy and the Pell Institute for the Study of Opportunity in Higher Education *Indicators of Higher Education Equity in the United States*, in 2013, 77 percent of adults from families in the top income quartile earned bachelor's degrees by the time they turned 24 compared to 9 percent of people from the lowest income bracket (Korn, 2015).

2.4.5 Unemployment of University Graduates

According to Yen and Tan, university graduates were facing higher than ever unemployment figures (Yen, 2012), with the inevitable economic impacts (Tan, 2012) to themselves and their families, questioning the role universities played in preparing students to the job market. Shierholz et al (2014) found the figures extremely high, particularly for racial and ethnic minorities. The unemployment rate for graduates in the U.S in 2014 was 8.5 percent (8.8 percent in 2013, compared with 5.7 percent in 2007, Shierholz, 2013). Underemployment rates had dropped to 16.8 percent (from 18.3 percent in 2013, compared with 9.9 percent in 2007, Shierholz, 2013), according to an Economic Policy Institute Report (Shierholz et al, 2014). In 2011, about 1.5 million, or 53.6 percent, of bachelor's degree-holders under the age of 25 were jobless or underemployed, the highest share in 11 years (Risberg, 2012). Young college graduates who had full-time jobs were now making about US$3,200 less each year than they were in 2000, after adjusting for inflation. The average hourly wage in 2013 was US$16.60, down from US$18.14 in 2000 (Shierholz, 2013).
Two important key insights of the *The class of 2014: the weak economy is idling too many young graduates* report (Shierholz *et al*, 2014) were that the share of young college graduates working in jobs not requiring a college degree and the share of recent college graduates who were in very low-wage jobs was gradually increasing since 2007. A McKinsey & Company report (Dobbs *et al*, 2012) titled *The World at work: Jobs, pay and Skills for 3.5 billion people* indicated that while tertiary education

had risen 2.2 times worldwide from 1990 to 2010, “employers in advanced economies could face a shortage of 16 million to 18 million college-educated workers in 2020” (Dobbs *et al*, 2012).

2.5 Summary

These sections have shown that following significant State and Federal funding cuts and with a lower number of students entering their gates, overleveraged colleges have had no other choice but to increase tuition fees. A degree still promises a better career and better financial prospects for many students in 21st century North America but recent data has suggested that the unemployment rate and the salaries of graduates has either stagnated or deteriorated, which has impacted on their borrowings. Students who cannot afford the hefty college price tag have had to borrow more, heavily and have also had difficulties to repay, and this is having further ripple effects during their lifetime. The sections above have also indicated that the amount of federal financial aid provided to students has not been readjusted and is no longer sufficient to help students pay for their college expenses. These sections have shown that elite colleges do provide generous financial aid and academic support to students from low socio-economic backgrounds but misinformation and lack of confidence in their ability to succeed prevents disadvantaged students from benefitting from these (educational and networking) opportunities that would have a significant impact on their future career and earnings.

Finally, these sections have indicated that the picture often presented in the media was somewhat slightly inaccurate (i.e. a difficult job markets, education as the great equaliser, mismanagement by universities of their endowments, unmanageable student debt). Akers and Chingos (2014)’s analysis of more than two decades of data indicated for instance that large debt does not necessarily mean financial hardship.

Higher Education business and economic models do not seem, nonetheless, to be fit for purpose and have been, in the past few years, increasingly challenged by new contenders.

The following section will look at the role of universities, student demographics and the major drivers of change in education.

2.6 The Role of Universities

In an article *How much longer will universities exist?* Stacey (2013) argued that universities needed to adapt to changes that had affected other industries such as the media or the music industry and seriously rethink what they are doing if they really wanted to fulfil their role, which is to teach students. Stacey questioned the role of the University and described an American college as a no more than ‘showy’ very pricey collection of disparate buildings set on premium property land, which cost an exorbitant amount of money to manage, confirming the description of an American college mentioned earlier. He also pointed out that the pressure put on academics to do research and the short term of the contracts had “incentivised them not to teach” (para.9). Stacey argued that university staff recruitment focused more on research performance and future publications potential than on teaching skills

(Stacey, 2013; Norton, 2013), as rankings are universities' top priority to attract top students and faculty.
Improving learning and teaching is, in short, secondary.

Attracting prominent scholars, strategic research grants (Parr, 2013; Grove, 2013) and improving global 'rank' seem to be in every university's priority agenda in the last decade. Phil Baty, editor of the THE World University Rankings argued for instance that one of the important functions of a university was to do impactful research. He also pointed out that attracting funding was primordial for survival (Grove, 2013).

Or In the case of Malaysia, a case of national shame: An article '*Malaysian rankings flop 'shames' the nation'* (Gill, 2008) described how "Malaysia is losing out in the unrelenting battle for international competitiveness". After five years of unrelenting effort to recruit world-class researchers with the ability to publish in top academic journals, The World Economic Forum (WEF, 2013) ranked Malaysia as the 24th most competitive nation among 148 countries in its Global Competitiveness Report and the focus is, according to Tan Sri Dr Ghauth Jasmon, Vice-chancellor of Universiti Malaya, no longer to be in the top 200 universities anymore but rather to attract even more research funding to "be among the top 100 universities in the world in 10 to 15 years (New Straits Times, 2013). Moses (1997) argued that research did not define university excellence. She questioned whether every faculty member could or should make a significant contribution to academia (Moses, 1997). According to Feldman (2007) and Norton (2013), the pressure put on faculty by universities to publish in top refereed journals often demotivates staff to focus on teaching, read the learning and teaching literature, peer-observe colleagues and improve teaching skills to be more effective in the classroom (Feldman, 2007; Norton, 2013).

Max Blouw, chair of the Council of Ontario Universities and president of Wilfrid Laurier University, gave us a rather different take on what education and the role of universities, in his opinion, should be. According to Blouw (2013), a university should be a space that provides personal and intellectual development that prepares students to be adaptable to change (Blouw, 2013). But according to Siemens (in Smith, 2015), the perception of the role of the university in our societies has changed. He stated that "now all of a sudden the language of corporate systems is starting to make its impact on universities" (Smith, 2015).

Stacey (2013) concluded his statement on 'what is a university' by raising important questions related to university students with this comment:

> "Finally, a university is about students. But increasingly, the students aren't there. Aren't the students there because they can't afford it, Universities do not want them? Or aren't they there because they don't see the point of it. Aren't they there because all the material is online? 'All of the above'?" (Stacey, 2013, para.11).

2.7 21St Century Higher Education Demographics Have Changed

> *"Millennials today expect customisation and convenience, and colleges are having to find ways to cater to different situations"* (Schawbel, 2013 in Karambelas, 2013, para.4)

In the autumn of 2011, there were 18.1 million undergraduate students and 2.9 million post baccalaureate students attending degree-granting postsecondary institutions in the U.S (Aud and Filkinson-Flicker, 2013). In 2011-2012, according to Casselman (2013), 40 percent of all undergraduates were enrolled in community colleges and other two-year institutions. 8.2 million (78 percent) undergraduate students at 4-year institutions attended full time. 3.2 million (42 percent) undergraduate students at 2-year institutions, were full-time students and 4.3 million (58 percent) were part-time students. At private for-profit 4-year institutions in 2011 just 29 percent of full-time students were young adults; 39 percent were between the ages of 25 and 34, and 32 percent were age 35 and older (NCES 2013). By 2019, the percentage of those over 25 is expected to increase by more than 20 percent (Jenkins, 2012). An article by Cabrera and Le Renard (2013) described the heterogeneity of the current student population in Higher Education institutions and questioned the relevance of the classroom, concluding that new options would have to be made available to cater to different needs and audiences (Cabrera and Le Renard, 2013) around the world, a view shared by Bol (2013). Michelle Asha Cooper, president of the American Institute for Higher Education Policy pointed out that the current traditional model of Higher Education was inappropriate to serve the needs of non-traditional students, which constituted over 75 percent of the student population in the U.S. (Cooper, 2013).

2.7.1 Non-traditional Students are the [*New Majority*]

According to Bates (2013), the U.S. was now in a position approximately less than fifty percent of the student population was full-time. In other words, students who could attend campus full-time, five days a week, nine-to-five were now a minority (Leathwood and O'Connel, 2003; Bates, 2013). Siemens (in Smith 2015) stated that less than 50 percent of students in America fit the traditional student profile. In a Washington Post article (2013), Johnson stated that today's typical college students often had to juggle coursework with work, part-time or full time, children and bills (Johnson, 2013).

Jenkins (2012) called this *phenomenon* The New "Traditional Student". For Levine (2001), Rose (2012) and Mintz (2015) the non-traditional college student was "becoming the norm". Pelletier (2010) argued that if we looked at the demographics of today's student body, non-traditional was the *new* traditional. The National Centre for Education Statistics defines a non-traditional student as meeting one or more of the following characteristics:

- delayed enrolment into postsecondary education for various reasons;
- attends college part-time;
- usually works full time;
- is financially independent for financial aid purposes;
- has dependents other than a spouse;

- is a single parent;
- does not have a high school diploma.

In 2011 about 41 percent of full-time undergraduate students and 74 percent of part-time undergraduate students aged 16 to 24 years old worked in addition to being enrolled in a postsecondary institution (Aud and Filkinson-Flicker, 2013). Of full-time undergraduate students, 16 percent of college students who were employed reported working less than 20 hours per week, 18 percent reported working 20 to 34 hours per week, and 6 percent reported working 35 hours or more per week (NCES 2013). In *The age of customised education* (Lane, 2013) Davina Potts, from the Catholic University of the Sacred Heart in Milan argued that student populations as well as their expectations had changed in the last decade (Lane, 2013).

Susan C. Aldridge, President of the University of Maryland University College (UMUC), stated that non-traditional students' main motivation was to learn readily applicable knowledge and skills to improve their immediate career needs and prospects (Pelletier, 2010).

2.7.2 In search of Skills: The [High Unemployment] and [Search of Talent] Paradox

> "Being adaptable in a flat world, knowing how to 'learn how to learn,' will be one of the most important assets any worker can have, because job churn will come faster, because innovation will happen faster" (Friedman, 2005, p.239).

The issue of skills, either as mismatch or gap is a recurrent theme in the literature. Richard Arum and Josipa Roksa's longitudinal studies in Academically Adrift (2011) and Aspiring Adults Adrift: Tentative Transitions of College Graduates (2014) showed for instance that American college students' critically important broad competencies…namely "critical thinking, analytical reasoning, problem solving and writing" had not improved during their college years. "Forty-five percent of students surveyed did not significantly improve in their writing or critical-thinking skills", which, according to the authors are associated with early labour market outcomes and "successful transitions to adulthood such as financial independence" (Arum and Roksa, 2014).
According to Charles Plosser, president of the Federal Reserve Bank of Philadelphia, there was a mismatch of skills in the workforce and the jobs that were currently being created (Jeffery, 2014). For Weise (2014, para.2), "something is clearly wrong when only 11 percent of business leaders _ compared to 96 percent of chief academic officers_ believe that graduates have the requisite skills for the workforce". Dobbs et al (2012) argued that workers don't have the skills to transition from lost jobs to new jobs, that the U. S will have a shortage of approximately 1.5 million college graduates in 2020 and that the mismatch in the U.S and worldwide is geographical. They finally argued that the traditional model for providing secondary and tertiary education would need to be transformed to respond to the challenge (Dobbs *et al*, 2012).

The Next Big Thing (TNBT, http://www.wearetnbt.com/) programme, launched by Ryan Holmes, CEO of Vancouver-based social media dashboard start up HootSuite, Thiel Fellowships, launched by the Peter Thiel Foundation, are starting to challenge postsecondary institutions' monopoly on high-level learning and are increasingly becoming an alternative to traditional universities (Kamenetz, 2013). A view shared by a report from The Economist: *The Great Mismatch* (The Economist, 2011). Sean Parker, serial entrepreneur, former president of Facebook, co-founder of Napster and current CEO of Airtime argued that if your career dream was to become an entrepreneur, universities were no longer your best option (CNBC, 20 under 20, Transforming Tomorrow, 2012). The Meltwater Entrepreneurial School Of Technology [http://mestghana.wpengine.com/], a non-profit training, mentoring and incubator programme selects for instance around 40 aspiring future entrepreneurs (already top university graduates) each year from Ghana and Nigeria and intensively trains them in business and software development.

2.7.3 Students' Career Readiness

Students' career readiness seems to be an issue in many parts of the globe.

According to Roshan Paul, President of the Amani Institute, a Think Tank based in Kenya, universities were not preparing students to the realities of the job market (Paul, 2013). An opinion shared by Bersin (2012), Lau (2012) and a survey in Australia of 12,800 graduates representing 39 institutions (Graduate Careers Australia, 2013) *2012 Beyond Graduation Survey,* which indicated that more than a third of Australian university graduates in the creative arts believed their qualification had little to do with their current jobs (Lane, 2013). Khalid Soulami, former director of the regional education authority of the city of Al Jadida, in Morocco stressed that a mismatch existed at the entry and exit points and the expectations of institutions and employers were not aligned (Alami, 2013). A survey of more than 2,800 Indian students conducted by the Centre for the Advanced Study of India (University of Pennsylvania) concluded that the needs of students were not in alignment with the Indian economy" (Aggarwal, 2012). A McKinsey report argued for example that the major university stakeholders 'live in parallel universes' (Mourshed et al, 2012), in other words did not seem to perceive the same things, largely in part because they did not often engage with each other.

Stephen Harper, Canada's former Prime Minister argued that the biggest challenge Canada faced was the undersupply of skilled labour (Whittington, 2012). Lawson (2013), Blouw, (2013) and Goar (2013) stated however that the main issue was not a lack of an educated workforce but rather the speed at which the employment landscape shifted. A recent survey (Collegiate Learning Assessment Plus, 2015) by the Council for Aid to Education indicated however that almost half of the 32,000 students surveyed at 169 institutions in the U.S. lacked the complex reasoning skills to manage white-collar work when they graduated (Belkin, 2015). Another survey of employers and students by Hart Research Associates (2015) confirmed this by indicating that graduates did not have the necessary skills and knowledge for career success. Megan Smith, U.S. Chief Technology Officer and Jeff Zients, Director of the National Economic Council argued in a White House Blog post that the United States (as of March 10, 2015) had about 5 million open job openings, "more than at any

point since 2001" and over half a million of those jobs were in information technology (IT) fields (Smith and Zients, 2015).

Kio Stark, author of *Don't go back to School* (Starck, 2013) stressed that there were many options and alternative paths to learning and getting jobs without traditional university credentials was still possible. According to Sir Kim Robinson, the old established idea that one must go to college in order to get a good job was outdated and no longer true (Buck, 2013).

2.8 Alternative Paths to Education

Numerous articles in the press have since the 70s questioned the value of degrees (Dore, 1976; Abel and Deitz, 2014; Eger, 2014) and whether going to college to get one is such a wise decision after all, following serious financial crises and a rollercoaster job market. A degree is very often a synonym of employment and success but also of a huge and long term debt for many families, particularly those in the low-income bracket, as indicated in earlier sections. Low employment figures in many industries, in one of the worst economic crisis of our lifetimes, are not very reassuring either. Being a 21st century student is expensive and return on investment (in monetary terms or job offers), in some cases, is minimal or equivalent to zero in terms of economic benefits (Abel and Deitz, 2014).

Alternative paths to Higher education for those keen on alternatives to the traditional forms of education (Koller, 2015) have appeared in recent years. Such engaging and personalised alternative pathway (Empton, 2012) is Lynda.com, founded in the 90s by Lynda Weinman and Bruce Heavin (Lynda currently has over 1 million paying members and has been acquired by LinkedIn in 2015). Others examples are Pluralsight [http://www.pluralsight.com/], Alison [http://alison.com/], Make School https://www.makeschool.com/

And Amazing Academy [http://www.amazingacademy.com/] for would-be entrepreneurs.

A French initiative; called Méthode 42 launched by millionaire entrepreneur Nicolas Sadirac (www.42.fr) is yet another interesting initiative launched in 2013, in partnership with a business school, that could lead to credentialing. Students were selected neither on the basis of financial ability nor educational degree, but solely on the basis of their potential talent and motivation. The school, named 42, targeted the poor French suburbs; formal qualifications were not required. According to the website, "problem-based learning" programmes are based on "self-learning" and "peer-to-peer" learning and '"will lead to no state-recognised diploma." There were 50,000 applications in 2013 for 1,000 places for a three-year course (Lawton et al, 2013). The proliferation of coding academies such as coder dojos [coderdojo.com], where one can learn coding (taught be people from the industry) without attending a university computer science programme and immediately apply it to the workplace is also an interesting phenomenon, as credentials offered by these academies are often recognised by employers.

2.9 Alternative University Models

> "The other element of widening access, which resonates more directly with the term 'democracy', is to allow people to decide for themselves what, where and when they will study, instead of having higher education institutions select students using their own criteria". Sir John Daniel (Worldviews Conference, 2013, para.7)

A difficult economy and the rise in tuition fees have seen increasing interest in alternative ways of looking at learning and time spent studying to complete a degree and credentials. Competency-based learning programmes designed for full-time working mature students (i.e. Flexible Option at the University of Wisconsin) are, for instance, being tested, have started to create a stir (Weise, 2014; Carlson, 2013) and might be one of the answers to filling in the skills gaps in the workforce (Weise, 2014).

2.9.1 Competency-based Learning

These competency-based programmes are challenging the university degree in fundamental ways: they are based not on the amount of time spent in a course or to complete a degree but on tangible evidence of learning [competencies and skills]. The Free University movement in the UK (Liverpool, Brighton, The University of the People (U.S, http://www.uopeople.org/), Mooc2Degree (U.S., http://www.mooc2degree.com/) are other good examples of initiatives that have been launched.

According to Joel Lazarus (Really Open University, Leeds) as demands exceeded offer and as many people were excluded from traditional education, new alternatives had started to appear as a response (Swain, 2013). The author of this thesis argued in 1.1.1 that disruptive technologies or innovations did not appear suddenly or in a vacuum. They were the result of changing customer needs or a pressing need for change. The examples above are prime examples that support this assumption.

According to Newman (2013), higher education is undergoing numerous structural changes and the concept of a competency-based programme starts to question its purpose. The nature of the workplace and the emergence of new very technical jobs is changing so dramatically that thinking of college as one place, one time, is quickly becoming outdated (Selingo, 2013). Adapting courses and programmes offerings to non-traditional student audiences, those excluded from education, is not only a question of survival for universities, a response to their pressing needs but also a huge and potentially lucrative credentialing market, estimated in millions (Pelletier, 2010). Kamenetz (2013) argued for instance that there were currently around 37 million Americans with some college experience but without official degree.

Following the University of Wisconsin's launch of competency-based programmes, other universities started proposing similar and affordable online self-paced programmes (Newman, 2013; Kelchen, 2015), based on demonstrating competence in required skills and knowledge: Capella's Flexpath (Tuition: US$2,000 per three-month term), Southern New Hampshire University College for America (US$1,250 per six-month term), Northern Arizona University Personalised Learning (US$2,500 per six-month term), Western Governors University (US$2,890 per six-month term).

Weise and Christensen (2014, p.iv) argued that the true disruptive potential of these online competency-based programmes lied in the crucial convergence of multiple factors:

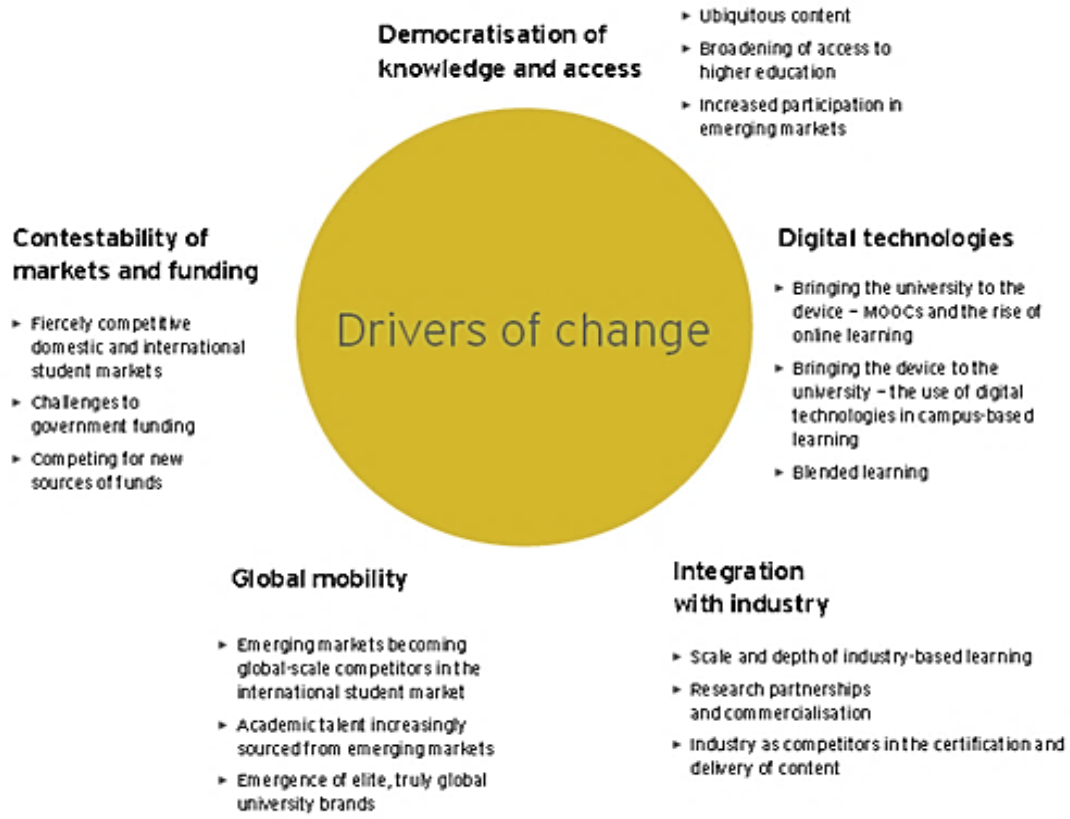
- "the right learning model,
- the right technologies,
- the right customers, and
- the right business model"

That increasingly challenged the rigidity of the traditional models.

2.10 Drivers of Change

An Ernst & Young report (2012) identified *drivers of change* (shown in Figure 2-6) and called on universities to specialise by targeting certain student groups, use their assets more efficiently and partner more closely with industry. According to the report, drivers of change will help democratise knowledge and access to education to those who are usually left out.

Figure 2-6: Drivers of change



Source: Ernst & Young. (2012). University of the future: A thousand year old industry on the cusp of profound change. Ernst & Young, Australia. | *Used with permission of Rachit Srivastava (15/10/2015)*

2.10.1 Ubiquitousness of Knowledge and Access (Milligan et al, 2013)

'Knowledge' is omnipresent and available everywhere and with 6.8 billion mobile subscriptions worldwide (ITU, 2013), more than 2.7 billion Internet users worldwide, 39 percent of the world population (ITU, 2013), it would be difficult to argue that only a small fraction of the planet as access to this knowledge. In 2014, high-level learning can, for instance, potentially be done anytime and anywhere and by a large proportion of the world population.

The University of Phoenix [http://www.phoenix.edu/] is such an example of postsecondary institutions that provide affordable accredited asynchronous online degrees to non-traditional students. The university delivers convenient degree programmes to students that would otherwise neither have the time nor the money to attend a traditional on-campus institution. Stanford LEAD Certificate [http://www.gsb.stanford.edu/exed/lead/] is an 8-course business education programme for busy company executives fully offered online.

Coursolve [http://www.coursolve.org/] is another interesting example, offering digital internships to students to work on short projects with professionals from world leading companies based at various geographical locations.

But can learning really be done anywhere and by everyone? Is access to Internet really for all?

With an expected slow Internet growth of less than 9 percent per year (Weisenthal, 2013), making the world more open and connected is easier said than done. In this globalised world, access to information and knowledge is still a challenge in many countries, as most of the developing world, until recently, was not connected to the Internet (4.3 billion according to ITU 2015). Worldwide Internet access is currently estimated at 21 percent (Auriol and Fanfalone, 2014). The situation is evolving, particularly in India and Africa. We Are Social data indicates that 19 percent of the total population in India uses the Internet, while 15 percent access it from a mobile device. ITU figures for 2014 indicate that, by the end of 2014, there will be almost 3 billion Internet users globally, two-thirds of them coming from the developing world, and that the number of mobile-broadband subscriptions will reach 2.3 billion. [http://www.itu.int/net/pressoffice/press_releases/2014/23.aspx#.VCI9omPjJoF]

2.10.2 Mobile Technology as the Solution to the [Access to Education] Problem

The global knowledge economy requires, and rewards, those who have a better education and more skills. Dobbs et al (2012) stated that 19 million jobs manufacturing jobs worldwide had disappeared since the 1970s while 85 million jobs were created in knowledge-intensive industries such as health services, government or education. Increasingly, skills for 21st century jobs refer to the ability to use a computer. The technology divide that still affects a large proportion of the world population has, however, a deep and long-lasting impact on the economic situation (career and earnings) of those populations. Because technology and the emergence of always new technologies is often biased in favour of educated technology-savvy people, poverty and inequalities might be aggravated as those without (or with limited) access to it or the skills to use technology effectively are left out (Bussolo and Morrison, 2002; Lauder *et al,* 2006). The UNESCO Teaching and Learning: Quality

for all (2014) report argued that educated farmers had made more informed decisions related to the soil conservation, use of fertilizers, irrigation, seed varieties and farming technologies to increase the productivity of traditional crops than non-educated ones.
Hallak (2000) suggested that globalisation had led to knowledge and information population segmentation. He identified three types: Those who *globalise* with full control and access to knowledge, capital and information, those who are *globalised*, with limited access to information and knowledge and those who are *left out* by globalisation (Hallak, 2000). While the Teaching and Learning Report: Achieving equality for all (2014) indicated that there was a global learning crisis and stated that of the world's 650 million primary school age children 250 million had not acquired the most basic literacy and numeracy skills (particularly those living in rural areas or disadvantaged regions of a country and those from minority ethnic or linguistic groups), Trucano (2014, para.3) argued that there was a second digital divide that separated "those with the competencies and skills to benefit from computer use from those without".

Is 'being connected to the Internet' that important? Is the development of mobile broadband critical to increase economic productivity?

2.10.3 Internet and Economic Development

According to a McKinsey report (Pelissie du Rausas et al, 2011), this was absolutely crucial. McKinsey's report showed for instance that the internet now accounted for a larger percent of GDP in many developed countries than agriculture and energy. It also accounted for 21 percent of GDP growth in developed countries in the past five years, increasing rapidly from just 10 percent over the past 15 years. Research from the World Bank (2009) demonstrated that access to broadband (and therefore quicker access to information/knowledge) boosted economic growth, especially in developing countries (Pelissie du Rausas et al, 2011). The study showed that in developing countries, for every additional 10 percent of broadband penetration, economies had grown by a substantial 1.38 percent.

According to a Deloitte/GSMA report (2013), "the importance of allocating sufficient harmonised spectrum to mobile is made clear by the potential economic effects". The Sub-Saharan Africa Mobile Observatory 2012 report (Deloitte/GSMA, 2013) found that mobile data usage impacted economic growth and job creation in sub-Saharan Africa:

- it would increase GDP by an extra US$11 billion between 2015 and 2020, including an additional US$2.3 billion in tax
- it would create an additional 39 million connections, giving an average increase of 7 percent in mobile broadband penetration across these countries
- it would create an additional 4.9 million jobs.

Finally a recent study indicated that tripling access to mobile broadband networks in developing countries by 2030 would cost US$1.3 trillion but would boost economic growth by US$22 trillion (Auriol and Fanfalone, 2014).

2.10.4 The African Context

Thabo Mbeki, former President of South Africa (1999-2008), argued that knowledge had a capital role "in the betterment of society" (Knowledge Management conference 2012). The eLearning landscape in Africa has seen dramatic changes over the last decade i.e. improved access to the Internet at increased speed (broadband), reduced cost of bandwidth, and more stable/reliable and alternative electricity resources. According to Hamilton (2014), Africa's international Internet bandwidth had increased twenty times since 2009. He also stated that 44 percent of sub-Saharan Africa's population (410 million) was within a 25-kilometer range of an operational fibre optic network node. Changes are predicted to further accelerate in the next five years, with the launch of new initiatives. Mark Zuckerberg, founder and CEO of Facebook, launched for instance internet.org, aimed at making internet access available to those who didn't have access to the Internet around the world. In a media statement he wrote "There are huge barriers in developing countries to connecting and joining the knowledge economy." Colombia was the first country in Latin America to enjoy the service on 14 January 2015.
Google's Project Loon (http://www.google.com/loon/) is also testing balloons floating 12 miles above Earth as an option for connecting rural, remote and underserved areas (Urquhart, 2013).

According to the eLearning Africa report 2013, mobile technologies were the top change driver (27 percent) (followed by social media, 16 percent) in the use of learning technologies, allowing thousands in Africa to connect easily and cheaply to the Internet. Nearly two-thirds (65 percent) of households in 23 countries in sub-Saharan Africa had at least one mobile phone in 2013. According to a 2012 report by Deloitte and GSMA, a trade association that represents 800 mobile operators across the world, there were 475 million mobile connections in sub-Saharan Africa alone (Deloitte/ GSMA 2012). By comparison, there were 430 million mobile phone subscriptions in the African continent in 2011 (ITU, 2011). Markos Lemma, an Ethiopian blogger, co-founder of iceaddis, Ethiopia's leading technology hub accelerator, stated that mobile phones in Uganda were more common than light bulbs. According to the eLearning Africa Report (2013), "in Gabon, there are more mobile subscriptions than inhabitants" (eLearning Africa Report 2013, p.35). According to mobiThinking (2013) 99 percent of Internet connections in Kenya are mobile. Data from Communications Commission of Kenya indicated that internet penetration in the country went up by 4.3 percent to 41.1 percent in the second quarter of the 2012/2013 financial year (Mutegi, 2013).

2.10.5 Mobile Ownership

Driven by falling costs, mobile phone ownership in Africa is booming (Parr, 2013b). Steve Vosloo, senior project officer in the UNESCO mobile learning division for teacher development and higher education, argued that mobile phones had significant impacts particularly in the communication, banking, and entertainment

sectors. (Parr, 2013a). In *Why does Kenya lead the world in mobile money?* The Economist (27 May 2013) indicated for instance how M-PESA, a money-transfer scheme, lets people transfer cash using their phones, and "is by far the most successful scheme of its type on earth.

2.10.6 Mobile Penetration

As mentioned earlier, there were 6.8 billion mobile subscriptions worldwide, estimated The International Telecommunication Union in 2013 (ITU, 2013). Portio Research predicted that mobile subscribers worldwide would reach 7.5 billion by the end of 2014 and 8.5 billion by the end of 2016 (Mobile Factbook 2013).

Some warned however that despite the unprecedented boom in mobile subscriptions and usage, the excitement and promises jumping on board the mobile technology train brought (such as internet browsing or content delivery), there were still critical and unresolved issues (Table 2-2) and the road to solve all the challenges faced by African education was still a long and arduous one (Parr, 2013b).

Table 2-2: Most influential factors when delivering ICT enhanced learning and training – at an organisational level (Africa)

Rank	Factor	%
1	Access to appropriate content for ICT-enhanced learning and training	18
2	Infrastructure for ICT-enhanced learning and training: electricity, buildings, broadband	16
3	Professional development and training for ICT-enhanced learning and training	12
4	Access to affordable and reliable computers	11
5	Research on ICT-enhanced learning and training	7
6	ICT-enhanced learning and training in rural regions	5
6	Learning outcomes from ICT-enhanced learning and training	5
8	Sustainability of ICT-enhanced learning and training	4
8	The growth of mobile learning	4
8	Multi-stakeholder partnerships	4
11	Impact assessment	3
11	Monitoring and evaluation	3
11	Scalability	3
14	Social media	2
14	Profitability	2
14	Other	2

Source: eLearning Africa 2012 Report | *Used with permission of Rebecca Stromeyer (14/10/2015)*

Francisca Aladejana, professor of science education and provost at the College of Education in Ikere-Ekiti, Nigeria stated that the transformation would take time as university places were scarce but mobile technologies could help students access educational information (Parr, 2013b).

Eneza Education [http://enezaeducation.com/] in Kenya is for instance providing educational content, quizzes, and a Wikipedia search option to children in low-income rural areas that can be accessed on low-end cell phones. According to a United States Agency for International Development (USAID) report titled *Mobiles For Reading: A Landscape Research Review*, "the relatively recent advent of mobile technologies that have tremendous reach into all populations—young and old, urban and rural, rich and poor—across the globe provides a new opportunity to reimagine traditional forms of educational design and delivery" (Trucano, 2014, para. 12).
Tharindu Liyanagunawardena and Shirley Willis, professors at the University of Reading, stated however that there were still a lot of hurdles in developing countries, particularly pedagogical difficulties and staff development issues that needed to be resolved before disruptive technologies could be part of the solution. According to both authors for instance, "African learners had difficulties with peer assessment activities in MOOCs" (Ferenstein, 2014, para.18). The third most influential factor preventing the full deployment of ICT at institutional level in Africa, as indicated in Table 2-2, was for instance "professional development and training of staff". Shortage of qualified teachers was also an issue, according to an Education for All Global Monitoring Report (2015). According to The Citizen, Tanzania needed for instance to recruit at least 406,600 new teachers by 2030
[http://www.thecitizen.co.tz/News/Teachers-shortage-hurting-Tanzania/-/1840392/2485582/-/nxt5ps/-/index.html]. The Teaching and Learning: Achieving equality for all (2014) stated that 1.6 million additional teachers were required to achieve universal primary education by 2015 and 5.1 million to achieve universal lower secondary education by 2030.

[Distance learning] and mobile technology seem therefore to be *one* of the possible solutions to help broaden access to education and *learning* in developing countries, despite its potential heavy costs. Samsung Electronics East Africa announced for instance a partnership with Jomo Kenyatta University of Agriculture and Technology (JKUAT) to provide affordable laptops to university students (Mutegi, 2013). Cheaper laptops and tablets were been launched in some parts of the world by tech entrepreneurs, i.e. the Aakash series in India, the Zambian computer tablet [http://www.zedupad.com/], the e-Sabak in rural communities in Indonesia or the e-Limu (electronic teacher in Kiswahili) in Nairobi (Kenya) that might help thousands access to the Internet, content and knowledge.
Following the success of the SMART Kigali initiative in Kenya, launched in 2013 to provide free broadband Wi-Fi Internet access in various public areas across the city (http://www.kigalicity.gov.rw/spip.php?article1179), Facebook announced (March 2014) the launch of SocialEDU, creating "a social educational experience by building a mobile app that was integrated with Facebook": students in Rwanda would receive free data plans for accessing free edX MOOCs from some of the world's leading universities, including Harvard, MIT, U.C. Berkeley, TU Delft, Australian National University and ETH Zurich.
http://www.internet.org/press/introducing-socialedu

2.11 Broadening of Access to Higher Education

> "Nearly one-third of the world's population (29.3 percent) is under 15. Today there are 165 million people enrolled in tertiary education. Projections suggest that participation will peak at 263 million in 2025. Accommodating the additional 98 million students would require more than four major universities (30,000 students) to open every week for the next fifteen years" (Daniel, 2011, *presentation to The World Conference on Higher Education UNESCO Paris*).

There is a political economy of access and participation in higher education (Archer et al, 2005; Coates, 2013), which are essential to economic and social development in many countries. According to the *Knowledge economy* scholars, the current and future economies require more graduates with advanced education and skills. The knowledge society has, according to Shapiro et al (2007) become the "framework for how societies are described, analysed and benchmarked" (Shapiro et al, 2007, p.8). A knowledge economy is defined by Powell and Snellman (2004) as:

> "Production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance as well as equally rapid obsolescence" (Powell and Snellman, 2004, p.201).

Countless studies in developing countries have shown that higher levels of participation in higher education were highly correlated with levels of economic development (Bils and Klenow, 2000; Psacharopoulos and Patrinos, 2004; Becker, 2009; Teaching and Learning: Quality for all, 2014). There seems, however, to be some confusion regarding the differences between *knowledge* and *information*. While the value of knowledge cannot be contested, (Joseph Stiglitz, (1999) remarked more than a decade ago that knowledge was close to being a pure public good), knowledge often seems to be described in the media and the business literature as a saleable commodity, something that can be traded and bought (Boulding, 1966; Scarbrough, 1999; Murray and Blackman, 2006). Knowledge has, in recent years, become the primary source of economic productivity (Seltzer and Bentley, 1999) of many countries' economies, it can be minted, extracted, patented, copyrighted, trademarked and sold for a profit (Leadbeater, 1999; Slaughter and Rhoades, 2004). In other words, knowledge is very high in value; it can generate profitable revenue, for an economy or an individual. Lyotard (1984) had foreseen that knowledge, in the future, would be produced to be sold

While information often implies knowledge generation, it is not always knowledge in itself and an overload of information does not automatically mean that someone has learned or mastered something; Sharing information and sharing knowledge are two distinct things. Gaining access to information also differs from gaining access to knowledge. In The Coming of Post-Industrial Society: A Venture in Social Forecasting (1976), Bell outlined a new kind of society, an information society, a shift from manufacturing to the selling of services, a view shared by Drucker (2011). Bell (1976) made a clear distinction between information and knowledge and stated that they both had become the "strategic and transforming resources of our post-industrial

societies". According to Bell (1976), information societies are composed of three aspects: data, which according to Druker (2011) in this day and age is "in exhaustible abundance", information (or the organisation of data into meaningful and understandable patterns), and knowledge, which Bell argued is the use of information to make judgments. Drucker (2011) stated that today's computer programmer was yesterday's assembly line worker. To understand and navigate this enormous amount of data and information in order to 'make judgments', people needed to have equal access to higher education and needed to have opportunities to develop their thinking and their critical skills. According to a UNESCO report (2005) for instance, those who didn't have the fundamental skills to benefit from "a mass of indistinct data" would be left behind (UNESCO report, 2005).

Finally, access to higher education doesn't also always seem to necessarily mean success.

There is an extensive research on access and success in higher education and on the impact of the economic crisis on unemployment in various parts of the globe (Fallon and Lucas, 2002; Cai and Chan, 2009; Verick, 2009), particularly for those with a degree (Horton and Mazumbdar, 2001; Scarpetta et al, 2010; Choudhry et al, 2012). In an interesting study on the access to higher education in Israel, Ben-david and Iram (2014) argued for example that the knowledge-based economy was in fact increasing inequality for students from low-income families. A study by Eichhorst and Neder (2014) investigated youth unemployment in five Mediterranean countries (France, Greece, Italy, Portugal and Spain). Their study found that dropout rates were high (25 percent) and there was a serious skills misalignment, with for instance more than 40 percent of young Spanish university graduates working in occupations requiring only low or medium skills. *The lost generation of Spain's unemployed youth* as coined by Ham (2014) seem to have lost hope in the system, and this phenomenon is not unique to Spain. Angel Gurría, OECD Secretary-General in an *Education at a glance* report (OECD, 2014) stated that education could lift people out of poverty and social exclusion, but in order to do so, educational attainment had to translate into social mobility (OECD, 2014). Most research agrees that education and skills play a crucial role in fostering social progress (Warren, Thompson and Saegert, 2001; Bowles, 2014) and many people invest in education with the aim of finding a good job and improving their chances for a better life. Social mobility seems however, in some cases, to have come to a halt (OECD, 2014). In the U.S. for instance, Michael Apple (in Carspeckten, 2013) stated that obvious inequalities and social antagonisms divided every strata of the American society. Mettler (2014), author of 'Degrees of inequality: How the politics of Higher Education sabotaged the American Dream', argued that American Higher Education had not been spared, as it could be considered as a system of castes. It is, according to Mettler (2014) no longer the great equaliser (as also indicated in a recent experiment by Gaddis, 2014), as it reinforced class divisions, instead of bridging the gaps.

2.12 Schools as Perpetuators of Inequalities

Carnoy and Levin (1985) stated in Schooling and Work in the Democratic State that schools reproduced inequalities. Bourdieu argued that cultural socialisation placed individuals and groups within competitive status hierarchies (class-power/privilege, domination), in other words power relations among individuals and groups. According to Bourdieu (1977), people misrecognised how cultural resources and institutions locked them in to reproduce patterns of domination, in some sort of self-perpetuating process. Bourdieu investigated the role culture plays in social reproduction (Swartz, 2012). He claimed that the education systems "legitimated" class inequalities, in the way they functioned. He linked cultural capital/heritage (of the higher classes) to success in educational attainment. In other words, those who had access to better educational experiences in the childhood and those from a wealthier background had increased chances to succeed at school. The absence of this capital could explain the failure (and the dropping out) in the education system of the students from lower social classes (Bourdieu, 1977). For Bourdieu, Illich (1971) and Slaughter and Rhoades (2004), schooling (and particularly the universities) was the main responsible for this self-perpetuating inequalities process. Bourdieu (1974, p.32) said: "education is in fact one of the most effective means of perpetuating the existing social pattern". According to Christopher Doob (2013), social reproduction or inequality reproduction was the transmission of social inequality to the next generation. In *Schooling in Capitalist America: Educational Reform and the contradiction*s, Bowles (2014) explored human-capital theory and particularly the links and causes and effects between class, schooling, inequality and future economic opportunities. While Dewey rejected the idea that the role of schooling was to contribute to some external objective, such as the preparation of productive workers (Carnoy and Levin, 1985), according to Bowles (2014), the educational system stratified students and educational credentials legitimated inequality by providing an "open, objective and ostensibly meritocratic mechanism for assigning individuals to unequal occupational positions". An experiment by Gaddis (2014) indicated that Black candidates with a degree from an elite university such as Harvard, Stanford or Duke received fewer responses from employers and were offered less prestigious jobs and lower entry salaries than white applicants from much less elite state colleges. According to Gaddis (2014, p.2), "racial inequality in economic outcomes, particularly among the college educated, persists throughout U.S. society".

2.12.1 The knowledge Divide

Is there a knowledge divide? Are there "knowledge" castes?

Despite the enormous potential for economic growth, higher employment rates and productivity of an educated workforce (Tomlinson, 2001; OECD report, 2013) could facilitate, globally, there are concerns about who has access to higher education and whether some low socio-economic groups are continuously marginalised (World Bank, 2002; Blanden and Machin, 2004; Archer et al, 2005). For instance, 75 percent of young people in Niger had spent fewer than four years in school, according to the Teaching and Learning: Achieving equality for all (2014) report. .

Haigh and Clifford (2011) argued that "universities are increasingly serving the economic machine and in that role might have forgotten their initial mission and

function. For Boden and Nedeva (2010) universities, in our current globalised environment, performed three main functions: They produced knowledge, docile knowledge workers and were sources of profit. What had changed drastically in the past few decades, according to Shapiro et al (2007), was the accelerated speed at which knowledge was now transmitted and appreciated/depreciated in terms of economic relevance and value (Shapiro *et al*, 2007), the "rapid obsolescence" mentioned earlier by Powell and Snellman (2004) that would side-line the *globalised*, those with limited access to information and knowledge (Hallak, 2000) and those without the fundamental skills to deal with and make sense of the unlimited abundance of data mentioned by Drucker (2011).
Archer et al (2005) argued that higher education reinforced inequalities because it was not accessible to everyone and it was not mandatory.
Despite numerous attempts at educational reforms over the past decades by various governments to bridge socio-economic gaps, economic disadvantages still seem to be linked to bigger gaps and to low levels of participation, as shown in a study in the United Kingdom by Blanden and Machin (2004): the poorer your economic background was, the less chances you had to participate in Higher education, which would impact on your chances to climb the economic ladder. A decade earlier, the World Bank had already stated that qualified potential post-secondary students in many developing countries were not able to enrol in Higher Education institutions because there were not enough educational institutions in their country and because they were unable to pay the high school fees (World Bank, 1995). The costs and stress associated to enrolment, for those lucky enough to enrol, had also a direct impact on early drop-out rates.

Accessibility, equity and inclusion in American higher education seem to be an obstacle to achieving educational potential (Astin and Oseguera, 2004). An analysis of three decades of data of freshmen entering college by Astin and Oseguera (2004) revealed that there were substantial socioeconomic inequities in access to the most selective U.S. colleges and universities and that American higher education was "more socioeconomically stratified today than at any time during the past three decades" (Astin and Oseguera, 2004, p.338). *Education at a glance* (OECD, 2014, p.14) warned that despite a significant expansion of access to education and improvement in skills in OECD countries as indicated below, the increasing social divide between "the educational "haves" and "have-nots" – and the risks that the latter are excluded from the social benefits of educational expansion – "threatens societies as a whole".

2.12.2 Increased Participation in Emerging Markets

The Ernst & Young report (2012) stated that participation rates were growing at unprecedented rates in Latin America, the Association of Southeast Asian Nations (ASEAN), the Middle East and North Africa. There is a huge demand for high quality education and a large majority of the world population still has no access to any kind of higher education (Psacharopoulos, 2014). And yet the kind of jobs one would like to have in order to make a better life for one's self and family are those that probably require a postsecondary degree. A number of studies in many countries concluded however that higher education still remained rather elitist, with most

students coming from high socio-economic segments of the society, as shown in previous sections.

2.12.3 Knowledge for Those who Most Need it

In an article titled '*Free online courses bring "magic" to Rwanda*' (Bartholet, 2013), the critical importance to bring knowledge to the neediest and most disadvantaged parts of the world is highlighted by the parallel experiences of Tujiza Uwituze, and Jean Aime Mutabazi, two hard-working Kenyan students who graduated from secondary school in 2012. Born around the time of the 1994 Genocide, Tujiza's parents left their house and money and fled the country to seek asylum in Burundi, Tanzania and Kenya. Jean Aime's fate was unfortunately different. His father was killed during the genocide and he had to stay in Rwanda. He lives with his mother and couldn't afford the between US$1,500 and US$2,000 tuition fees a year (O'Neil, 2013). Tujiza has three younger siblings, her mother is unemployed, and she can't afford tuition fees as most families are struggling financially (Bartholet, 2013).
Jamie Hodari, Executive Director of Generation Rwanda exemplified the situation when he stated that demand for Higher Education exceeded offer (Bartholet, 2013). In 2011, only 6.6 percent of college-age Rwandans was enrolled in universities, according to the World Bank (O'Neil, 2013). Their dreams of getting a university education seemed completely out of reach, their hopes to improve their livelihood shattered.
Jean Aime said:

> *Education is a kind of magic power that can open any door in the world. If you are educated, you can control the situation you are living in.*

For Tujiza, it was a question of pure survival and a way to support her family:

> *Education is the only way I can survive, the only way I can take care of my sisters, who need me.*

When she was turned down for a scholarship to study at an American university, she was invited to join Kepler, a project conducted by Generation Rwanda, a non-profit organisation, to test a pre-pilot class using a MOOC platform (Bartholet, 2013).

These examples show that the opportunities for education and Higher Education learning in the developing world are often scarce. Many have the potential to study at university but there are not enough places, not enough high-quality institutions and/or the fees are too high.

2.12.4 Entry Rates

The European Access Network identified Access, Equity, Diversity and Inclusion as the four critical issues that affected higher education worldwide, particularly underrepresented groups, for reasons including gender, ethnic origin, nationality, age, disability, family background, vocational training, geographic location, or earlier educational disadvantage (EAN).

According to the OECD (Education at a Glance 2012) entry rates to university level programmes in OECD countries grew on average by nearly 25 percentage points between 1995 and 2010. Across OECD countries, 39 percent of 25-34 year-olds had a tertiary qualification in 2011. Higher Education participation seems however to remain unequal (Rounce, 2004; Psacharopoulos, 2014). Previous sections of the literature review have indicated for instance that students in the U.S., Europe, Australia and the UK today are very different from those of only two decades ago. Nowadays, a much larger proportion of the student population is older, works full time and studies part-time, and is from a diverse range of ethnic groups
Low levels of academic preparation, tremendous financial burden (lower wages and high debts that might be passed to the next generation or in the case of Tujiza and Jean Aime the lack of money) are the biggest barriers to university attendance (Callender and Jackson, 2005; Long and Riley, 2007; Psacharoupoulos, 2014) and success. According to Francisco Marmolejo, Tertiary Education Coordinator at the World Bank, there will be about 250 million students in the year 2025 (Wise Summit, 2013). This raises the crucial issue mentioned earlier by Daniel (2011) related to the access to Higher Education for the additional tens of millions of students. Would it be possible to open more affordable four major high quality universities every week for the next fifteen years? Would it be possible to have enough highly qualified professors and instructors?

2.13 Access to Education and Civic Engagement

Critical pedagogy challenges the assumption that access to education improves social and economic mobility. McLaren (1994) in *Life in Schools: an introduction to critical pedagogy in the foundations of education* addressed the topic of inequality in the American schooling system (McLaren, 1994) and argued that schools did not socially empower people. Dewey (1997) linked education and democracy. He argued that schooling should be valued in its own right, for the "broad requirements of citizenship in a democratic society" (Aronowitz and Giroux, 1987, p.20). In other words, in order for a society to be or become democratic, the democratisation of education was primordial. Dewey insisted that democracy worked only if everyone had access to education, a view shared by Larry Kramer, current president of The William and Flora Hewlett Foundation when he stated that an educated, literate citizenry is absolutely necessary (Kramer, 2014). Lipset's (1959) research showed that, in general, democracies had higher levels of economic development than non-democracies.

"Democracy" is derived from the Greek 'demos', meaning people, and 'Kratos' meaning power or rule. Active and direct citizen participation and democracy originated in the form of government practiced by the Athenians in the second half of the fifth century BC in which (only) adult male citizens could vote, make important decisions affecting their lives, such as laws or policy, without having to go through intermediaries.. "Democracy must mean that every 'citizen' can 'govern' and that society places him, even if only abstractly, in a general condition to achieve this" (Gramsci, 1971: 40-41) in other words, all citizens must be equally entitled and empowered, to shape the society in which they live (Giroux, 2014). Education helps people understand democracy and higher levels of educational attainment are often

strongly associated to civic engagement, effective participation and citizenship, and particularly the propensity for a "knowledgeable citizenry, whose understanding of issues and arguments is fostered by the availability of relevant, undistorted information" (Barnett, 1997, p.195) to express opinions, voice concerns and vote (Egerton, 2002; Milligan *et al*, 2004; Hillygus, 2005). The *Teaching and Learning: Achieving quality for all* (2014) report argued for instance that a significant educational expansion in the last 30 years had nurtured strong democratic aspirations in the most Arab States, particularly Egypt and Tunisia, where the Arab Spring emerged.

In Chapter seven of Democracy and Education (2004) [The Democratic conception in Education], Dewey said:

> "The superficial explanation is that a government resting upon popular universal suffrage cannot be successful unless those who elect and who obey their governors are educated" (Dewey, 2004, p.87).

According to a UNESCO report titled *Teaching and Learning: Achieving quality for all* (2014), in Argentina, China and Turkey, citizens were twice as likely to sign a petition or participate in a peaceful demonstration if they had completed secondary education.
Giroux (2014) stated that in order to reclaim higher education "as a democratic public sphere" it was crucially important to recognise that education was also about civic engagement, critical thinking, civic literacy, action and change. It was also connected to issues of power, inclusion, and social responsibility.
Giroux (2014) argued that higher education was the main battlefield where battles for democracy were fought and that youngsters were usually not part of that struggle.

2.13.1 Internet and Democracy

Is the Internet and particularly social media a democratising force (Zheng, 2007; Best and Wade, 2009, Simon et al, 2002)? Could the Internet help also improve access to Education?
The literature has rather opposing views. Some authors argued that the Internet was generally making a positive difference (Simon et al, 2002), had created a new form of democratic citizenship, a new medium that gave choices to citizens and allowed them to "communicate with each other horizontally" (Coleman and Blumler, 2009; Voltmer, 2013) in the (semi) public sphere without top-down filtering, control, censorship or editorial interference, particularly in the case of social media platforms such as Facebook or Twitter. Those with access could directly express their views and reach in seconds thousands of other people, known or unknown.
Wadhwa (2013) argued for instance that cheaper mobile technologies, as indicated in earlier sections, were offering opportunities to the disadvantaged in developing countries, could help democratise knowledge (Wadhwa, 2013) and give them a voice.

Other authors such as Best and Wade (2002) argued that the Internet could have both democratic and antidemocratic impacts, depending on the context.

Cyber/digital democracy (Hindman, 2008; Gil de Zúñiga et al, 2010) considers for instance how technology might "combine with underlying social, economic and political conditions to produce new vehicles for democratic practice" (Hague and Loader, 1999; Lotan et al, 2011). Bucy (2000) showed that the Internet is, in fact, increasing inequalities as disadvantaged populations without access are not participating in the wider political and democratic debate (Bucy, 2000). The World Bank (2002) and Mehra *et al.* (2004) noted that the Internet had produced progress in many countries, as it had widened access to higher education for traditionally less privileged groups.

An interesting study by Acemoglu, Laibson and List (2014), researchers at the National Bureau of Economic Research, investigated the possible democratising impact (s) of web-based educational technologies. One of their examples was a formal teaching task performed by a single teacher and broadcasted to the rest of the world, which sounds very similar to the MOOC format. As more educational resources were more equally distributed and at a lower cost, they argued, human capital inequality may also decrease. According to some authors such as Berger (1987) and Vanhanen (1997), widespread access to mass media ensured a more even distribution of knowledge, the 'mass-collaboration' of individuals and groups who became the source of new innovations and ideas in democratic practices (Leadbeater, 2009). Carver and Harrison (2013) suggested that socialising, learning from and discussing with people from different backgrounds were one of the important values that could be facilitated by web-based technologies (Carver and Harrison, 2013).

Loader and Mercea (2011, p.759) argued that there was often an assumption however that "the widespread informal use of the Internet for social networking, blogging, video-sharing and tweeting had an elective affinity with participatory democracy". A view shared by Bowles (2014) in relation to education. He stated that the focus on increasing access to Higher Education seem to mask still prominent but neglected challenges in the educational system such as social equality and personal liberation. Slaughter and Rhoades (2004) argued that universities, as sources of profit, had opened their doors to corporate interests (and academics had therefore lost some control on programmes, courses, etc.), were market-driven and were not interested in the critical question of who had access to education and what kind of education was needed for students to be informed and active citizens, as advocated by Aronowitz (2008) and Giroux (2014). The main concern of universities was rather profitable Return on Investment and massive revenue generation. According to Maclure (1989), universities had lost their independence and bowed to the needs and priorities of the governments (Maclure, 1989, cited in Lawton, 1992). Susan Crawford, a co-director of Harvard's Berkman Centre for Internet & Society, told the MIT Tech Review (Talbot, 2014) that she considered it as "a big concern" that private companies, partners of Higher Education institutions, were setting themselves up as the gate through which all online educational content was accessed.

2.13.2 The Control of Knowledge

A number of critical authors argued that the development and implementation of educational technology in universities were not guided so much by empirical and theoretical knowledge about learning and teaching as much as they were by neo-liberal and commercial interests (Nichols and Allen-Brown, 1996). A study on graduate employability by Boden and Nedeva (2010) argued also that the constant institutional need to assess the achievement of learning outcomes failed to take into consideration the personal developmental aspect of education (Boden and Nedeva, 2010), but was rather motivated by external interests, such as future funding.

Giroux (2002, p.425) described neoliberalism as the "most dangerous ideology of the current historical moment" and argued that democratic citizenship was subordinated to market values. Harvey (2005) described neoliberalism as

> "A theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets and free trade. The role of the State is to create and preserve an institutional framework appropriate to such practices" (Harvey, 2005, p.2).

In other words, the State guarantees the functioning of markets and the exercise of private property rights and if there is no such market, it has to be created and possibly managed by the State (Scott, 1995). A view shared by Giroux (1983) in his book In Theory and Resistance in Education: A Pedagogy for the Opposition. The neoliberal turn to commercialisation and privatisation of education is an area of concern for Aronowitz and Giroux (1987), particularly the "managed by the State" part. Edmunson (2012) also raised concerns about the commercialisation of Higher Education and the focus on revenue-generation. He was also concerned by the influence the corporations would have on content and design and questioned who, in fact, would control the courses (Edmundson, 2012), confirming the "big concern" expressed earlier by Susan Crawford (Talbot, 2014).

2.14 Summary

Friedman (2005) stated that the world was a playing field, where everyone had equal opportunities. Does this statement still hold true in the current U.S. Higher Education situation?

This section has shown that changes (in this case deep cuts) in State and local funding, a large part of the revenue of public colleges and universities in the U.S., have had tremendous repercussions on families: increasingly, students and parents need to work more (jobs and longer hours, therefore students have less time to attend face-to-face classes), borrow higher amounts of money (which many have difficulties to repay). Tuition fees have escalated to compensate for the loss of income, Pell grants and other federal grants have not been readjusted enough to match sticker prices' inflation rates and the average tuition at 4-year public schools now consumes more than 15 percent of the median household income in 26 states (Hiltonsmith and Draut, 2014).

This section also shows that upward mobility and access to the middle class is strongly affected: increasingly, universities have strategically shifted their aid, giving less to the low-income families, those that actually need it the most, and giving more to the high-income families (potential higher consumers of universities' services, future donors); furthermore, high-achieving students for the bottom income quintile do not tend to apply to selective elite universities and apply instead to the less prestigious institutions where those of similar background and income tend to enrol (Hoxby and Avery, 2012), potentially jeopardising their future jobs' applications. Similarly, in the UK, according to a recent Higher Education Academy report, *Exploring the impacts of policy changes on student approaches and attitudes to learning in contemporary higher education: implications for student learning engagement* (Tomlinson, 2014, p.11), "evidence overwhelmingly shows the significant likelihood of students from higher socio-economic backgrounds both entering higher education in the first instance and participating in higher tariff and more prestigious universities" (Tomlinson, 2014). The proposal (January 2015/ http://newsdaily.com/2015/01/obama-proposes-idea-of-two-free-years-of-community-college/) by President Obama to offer free Community College education to those "willing to work for it" shows that the government is looking for radical solutions to the complex issue of student debt and inequalities in America.

This section has indicated that a top American university student is more likely to be from a wealthy family than from a low-income one and questions whether Higher Education in the U.S. is still the *great equaliser in our nation* (Boehner and McKeon, 2003; Elliot and Nam, 2013; Gaddis, 2014; Mettler, 2014) after all. But is this the real issue? Accessibility, equity and inclusion in American higher education are still serious challenges and seem to be an obstacle to achieving educational potential (Molesworth et al (2009). In the words of Stephen Downes (2014), the distribution of content and knowledge has not yet reached the disadvantaged. As for Laura Perna, executive director of the University of Pennsylvania's Alliance for Higher Education and Democracy, education is not keeping its promises (Korn, 2015).

Finally this section has indicated that traditional university preparation that most graduates receive is no longer enough for the constantly changing demands of the global market. The potential of the Internet and online / mobile /eLearning technologies in developed countries is undeniable, as *traditional* student demographics are no longer the norm; It also shows that despite infrastructure hurdles (access to computers or affordable broadband for instance) in many developing countries, the internet now accounts for a large percent of GDP growth, has helped create jobs, has allowed more people to participate in the political and democratic debate and has helped expand access to knowledge and content.

There are still however, significant knowledge and digital divides in developed and developing countries and the need for change is more than even crucial. As Everett Rogers (2010, p.6) puts it, "when new ideas are invented, diffused, and are adopted or rejected, leading to certain consequences, social change occurs".

The following section will discuss technological innovations, their short and long term impact on societies and populations, the consequences they had in the past

and in the present. This section will also introduce Massive Open Online Courses (MOOCs) as a disruptive technology.

2.15 Literature Review Part II

2.15.1 Introduction

This part begins by discussing the printing press, censorship, power and knowledge, ideology, the production of information; the role social media plays in transformation and social media as a threat to governments. This section introduces the concept of disruptive innovation, its theory, discusses whether online education is disruptive (online education as the solution to increase access, online versus traditional campus-based classes), reviews whether all online courses can be successful. The section also reviews the changes in Higher Education (commoditisation, unbundling and modularity) and introduces Massive Open Online Courses (MOOCs) as a disruptive technology, the main example for this thesis. Finally, this section reviews MOOCs' student demographics (motivation, persistence rates), discusses the role MOOCs can (or cannot) play to democratise higher education and reviews current literature related to the transformative impact MOOCs might have on learning, institutions and the academic identity. The part concludes by discussing the real value of MOOCs.

2.16 The Printing Press

The invention of the printing press – a shift from laborious manuscript making to a print technology – (and the mass production of paper), the explosion and dissemination of ideas that came with it and the sharing of knowledge that was possible had *ripple effect* consequences: Prior to Gutenberg's invention, there were only two types of printed material available: the *broadside*, an illustrated publication for those who could not read and/or were not authorised to (Waugh, 2013). The second type was the pamphlets for the literate (Wheale, 1999) and the wealthy. Nalle (1989) mentioned inexpensive *Cartillas de leer* (primers, four to twelve folios in length), available in fifteenth-sixteenth century Castile (Spain), but they were rare and pricey. According to Gawthrop and Strauss (1984), the ordinary artisan living in 1522 would have had to work for one week to pay for a New Testament in German, his vernacular language. To purchase a complete German Bible required a common labourer's toil for a month. By making printed books available at low cost to the masses, literacy increased, exponentially.

The printing press transformed learning, the number of books increased (Figure 2-3), access to school was expanded, and the general public was now able to read the bible. According to Buringh and Van Zanden (2009), the number of books published at a certain time is a relevant indicator of economic development. Table 3-1 shows for instance that books in France increased from 564,624 in the fourteenth century to 1,195,783 in the fifteenth, boosted by the democratisation of the vernacular literature (e.g. *chanson de geste*). The production of books in Western Europe literally doubled between the fourteenth and fifteenth century.

Table 2-3: Manuscript production in absolute numbers per century (sixth to fifteenth centuries)

MANUSCRIPT PRODUCTION IN ABSOLUTE NUMBERS PER CENTURY
(sixth to fifteenth centuries)

Area	*Sixth*	*Seventh*	*Eighth*	*Ninth*	*Tenth*
Central Europe[a]	0	0	0	0	0
Bohemia	0	0	0	0	0
British Isles[b]	81	1,026	5,474	7,926	9,793
France	1,682	2,441	15,920	74,190	12,752
Belgium	0	127	1,111	3,029	1,555
Netherlands	0	26	60	82	58
Germany	0	0	7,503	59,771	45,703
Switzerland	0	30	594	5,330	1,799
Austria	0	0	2,735	9,414	0
Italy	10,194	4,478	6,536	20,307	15,215
Iberia[c]	1,594	2,512	3,770	21,693	48,763
Western Europe	13,552	10,639	43,702	201,742	135,637
Increase per century (percent)		–21	311	362	–33
	Eleventh	*Twelfth*	*Thirteenth*	*Fourteenth*	*Fifteenth*
Central Europe[a]	3,983	27,530	120,987	301,833	376,650
Bohemia	657	1,136	5,377	42,066	45,363
British Isles[b]	20,360	81,044	200,654	155,513	208,729
France	45,061	197,831	510,828	564,624	1,195,783
Belgium	8,529	43,219	119,588	106,148	572,124
Netherlands	354	1,731	2,066	13,179	171,974
Germany	49,548	166,876	270,392	293,814	515,116
Switzerland	1,090	2,355	3,821	6,349	10,652
Austria	2,808	37,370	37,408	39,777	88,623
Italy	38,768	95,207	253,013	879,364	1,423,668
Iberia[c]	40,871	114,422	237,818	344,284	390,478
Western Europe	212,030	768,721	1,761,951	2,746,951	4,999,161
Increase per century (percent)	56	263	129	56	82

[a] Hungary, Slovakia, Poland, and the Scandinavian countries.
[b] England, Wales, Scotland, and Ireland.
[c] Spain and Portugal.

Source: Buringh and Van Zanden (2009) | *Used with permission of Claire Taylor, Cambridge University Press (14/12/2015)*

Buringh and Van Zanden (2009) stated that the acceleration of books' output after 1454 continued until the end of the sixteenth century, during the Renaissance. Scholarly writing also experienced changes: it became authorship of original material "laying the basis for modern scholarship" (Eisenstein, 1980), not constant copying and reproduction, by scribes and monks, of ancient texts. People started to read classical texts; they began to write and wanted their views to be published and diffused. Political, religious and humanist philosophical views were disseminated at a faster pace; the local priesthood was increasingly challenged by the now literate common folk; the religious reforms of Martin Luther began the Protestant Reformation and challenged the authority of the papacy and the Catholic Church and hundreds of years of holy wars followed (Buringh and Van Zanden, 2009). Countries tried to restrain and suppress reformist movements. According to Nalle (1989), in *Literacy and culture in early modern Castile*, fears of the spread of unauthorised versions of the bible and *threatening* ideas led to drastic measures of censorship and the burning of many books and people. The printing press was nevertheless the spark for the Enlightenment that promoted scientific thought, scepticism, intellectual interchange (Kors, 2003). Immanuel Kant wrote that the Enlightenment was the *emancipation of the human consciousness from an immature state of*

ignorance. Kant's words are echoed by Porter (2001), when he said that the thesis of the liberation of the human mind from the dogmatic state of ignorance was the epitome of what the age of enlightenment was trying to capture. The Age of Reason (Jansen, 1991) had other unexpected consequences in some countries, a new confidence *over his worldly destiny* (Gay, 1967): anti-monarchy and anti-Church radicalism in France for instance which led to the French Revolution (1789), secularism (1905), the emergence of trade unions during the Industrial revolution. The impacts of a disruptive technology _ the printing press_ that became a disruptive innovation were therefore tectonic. It changed history, learning, societies, the arts, people and opened doors to more innovations. Its popularity and uses also attracted the wrath of those in power.

2.17 Knowledge, Technology and Progress

Mokyr (2005) in *The intellectual origins of modern economic growth* argued of the possibility and desirability of economic progress and growth through knowledge, which he described as *Industrial Enlightenment*. Habermas (1971) in *Knowledge and human interests* divided knowledge forms into three: instrumental, practical and emancipatory. Carr and Kemmis (2003, p.136) summarised Habermas's epistemology as follows (reproduced in Table 2-4):

Table 2-4: Habermas's epistemology

Interest	**Knowledge**	**Medium**	**Science**
Technical	Instrumental	Work	Empirical-analytical or natural sciences
Practical	Practical (understanding)	Language	Hermeneutic or "interpretative' sciences
Emancipatory	Emancipatory (reflection)	Power	Critical sciences

Source: Carr, W., & Kemmis, S. (2003). Becoming critical: education knowledge and action research. Page 136. Routledge. 136. *Used with permission of Laura Templeman (UK) (11/11/2015) and reproduced with the permission of Deakin University (Astrid Bowell, 23/11/2015)*

Instrumental knowledge corresponds to technical human interests associated with work or production and with the natural sciences.

Practical knowledge refers to interpretative ways of knowing through which every day and social human activities are coordinated and given meaning.

Emancipatory knowledge or "pedagogical practices that allow for the greatest release of human potential and cultivation of citizens who will produce a just society" (Kellner, 2003, p.4) and it is articulated in terms of power, control and emancipation (Nichols and Allen-Brown, 1996; Friesen, 2008), an interesting concept in the context of this thesis, as it relates to the democratisation of access to knowledge.

For Weber (2009), a scientific attitude had to replace *superstition* for technical progress to occur. He argued that once the people gave up believing in supernatural beings, were exposed to science and viewed the world as a material realm unaffected by the spiritual, they could focus on discovering new things (Allen, 2009).

Mokyr (2005) argued that the Industrial Revolution was the source of modern economic growth (Mokyr, 2005). According to Mokyr (2002) in *The Gifts of Athena: Historical Origins of the Knowledge Economy*, the growth explosion in the past two centuries was driven not just by the new innovations that started to appear but also by more affordable prices and a larger accessibility of those innovations, which was not the case in the past (Mokyr, 2002). Lipsey (2007) stated that "technological change not only increased our incomes; it transformed our lives through the invention of new, hitherto undreamed of products that are made in new, hitherto undreamed of ways" (Lipsey, 2007, p.256). In his essay, *Technological transformation, IPRs and second best theory*, Lipsey described New General Purpose Technologies (GPTs) that evolved to transform and revolutionise society (Lipsey, 2007).
He argued that the structural impact were noticeable, felt and extensive on many layers. These words are echoed by Perez (2002), when she said that each new technology that has substituted another has had profound effects on people, skills and organisations. The invention of more portable cameras after World War I have for instance allowed photographers such as László Moholy-Nagy (the inventor of "the New Vision") to use close-ups and different angles and integrate post-war technological and industrial advances into his pictures. Jonsson (2013, p.187) argued that the idea was motivated by the need to have a "visual language addressed to urban crowds who would find enjoyment in this new public art while at the same time digesting the messages posted onto walls and façades".

The Internet (to borrow one of Apple's slogans) has changed everything. Again.

Leadbeater (2008) stated that the Internet was as important as the printing press as the insights, opinions and knowledge of millions of people could intermingle in what he calls the "collective intelligence" and could potentially be disseminated to even more millions at a click of a mouse (or in the iPhone/iPad age, with the tap of a finger). The equality and democratising promises of the Internet are also very exciting. Now more than ever people around the world, thanks to mobile technologies and social media platforms, can potentially have instant access to information and knowledge, at their fingertips, particularly those who can't afford expensive schooling or services and/or who can't afford to travel. Help Me offers for instance online legal services and legal help to customers in Korea via instant messaging (KakaoTalk) [http://www.help-me.kr/].

The Internet has also allowed people to connect, without constant state control (except maybe in countries such as China, North Korea, etc.), with virtually anyone else on the planet, at a scale, prices and at a speed never seen before. Finally the access to the Internet allows anybody to potentially learn things synchronously or asynchronously without having to sit in a class. In other words, the ripple effects of the Internet have had /still have/ will have deeper societal consequences.

Christensen argued in *The Innovator's Solution* (2003) that it was rarely the technology per se that was disruptive but the competitive and creative effect that it created, the use (s) that were made of it, and the further innovations that it enabled to undertake. In 1.1.1, the author of this thesis argued that disruptive technologies or innovations did not appear suddenly or in a vacuum. They were the result of changing customer needs or a need for change.

As an example, people's need for (even more) immediate social interaction (connect/reconnect with family and friends) and the increasing popularity in recent years of internet video chat and voice calls application to "keep in touch" or for virtual business meetings such as Skype (launched in 2003) seem for instance to have inspired the launch of social media platforms and mobile apps such as Tango, Viber, Apple's FaceTime, Facebook Live and even WhatsApp's voice messages that allow people to talk, exchange messages and views instantly (almost) uncensored. Sharing a story, a trip, an event, a meal virtually with your friends and the world has inspired innovators and tech entrepreneurs to launch Twitter, Pinterest (a new virtual form of wall and façade, see Jonsson (2013) above), and Instagram.

The need for exclusivity, rapidity and ephemeral pictures (that only last a day) has motivated other innovators to launch Snapchat.

2.18 Censorship

Medieval times' fears seem to have reappeared five centuries later and this time the object of the ire is not a book, which can easily be hidden from the Masses, burned or destroyed. This time, the culprit is another disruptive innovation, less easily controlled, the Web and particularly social media platforms (e.g. Facebook/Twitter/YouTube/ Sina Weibo, WeChat, etc.)

Censorship is still the favourite weapon of governments afraid to lose their power, to muffle people's discontent or access to information. Social media seems to be increasingly and independently acting as a very active platform for political participation and discontent and this is seen as a serious threat in many countries.

David Hughes (in Anderson and Rainie, 2014, para.24) argued that:

> "All 7-plus billion humans on this planet will sooner or later be 'connected' to each other and fixed destinations, via the Uber (notInter) net. That can lead to the diminished power over people's lives within nation-states. When every person on this planet can reach, and communicate two-way, with every other person on this planet, the power of nation-states to control every human inside its geographic boundaries may start to diminish".

In *Why does democracy need education?* Glaeser, Ponzetto and Shleifer (2007) argued that across countries education and democracy were highly correlated and that higher education lead to more democratic politics. They stated that underprivileged and [university] students had always been at the core of demonstrations and had crucial roles in overturning undemocratic (and most unpopular) reforms or policies. For instance, due to the major role played by social media during 2013's anti-government protests in Turkey, the Turkish prime minister, Recep Tayyıp Erdoğan asked the Turkish Parliament to adopt an Internet law (February 2014) to promote Internet regulation in Turkey that allowed the

telecommunications authority (TIB) to block any website within 24 hours without first seeking a court ruling; It also required Internet providers to store all data on web users' activities for two years and make it available to the authorities, upon request. On 20 March 2014, access to Twitter was blocked when a court ordered that “protection measures” be applied to the service (It was unblocked on the 04 April, 2014).

This followed earlier remarks by Prime Minister Erdogan who vowed to “wipe out Twitter”. On 27 March 2014, in a show of power, access to YouTube was also blocked country-wide. Neelie Kroes, vice president of the European Commission tweeted (Figure 2-7) the following message labelling the move as “coward” censorship.

[https://twitter.com/NeelieKroesEU/status/446784267541291008]:

Figure 2-7: Twitter ban in Turkey

Neelie Kroes. Tweet.

2.18.1 Power and Knowledge

According to Jansen (1991), power and knowledge are intrinsically related.

Paddison, Philo, Routledge, and Sharp (2002, p.3) stated that “power should not be viewed solely as an attribute of the dominant, expressed as coercion or political control, since it is also present in the ability to resist”. This resistance can enable resisters to find common ground in struggle (as in the power to mobilise others with the use of common platforms), and to become empowered in the very act of resistance, as in the case, for instance, of the impeachment of President Estrada in the Philippines (Shirky, 2011).

According to Foucault and Ewald (2003), power is exercised through individuals and networks. Recent examples such as student demonstrations in Hong Kong in 2002 to reject article 23, a security law to protect national security, which led to its withdrawal, the Arab Spring that began in 2010 in Tunisia, Egypt and Bahrain and continues in Turkey, more recently in Taiwan in 2014, The sunflower movement, to protest closer ties with China and the passing of a Cross-Strait Service Trade Agreement that would, according to its detractors, increase unemployment and leave Taiwan vulnerable to the Mainland’s political rule and the most recent [佔中] Occupy Central and ‘umbrella movement’ in Hong Kong to push for universal suffrage in 2017 (September/October 2014) have shown that the [technology-savvy and educated] is a resistant force to be reckoned with.

According to Freire (1969) and Giroux (1983), a person who simply accepts social and political reality, who does nothing about it/does not resist and who does not think critically about it, is participating in a world which has been organised for him by others.

Gilles Deleuze (2010)' S*ocieties of control* concept is rather interesting in the context of this thesis, particularly the idea that there seems to never be an end to the *control*, e.g. internships, further education, academic inflation, lifelong learning and now the Internet/social media. "In control societies you never finish anything" (Deleuze 1995, p.4). Deleuze wrote: "We're moving toward control societies that no longer operate by confining people but through continuous control and instant communication". According to Deleuze, *Disciplinary societies* developed a network of institutions such as hospitals, prisons, factories, schools, etc. within which individuals were located, trained and/or punished at various times in their life. In contrast to this, societies of control are continuous in form. The individual, in a disciplinary society, is placed in various 'moulds' at different times, whereas the individual in a society of control is in a constant state of modulation (Parr, 2010). A study by Dounia Bouzar, French anthropologist and specialist of radical Islam showed for instance that the majority of the French jihadists were first indoctrinated via the Internet (Le Devin, 2014) and the grooming continued at the mosque and within their groups of friends.

Media and mobile technologies are also playing a critical role in the constant flow of information and updates about what is occurring on the ground, real-time (Cottle, 2011), allowing people to share it with their networks, without State or police control (Cottle, 2011), as demonstrated recently in the Charlie Hebdo attacks. TV stations were under fire after broadcasting police operations live.

In a recent Pew Research Centre and Elon University survey Digital Life in 2025, Rui Correia, director of Netday Namibia (Africa), a non-profit organisation argued that the democratisation of information-sharing apps would allow ill-informed rural populations in totalitarian countries to access information and knowledge otherwise denied to them. Anderson and Rainie (2014) argued that as more people had access to information with the use of mobile technologies, more ideological uprisings were to be expected.

2.18.2 Ideology

Is instant communication and generally social media the new territory for control and ideologies? What is an ideology?
Giroux and McLaren (1989) defined an ideology as

> "The dominant groups' conception of what the subordinate group should aspire to – that is, what the subordinate group should take as its values and norms" (Giroux and McLaren, 1989, p.11).

Eagleton (199, p. 30) defined Ideology as a

> "Ideas and beliefs which help to legitimate the interest of a ruling group or class by distortion or dissimulation"

According to Friesen (2008), ideological beliefs or ideas were also generally held implicitly or adopted as a whole and maintained regardless of what happened (Friesen, 2008). Ideology, then, was a set of ideas, often beyond criticism, that was used to justify actions of social and political consequence (s) (Friesen, 2008). Klein (2007) in *The Shock Doctrine* stated:

> "The process has sparked heated debate around the world about how many of these atrocities stemmed from the ideology invoked, as opposed to its distortion by adherents like Stalin, Ceauşescu, Mao and Pol Pot" (Klein, 2007, p.19)

Kellner (2002) argued that over the past decades, there had been a continuous effort to impose a neo-liberal agenda on education, reorganising schools on a business model, imposing standardised education, and making testing the goal of pedagogy. In his view, these were wrong (Kellner, 2002). Critical theory views curriculum, production of content and pedagogy as manipulative (Young, 1990), as revealing ideologies in action, or ideological knowledge and it questions the view that knowledge is neutral. According to Giroux and McLaren (1989), curriculum and pedagogy are ideologically laden and perpetuate dominant values. Adorno (1981, p.126) described it as information or "facts which present themselves as neutral, self-evident or objectively true, despite being strongly shaped by social interests". According to Feenberg (2002), Marcuse (2013) rejected the neutrality of technology and argued that technological rationality had become political rationality.

Which raises the question of who produces and who consumes information and whether there is a hidden agenda?

2.18.3 Production of Information

Social media/microblogging platforms such as Twitter, YouTube, Facebook, or QQ and Weibo (China) and messaging apps such as Messenger, WhatsApp, Line (Japan), WeChat (China) or KakaoTalk (Korea) have redefined the way *millennials* produce, mediate, and receive information (Shirky, 2010). They have also been used, on some occasions, as a tool to disseminate ideologies (Lohlker and Abu-Hamdeh, 2014), denounce injustice (Gandy, 2014, in Anderson and Rainie, 2014), as the only means of communication between friends in times of armed conflicts such as in Ukraine (Sonne, 2015). Furthermore, they were used to express solidarity as in the case of #illridewithyou in Australia to express support to the Muslim community, following a hostage siege in Sydney's Central Business District or #JeSuisCharlie in France following the attacks on Charlie Hebdo. Other recent examples are the crucial social activism part played by technology and social networks in the protests of [2004 Kiev] and [2011 Tunisia] and generally in the Arab Spring (Ingram, 2011)

Millions interact daily across multiple social media/messaging platforms. 24/7 inexpensive access to information via mobile devices, the fact that millions with little or no advanced computer skills, can use it to upload comments, criticisms or pictures threatens States' control of information. The ban of Facebook, YouTube and Twitter during Cairo's Tahir Square riots (Figure 2-8) and the censorship of and restrictions imposed on WeChat, Line and KakaoTalk users in 2014 shows that governments do

not undermine the role social media platforms play in social protests/national security (Ungerlaider, 2011) and access to information.

Figure 2-8: Twitter ban in Egypt

Source: Twitterglobalpr. Tweet

Social media has also been used by governments to improve citizen engagement with them, collect views and promote change. They are extensively used by newspapers (particularly Facebook and Twitter) to disseminate information (meeker, 2014) and collect people's [on-the-ground] pictures and opinions.

2.19 Social Media and Transformation

Gladwell (2010), in his article *Small Change Why the revolution will not be tweeted*, argued that social media platforms played a minimal role and were ineffective to bring real social transformation.

The recent events in Turkey (2014) and Hong Kong (2014) have shown however that social media is potentially a social activism weapon, an enemy of the status quo and a massive headache for governments. A study *Opening Closed Regimes: What Was the Role of Social Media During the Arab Spring?* (2011) published by the Project on Information Technology and Political Islam confirmed the importance of Twitter in the uprisings for more democracy and freedom (Howard, 2011). Evolving app technology has also helped in assisting to thwart attempts to limit democratic rights and freedoms. Hotspot Shield, a free mobile app that provides a virtual private network (VPN) was downloaded thousands of times in Turkey. VPN's are used every day by thousands in China to avoid the Great Chinese Firewall.

Amid fears of internet and networks' shutdown during the pro-democracy protest in Hong Kong in October 2014, following China's Firewall censorship of protest news, alternative means of communication such as FireChat were sought to allow protester's smartphone users to communicate via peer-to-peer Bluetooth or Wi-Fi.

2.19.1 Social media as a Threat

Jansen (1991) stated that the powerful had the power to label things.

A prime example of the above quote is when the Prime Minister of Turkey, Erdogan stated in the Turkish media: "There is now a menace which is called Twitter. The best examples of lies can be found there. To me, social media is the worst menace to society."
(http://www.radikal.com.tr/politika/basbakan_erdogan_twitter_denen_bir_bela_var-1135952) _

His comments were followed by Turkey's deputy prime minister, Bülent Arınç's words: "We are freer and have more press freedom than many other countries in the world" (Letsch, 2014). Recent events in Syria and the example of the Islamic State of Iraq and Syria (ISIS) have shown that social media platforms are not only used to express democratic ideals and values but also used by extremist groups to groom, recruit, encourage Jihad and radical Islam and raise funds. Byrne et al (2013) stated that there was growing awareness and concern over how violent ideological jihadist groups exploited the internet to control the information they wanted to disseminate (Deleuze 1995) and achieve goals. Websites were being developed by groups such as ISIS to widely disseminate violent ideologies, recruit/indoctrinate new social media-savvy members, and solicit financial support (Jawad Al-Tamimi, 2014).

An earlier section has indicated that recruitment of potential jihadists was firstly done on the Internet (Le Devin, 2014), not through pamphlets nor through books. Social Media platforms, even in the context of Jihad propaganda, seem to have had a disruptive effect by replacing the traditional modes of communication.

Finally, a recent report by the Chronicle of Higher Education (2015) identified *Social-Media Skirmishes* as one of the significant and potentially threatening challenges faced by universities.

A section of the Introduction Chapter has indicated that disruptive processes or products have brought realisation that something was not completely right and in need of change. The first part of the literature review has focused on the Higher Education business and economic models and has indicated that there were some things not quite right about them.
Another important element mentioned was that certain particular elements of a technological change can be more or less disruptive and the level of disruption may differ and impact to a greater or lesser extent different/specific areas, within various timeframes, shorter or longer.
The following section will attempt to further discuss how knowledge brought by technological advances begets progress and inexorable change. It will also focus on the challenges to the pedagogical model brought by disruptive innovations and technologies, and particularly Massive Open Online Courses (MOOCs).

2.19.2 Technological Competition and Change

According to Schumpeter (2013), the evolution of capitalism is driven by technological competition between companies. He described the "evolutionary process" of creative destruction by stating that the creation of new industries is often not possible without a significant shake off of the pre-existing order. He said:

> "Incessantly revolutionises the economic structure from within, incessantly destroying the old one, incessantly creating a new one" (Schumpeter, 2013, p.83).

In *A critique of political economy*, Marx (1977) suggested that firms had to increase productivity by constantly introducing new and more cost-effective machinery to remain competitive: Firms that succeeded in introducing innovative and more

efficient technology would see their competitive position improved by acquiring market shares, while those who failed, Marx argued, would go bankrupt and, eventually, be forced to exit, a view shared by Friedman (1953). In Schumpeter's words:

> "Competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives" (Schumpeter 1934, p.84).

The above quote is put in contrast with the quote below, from a recent Russell Group paper, *Staying on top: The challenge of sustaining world-class higher education (2010, p.6)*, and shows that the language used to describe 21st Century universities is very similar to 1940-1950s' to describe capitalist firms.

> "UK Universities have a strong track record in increasing cost-effectiveness and Russell Group universities are actively pursuing innovative ways in which to deliver greater efficiency and higher levels of productivity… As the UK's economic competitiveness becomes increasingly dependent on leadership within high-tech and knowledge-intensive industries, world-class research universities have a critically important role to play in driving future growth and prosperity".

According to Armstrong (2001) new forms of competition that are the norm in business are increasingly appearing in the Higher Education realm. For Armstrong (2001), Lenox (2013) and Salathe (2014), competition is normal, has happened in many other industries, and the disruption of Higher Education's status quo is a good thing, particularly as it provides a necessary shakeout, helping improve the system (Salathe, 2014 in Santandreu, 2014). Beerkens (2013), senior advisor for international affairs at Leiden University in The Netherlands believed that universities would not, however, be forced to exit by emerging disruptive competitors because universities were much more than producers of knowledge, they also created an unrivalled academic experience (Beerkens, 2013), which was very difficult to reproduce online.

2.20 Disruptive Innovations

Disruptive innovations in transportation (e.g. steam engines), manufacturing (e.g. the cotton gin) and metallurgy (e.g. use of coal) during the Industrial Revolution paved the foundation of Industrial America's economic growth.

The gains (standard of living for instance) have been carried forward by more innovation, more technically-skilled workers, more jobs and the further evolution of technology: better ships, more efficient machines, better cars.

Jobs have also evolved. As jobs became more technologically-complex, people lost their job, others had to retrain, up skill, learn a new trade, go to university.

In 2015, Uber, the app-based taxi company, seems for instance to be inspiring Google to develop a similar but cheaper (for the consumers) more technology-advanced app-based taxi service with driverless cars (no drivers = less risks of aggression, less sick leaves, less costs). Its success has also inspired two Chinese companies to merge and launch a taxi-calling application called Didi Kuaidi.

Technologies in Education, adapted from the industry, such as Learning Management Systems (LMS, Blackboard/Moodle, etc.) and competition between providers in search of a business edge have not caused *extensive structural disruptive changes* in Higher Education but have nevertheless changed the way learning and teaching is taking place in many universities. They have also evolved (Adaptive online courses platforms such as Mindojo (http://mindojo.com/ or KnowRe (http://www.knowre.com/) that promise to adapt to each students' needs and learning styles are also an example of the evolution of LMSes), facilitated other new opportunities (data analytics is such an example for diagnosis, student retention and the improvement of the student experience) and "inspired" the creation of new more technical jobs (e.g. data scientist, iOS developer, Big Data architect, University CIO, etc.).

2.20.1 Definition of Disruptive Innovations

Clayton Christensen (1997) described a disruptive innovation as

> "a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors" (Christensen, 1997, p.1).

In short: a new technology that slowly but inexorably supplants an established technology. Yu and Hang (2010) added an important different dimension to the term by highlighting the two following points: *superior/lower performance* and *low cost.* According to Yu and Huang, the impact of the *disruptive* product or service would be greater and faster if its performance *exceeded* the performance of the product/service it disrupts and if, secondarily, it was *cheaper*.

They said:

> "A technological innovation that has superior performance in key dimensions with a relatively low-cost structure would directly invade the mainstream market and cause more serious destructive effects than a normal disruptive innovation that focuses on low cost but initially lower performance" (Yu and Hang, 2010, p.439)

In Disrupting Class (2008) Christensen, Horn and Johnson argued that all disruptions shared similar characteristics and a pattern.

2.20.2 Characteristics of Disruptive Innovations

It is the (superior/ inferior) performance of the new product, its quality, not the price that eventually made the difference. In other words, if people perceived that the quality of the service or the product was better, they would be eager to pay for it.

Another important characteristic of a disruptive innovation is that it offers a service or a product to people who otherwise wouldn't have the skills, time or financial means to have access to it. They are called non-consumers in the disruptive innovators' lingo.

The third characteristic is that a disruptive service or product does not initially compete directly against an existing service or product. It is developed in parallel to an existing product or service, often in a partnership.

According to Schmidt and Druehl (2008), not all disruptive innovations had the potential to displace existing products or services (Schmidt and Druehl, 2008). These words were echoed by a recent heated debate between Clayton Christensen and Harvard colleague Jill Lepore when she strongly criticised and discarded Christensen's theory in The New Yorker (Lepore, 2014) and by a recent study by Marx and Hsu (2013). According to Marx and Hsu (2013), existing companies about to be disrupted often started competing against the disruptors and eventually signed partnership agreements with them (e.g. by licensing their technology), a view shared by N.V. Varghese, director of the Centre for Policy Research in Higher Education. According to Varghese, a "partnership with existing institutions of higher education" potentially led to expansion in enrolments and local access to education in developing countries (MOOCs4D, 2014).

In summary, for a disruptive innovation to be successful, in other words largely adopted, it needs the following characteristics:

1 Has to be new (innovative)
2 Has to be superior in performance (quality and value)
3 Has to have a low cost
4 It needs to offer a service or product to non-consumers

One factor was critical: Quality (superior performance/value), considered as more important than low price.

Finally, a disruptive innovation could have an impact, significant or not, in the short or long term but without necessarily replacing the old technology/product.

The MD, for instance, improved the system (audio–tape) but was quickly replaced by the CD. The LD was also an improvement from the old VHS tapes but was discarded and replaced by the (low-quality) VCD and DVD. The Walkman (audio-tape player) and CD players were displaced by the iPod and mp3 players, which in turn were replaced by the convenience of iTunes and Spotify. Blu-Ray has not replaced the DVD; digital download, on-demand videos, Netflix, Foxtel and Google Chromecast have had a larger impact, in many households, as they have the four magic characteristics mentioned above and allow for viewing personalisation. Digital photography has

replaced films (and has precipitated Kodak's downfall which failed to adapt) but camera phones have not substituted digital cameras, (as of 2015!), as their performance is still technically slightly inferior. Digital cameras have adapted however and launched Wi-Fi sim cards to allow direct sharing of pictures on mobile devices and social media platforms, catering to consumers' needs. Accredible [https://www.accredible.com/] offers digital certification and online credentials but will these replace paper certificates in the short term?

2.20.3 Disruptive Innovation Theory

According to Adner (2002), as technology development progresses, consumers' performance requirements are met, and then exceeded, by their home technology. As performance continues to surpass consumers' requirements, consumers' willingness to pay for unnecessary improvements (labelled as *sustaining* innovations) decreases, opening the door for lower-priced, lower-performance (disruptive) offers to capture these consumers (Adner, 2002). But this transition is neither abrupt nor immediate.

When a new approach or technology substitutes for an old one because it has a technological or economic advantage over the old, the substitution pace almost always follows an S-curve.

According to Christensen (1997), a *sustaining innovation* is about improving the existing system, adding new features to a product or a service, without cannibalising existing products. In contrast, a *disruptive innovation* creates an entirely new market, typically by lowering price or designing for a different set of consumers or different needs of existing non-customers. Examples of sustaining innovations are new residential halls, swimming pools and stadiums for campus-based students, or the iPhone 7 and the iPhone 7 Plus. An example of a disruptive innovation is WhatsApp or (Tencent) WeChat Apps. Both have displaced paying SMS services in many Asian countries, as they allow customers to send messages across the globe for free. A potential disruptive innovation is the Apple Watch and health wearable technologies, such as Jawbone or Fitbit, as they might create a completely new market.

Lucas (2012) proposed an interesting model that shows how a company, or in the case of this study a university, typically responded when a disruptive innovation appeared and threatened its model (Marx and Hsu, 2013). It is interesting because it adds an additional behavioural angle to the Diffusion of Innovation process, presented by Rogers (2010), which, as a reminder, consists of five stages: knowledge, persuasion, decision, implementation and confirmation.

According to Lucas (2012), first, advances in information technology made it possible for an Innovator (new entrants or emerging businesses) to design/create a new product, service or business model. Lucas (2012) argued that the first task for the incumbent (its 'dilemma') was to first *realise* that a disruption was taking place and second design a strategy to respond to it. The chosen strategy determined if the business, the product or the company survived.

Lucas (2012) argued that companies were often slow to react, with slim chances to fight back (Downes and Nune, 2014) except maybe by disrupting yourself (Christensen, 1997). Lucas then stated that there were factors that may delay or stop the incumbent from being proactive: *denial,* scepticism or *resistance to change*, an

argument also mentioned by Schumpeter (1934). Or as Upton Sinclair puts it: “It is difficult to get a man to understand something when his salary depends upon his not understanding it” (Sinclair, 1994, p.109).

As for choosing a proactive survival strategy, the incumbent had to finally either modify its own strategy to *morph* (Christensen et al, 2003) and try to replicate the innovator’s strategy; either completely rethink its strategy to compete.

Failure to adopt any of the above would, according to the theory, result in failure, bankruptcy or merger, in other words fall victim of a *Big Bang Disruption* (Downes and Nunes, 2014).

2.20.4 Big Bang Disruptions

Big bang disruptions are large-scale very fast-paced innovations that can disrupt businesses very rapidly if no quick actions are taken (Downes and Nunes, 2014).

For Downes and Nunes (2014), there are four phases to a big bang disruption and these are rather similar to the Gartner Hyper Cycle: (a) singularity; (b) big bang; (c) big crunch; and (d) entropy

The Singularity phase is the experimental phase; start-ups explore the field. This is the trial-and-error phase. Other companies observe and try to come up with a similar or better product.

The Big Bang Phase (phase 2) is the adoption phase.

Phase 3, The Big Crunch Phase is where rapid success can be rapidly followed by failure.

The entropy phase is where companies think what to do about the disruptive product: adopt it or discard it.

Recent acquisitions (Facebook-WhatsApp-Instagram / Yahoo-Summly / Alibaba-Snapchat / LinkedIn – Lynda.com) show that businesses and tech companies react very quickly to innovative and lucrative start-ups’ ideas that might either challenge their core business or add an edge to their products. In the education world, online technologies are also having an increasingly disruptive impact, both to the pedagogical and business models of universities. But while the implementation was rather quick, the adoption was often rather slow, until the emergence of new, more powerful and more profit-making disruptors.

Disruptive innovations have radically changed industries as diverse as publishing, health, photography or travel agencies (Sisario, 2009) and education in its current form, according to some analysts, would be spared (Shirky, 2013).

Shirky (2013)’s straightforward arguments related to the failure of the current Higher Education model certainly resonated deeply with some of the previous calls to reform the industry (Christensen, 2003; 2008; Christensen and Eyring, 2011).

Lenox (2013), a teacher and researcher at Darden School of Business (University of Virginia) predicted that that the most disruptive shakeout would be the appearance of a multitude of private cost leaders that would challenge the status quo. Carey (2015) argued that the most significant revolution would be "free or low-fee credentials, not controlled by traditional colleges" (para.10) that lead to employment. According to the executive dean of Aston Business School (UK), until recently, universities had not considered themselves as businesses but they needed to realise that they were "selling things to people - they are [in fact] businesses" (Morgan, 2015, title), and as businesses, their economic/business models and strategy were potentially at risk of being attacked by the new corporate kids on the block.

A report by the Chronicle of Higher Education (2015) titled *10 Key Shifts in Higher Education* identified 10 key trends that were significantly affecting/will affect higher education institutions. *College à la Carte* (or the unbundling of higher education), *Focus on Teaching*, *Retention*, *Managing Change*, *Career Competence*, *Dialling for Millennials* (highlighting the shift in demographics) were among the trends relevant to this thesis.

According to a Moody report (2013):

> "The rapid evolution and adoption of massive open online courses (MOOCs) signals a fundamental shift in strategy by industry leaders to embrace technological changes that have threatened to destabilise the residential college and university's business model over the long run" (Kiley, 2013, para.14).

2.21 Open Educational Resources (OERs)

"The traditional culture of Higher Education is based on a picture of teaching and an idea of Higher Education institutions which, in combination with each other, constitute a (perhaps the) major barrier to the accessibility and availability of Higher Education" (Saide 1996, p. 97).

A plethora of open educational resources and courses are now available on the Internet. Open Educational Resources (OER), open content, open academic resources, open learning resources , the Open University, Open classrooms, open educational content, open educational technologies, open source, and open courseware emerged in the past decades as an alternative way to disseminate knowledge and content freely, "a universal educational resource available for the whole of humanity", that allowed sharing and adaptation of digital learning resources over the web openly and without any costs. OERs were originally defined by UNESCO as educational materials "in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them" (UNESCO website: http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/what-are-open-educational-resources-oers). Wiley (1998) described *open content* as intellectual properties which were not licensed under conventional copyright restrictions. Bissell (2009) and D'Antoni

(2009) highlighted the most crucial aspects of their openness when they argued that they were accessible at no cost, could be re-appropriated, remixed, "re-purposed" (D'Antoni, 2009) and reused " for teaching, learning and research" ((Bissell, 2009, p. 97). Atkins et al (2007) indicated that Open Educational Resources included "full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge "(Atkins *et al*, 2007, p. 4). And this could have tremendous potential for a staff development learning and upskilling model.

Open Educational Resources have ranged from the OpenCourseWare initiative launched in 2001 at MIT and other top American institutions to lectures on iTunesU to more recently Massive Online Courses (MOOCs). An Open CourseWare is defined by the OCW Consortium as 'a free and open digital publication of high quality university-level educational materials. These materials are organized as courses, and often include course planning materials and evaluation tools as well as thematic content'. The concept of 'Openness' is therefore based on the concept that content should be disseminated and shared freely for the benefit of society as a whole. There are however various degrees of openness (Hodgkinson-Williams and Gray, 2009). According to a Commonwealth of Learning (2015) Guide on OERs, their potential to transform education is threefold (reproduced below): availability of materials, adaptability and student participation and access at low cost.

1. Increased availability of high quality, relevant learning materials can contribute to more productive students and educators.

2. The principle of allowing adaptation of materials provides one mechanism amongst many for constructing roles for students as active participants in educational processes, who learn best by doing and creating, not by passively reading and absorbing.

3. OER has potential to build capacity by providing institutions and educators access, at low or no cost, to the means of production to develop their competence in producing educational materials and carrying out the necessary instructional design to integrate such materials into high quality programmes of learning. (Commonwealth of Learning, 2015).

Tuomi (2006, pp.25-27) identified however a number of constraints that may limit openness:

- Technical constraints such as geographic distance
- Social constraints: intellectual property laws in some countries may limit access to resources. Cost of resources that would make them unavailable

Tuomi (2008) made a clear distinction between *access* and *accessibility*, particularly related to "languages" that may be incomprehensible to some people and "disabilities" that would make content unusable. In his words: "one can "read" the code. "Accessibility" can, however, also relate to individual capabilities".

Finally, Tuomi argued that OERs should provide non-discriminatory opportunities to users to reach, explore, study the resource and get full benefits out of its use (certifications, degrees).

2.22 Online Education as the Solution to Increase Access

A decade ago, Christensen (2003) acknowledged the poor state of Higher Education affairs and argued that disruptive innovations would unlock the gates to accessibility and affordability in education, an argument recently (September 2014) re-used by edX Anant Agarwal when he announced on his blog the launch of Massive Open Online Courses (MOOCs) for high schools.

In a 2011 interview with The Next Web (2011), Christensen reported that the University of Phoenix invested on average US$200 million annually on research to improve the quality of teaching while Harvard spent nothing on matters related to student learning. In his three sequels *Disrupting class: How disruptive innovation will change the way the world learns* (2008), *Disrupting college: How disruptive innovation can deliver quality and affordability to postsecondary education* (2011) and *The innovative university: Changing the DNA of higher education from the inside out* (2011), Christensen argued that the application of disruptive online innovations to the education system would change the debate about quality of online education, save institutions from decline (as they would target a different student segment) and meltdown by giving them a new low-cost operational model.

Echoing Christensen's statement, Eger (2013) confirmed that the sudden growth of online education had, in many cases, changed the game in a number of areas:

- value proposition (flexibility for students, the 'anytime/anywhere/anyone'),
- economics (cheaper to offer a course online to a lot of people in the long term),
- marketing and recruiting (branding, increased reach),
- outcomes and assessment (better tracking and measurement of student learning).

In the words of Udemy CEO Dennis Yang: "If you want to scale education, you can't just build schools. You have to use technology" (Custer, 2015, para.13).

A CB Insights report (January 2015) indicated that funding for Educational Technology (Ed Tech) had risen in 2014 to US$1.87 billion (a 55 percent increase since 2013) [https://www.cbinsights.com/blog/ed-tech-funding-record-2014/].

2.22.1 Online education as disruption: The Senior Management Perspective

A "Presidential Perspectives" survey of 956 campus and system and chancellors presidents (Green, 2011, p.21-22) indicated the following:

Across all segments and sectors, a large majority of university presidents believed that online education supported the core mission and strategic plan of their institution and also provided an important opportunity for their institution to increase net tuition revenue.

- 78 percent of the surveyed presidents agreed/strongly agreed that "launching/expanding online education courses and programmes provided a way for my institution to serve more learners."

- 69 percent also agreed/strongly agreed that “launching/expanding online education courses and programmes provides a way for my institution to increase (net) tuition revenues.”

The percentage of presidents who viewed online education as being good for both enrolment and revenue was consistently high across all sectors, although slightly higher among public institutions and highest in community colleges (Green, 2013).

2.22.2 The Academic Leaders’ Perspective

The perception of academic leaders was until recently also changing favourably towards online education. According to Allen and Seaman (2012), an increasing number considered online education as critical to the long-term strategy of their institution.

Around 77 percent of academic leaders, surveyed in more than 2800 U.S. colleges (Meeker, 2012) perceived online education as similar or superior as compared to face-to-face instruction. An updated report by Allen and Seaman (2014), showed a slightly different picture however.

According to the authors, there was a considerable drop in the level of support for online offerings among institutions that did not yet have any online courses. They also stated that these institutions were even more critical than in the past. According to Allen and Seaman (2014), the proportion reporting that online instruction was inferior to a face-to face instruction had jumped from 56 to 72 percent in one year.

A 2012 survey by Johnson (2012) had indicated that academics perceived instructional technologies to have limited value in enhancing education and that technology use was rarely motivated by pedagogical innovation (Johnson, 2012).

2.22.3 Online Versus Traditional Campus-based Classes

While online course enrolment seems to have steadily increased in recent years, with around 7.1 million students in the U.S. taking at least one online course annually (Allen and Seaman, 2014), a 2012 survey from the University of Minnesota’s Office of Information Technology found only about 13 percent of students and about 7 percent of faculty members said they preferred online classes to traditional ones, (Faulks, 2013).

These findings were confirmed by the results of the national Gallup report (Gallup, 2013). Overall, 33 percent of respondents told Gallup that online education was better than traditional classroom-based education, whereas 23 percent of individuals thought web-based instruction was worse.

A Carnegie survey (Meeker, 2013) indicated that 68 percent of the interviewees said much of the teaching on U.S. college campuses could potentially be replaced by online courses.

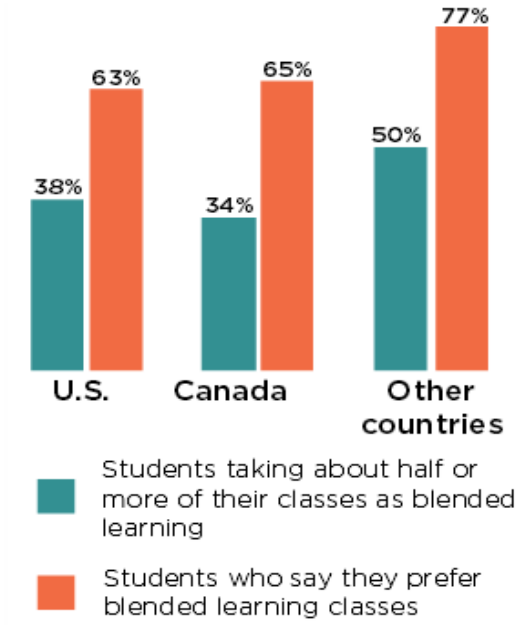
A survey by Bart (2014) of 1600 academic staff indicated that 73.67 percent incorporated a new technology into their classes and while 27.30 percent had no problem doing so, 34 percent stated that keeping up with technology was either “moderately” or “very” problematic, which raises the issue of applicability and continuing professional staff development.

The negative perceptions indicated by Johnson (2012 and Allen and Seaman (2014) were echoed by a Northeastern University survey (2013) that showed a declining proportion of Americans in favour of online programmes. When asked if the quality of online programmes was perceived as similar to traditional university courses, only 39 percent of the 18-29 years old agreed.

While Freeman et al (2014) argued that traditional face-to-face lectures needed to be rethought for their lack of effectiveness (Freeman et al, 2014) in terms of student learning, Lapointe and Reisetter (2008, p.641) argued that students often perceived online learning communities as "superfluous, inconvenient and not supportive on their learning processes".

An ECAR Study of Undergraduate Students and Information Technology (2013) showed that blended learning was the preferred mode of learning for students (Figure 2-9), a view shared by Kamenetz (2013) and Crisp (2014).

Figure 2-9: Blended learning in the U.S., Canada and other countries



Source: EDUCAUSE Centre for Analysis and Research. (ECAR Study of Undergraduate Students and Information Technology, 2013 / Dahlstrom et al, 2013). *Used with permission of Jamie Reeves (19/11/2015)*

In summary, while almost 70 percent of people thought that online courses could potentially replace face-to-face traditional college-based courses, only less than 40 percent thought that the quality of the courses was equally good.

This raises the question of whether every subject/discipline could be successfully taught in an online environment. It also raises the question of whether every student could successfully study a course fully-taught online.

2.22.4 Can All Online Courses be Successful*?*

A number of studies (Frankola, 2001; Rivera and Rice, 2002; McLaren, 2004; Willging and Johnson, 2004; Atchley, 2013) compared course completion and student academic performance between online and traditional courses. Other studies also

examined data to determine if there was a statistically significant difference in course retention across a range of disciplines.

Russell (2001) for instance explored 355 research reports comparing student outcomes between different course delivery modes. The majority of the research indicated that no statistically significant differences existed in student outcomes based on delivery mode.

Several other researchers found however that certain disciplines were not very well suited to an online setting (Carnevale, 2003; Noble, 2004; Paden, 2006; Smith, Heindel andTorres-Ayala, 2008). Lab science, health care (Carnevale, 2003), and mathematics (Smith *et al*, 2008) courses have all been identified as course disciplines that were not well-suited for online course delivery.

Jo Boaler, professor of mathematics education at Stanford University in an interview with the Telegraph (Stanford, 2013) believed the success and effectiveness of a Massive Open Online Course depended on the subject. She argued that the MOOC format was better adapted to the delivery of STEM (Science, Technology, Engineering and Maths) disciplines (Stanford, 2013), a view shared by Pope (2014). Terry (2001) suggested that courses such as accounting, economics, computer information systems, marketing, and management were potentially more conducive to online course delivery.

A study by Jensen *et al.* (2015) (on approximately 100 students at a highly-selective university in the U.S.) on the benefits of the flipped classroom model versus a non-flipped pedagogical approach indicated that the former did not promote higher learning gains. According to Jensen et al (2015, p.9), “students learning under both conditions performed equally well on unit exams, low-level recall of facts on the final exam, and high-level application problems on the final exam in addition to experiencing equal gains in scientific reasoning”. The most critical pedagogical element of the course was the highly interactive active-learning style of instruction, not the order in which the content was presented to students. According to the authors, students considered (in both formats) instructor and peer-interaction and in-class learning and teaching activities as most beneficial to their learning experience.

Stern (2004) in a comparative study of undergraduate students in online learning environments versus face-to-face found that students with better reading and writing skills would do better in online classes. Allen and Seaman (2014) added to these views when they stated in their report that 68.9 percent of chief academic officers agreed that students in an online course needed more discipline to succeed.

In a study of 231 students in a college health education course, Diaz (2000) found that the age of the participants was a significant factor for a student to succeed in an online programme: students opting for an online course were often older, and more likely to have completed more college credit hours, than traditional students.
Diaz (2000) and Tyler-Smith (2006) noted that the profile of the online learner suggested a student with more life, work and academic experiences—attributes that

made the student better prepared to the independent, self-directed study associated with online education (Diaz, 2002; Tyler-Smith, 2006).
This seems to put into question the launch by edX in 2014 of 40 High School and Advanced Placement sciences MOOC courses such as physics, environmental science, chemistry and biology on its platform.
A few other studies indicated that some students in online environments preferred a more systematic, more linear and structured content (Liegle and Janicki, 2006; Lee et al, 2010). A study of 97 students from Australia and Malaysia indicated for instance that their learning patterns and navigational strategies differed (some needed more or less control over their learning path, with more or less guided navigation) and that cultural differences had to be considered in online settings.
Liegle and Janicki (2006) reviewed the "one-size-fits-all" approach in a study of 56 student volunteers. The purpose of their experiment was to explore whether participants had different navigational needs that would assist them in their learning and whether there was a need to personalise the teaching style (and the structure/format of the content posted online) to adapt to the learner style. They identified two categories, the "Explorers" who tended to "jump" content and modules and create their own learning path of learning, and the "Observers" who had a tendency to (almost strictly) follow the instructor-designed path. They confirmed that the "one-size-fits-all" model was not suitable to the [observers] category. Similar findings were also indicated in studies by Guo and Reinecke (2014), Halawa et al (2014) and Kizilcec and Halawa (2015).

2.23 Massive Open Online Courses (MOOCs)

> "We hope to democratise and reimagine education so that anyone, anywhere, regardless of his or her social status or income, can access education (Anant Agarwal, CEO of edX, in Kanani, 2014, para.1).

Innovative models have surfaced which disrupt the notions that universities have the monopoly on developing the curriculum and grant degrees, and/or professors on teaching a course. One of the most controversial and polarising in recent years is the Massive Open Online Courses (MOOCs) model thought to be the 'transformative' revolution (Friedman, 2013), the tsunami or the Saviour (Butin, 2012) Higher Education needs.
Initially developed in 2008 by Siemens et al. (2008), 2012 became known as the year of the MOOC (Pappano, 2012) as a number of platforms such as Coursera and Edx launched a series of courses online for free, open to everyone with an Internet access.

Anderson (2012) announced an "elite Education for the Masses" in the Washington Post. In the words of Wayne Smutz, vice president for outreach at Penn State University*: "*With the potential to host tens of thousands of students in a single course, MOOCs make lots of content available to lots of people" (Smutz, 2013, [para.3).

Anant Agarwal argued that MOOCs had increased access and made education "borderless, gender-blind, race-blind, class-blind and bank account-blind" (Agarwal, 2013, para.3). Butin (2012, para.7) thought the MOOCs would become the de facto way to remediate and educate a "broad swath of students in a wide variety of content areas".
Sekhri (2013) described MOOCs as

> "A pedagogical and andragogical experiment designed to capitalise on the technological capabilities of the current era that rethinks some of the core tenets of current educational practice" (Sekhri, 2013, para.8).

Lewin (2012), Devlin (2013) and Siemens (Wise Summit, 2013) believed that MOOCs were possibly a game-changer, would produce "dramatic substantial systemic change" and would open "higher education to hundreds of millions of people" (Lewin, 2012). Henry C. Lucas, professor at the University of Maryland and author of *The Search for Survival: Lessons from Disruptive Technologies* (2012) seemed to imply, in his description of MOOCs, that in light of these massive numbers, they already were a disruptive innovation.

At a Wise Summit in Qatar [Wise Polls (2013). http://www.wise-qatar.org/2013-education-polls], participants were asked the following question: Will MOOCs fundamentally disrupt the world of traditional education?

54 percent of the participants thought that they wouldn't, as they were not comparable to a traditional university experience. 46 percent thought that the days of the traditional university were however numbered. According to Professor Sally Mapstone, Pro-Vice Chancellor for Education at Oxford University, the in-depth experience of going to university for three of four years would unlikely be substituted by a MOOC (Mapstone, 2014, in Funnel, 2014). In an interview for Campus Technology on online resources and MOOCs versus traditional textbooks (Thompson, 2013), David Schuster, assistant professor at San Jose State University, indicated that the intrinsic value of a new technology was what mattered most when it came to adopting it or not (Thompson, 2013) and this is an crucial point, as indicated earlier by Johnson (2012), Gallup (2013) and Allen and Seaman (2014).

While the percentage of institutions in the U.S that have launched MOOCs is still rather small (5 percent, according to Allen and Seaman, 2014), MOOCs have nevertheless spread everywhere (FindMBA, 2014; Deccan Herald, 2014), as platforms or as course-specific programmes (see below for some examples). The top five MOOC platforms are currently Coursera with 12.8 million registered students (1,027 courses from 119 partners, as of May 2015), edX with 3 million, Udacity with 1.5 million, the Spanish-speaking MiriadaX at 1 million, and UK-based FutureLearn with 800,000 students (Shah, 2014). As of 13 January 2015, according to Open Education Europa there were 3,842 Massive Open Online Courses worldwide and 1, 937 in Europe (as of August 2015)

[http://openeducationeuropa.eu/sites/default/files/images/scoreboard/Scoreboard_June_2015.png] and according to a new book by Failde (2015), *MOOC it: Massive*

Open Online Courses in Tweets, the total number of MOOCs had grown 201 percent between December 2013 and December 2014 (Failde, 2015). An Online Course Report (2016) [available at: http://www.onlinecoursereport.com/state-of-the-mooc-2016-a-year-of-massive-landscape-change-for-massive-open-online-courses/]had identified 12 main platforms, 35,000,000 participants at 570 universities. MOOCs were offered in 15 languages worldwide, including Basque and Estonian.

3.8.1 Platforms:

- [**USA**] NovoEd https://novoed.com/
- [**UK]** FutureLearn http://futurelearn.com/
- [**Australia**] Open2Study https://www.open2study.com/
- [**Germany**] Iversity https://iversity.org/
- [**China**] XuetangX https://www.xuetangx.com/
- Chinese MOOCs (Peking University + Alibaba http://www.chinesemooc.org/
- Zongguo Daxue MOOC: http://www.icourse163.org/
- Wanmen https://www.wanmen.org/
- Guokr http://www.guokr.com
- CNMOOC http://www.cnmooc.org/home/index.mooc
- Geek College http://www.jikexueyuan.com/
- Kaikeba http://www.kaikeba.com/ http://www.moorgoo.com/, a MOOC (massive open online course) website for Chinese students in the US (English/Chinese).
- [**Russia**] https://openedu.ru/
- [**India**] http://www.myopencourses.com/
- mooKIT http://mookit.co/
- IITBombayX https://www.iitbombayx.in/ (English and Hindi)
- [**Vietnam**] GiapSchool http://www.giapschool.org/ | Delta Viet http://kyna.vn/
- [**Peru**] http://www.centrumx.com/
- [**Taiwan**] Courstar http://www.courstar.tv/
- [**Trinidad and Tobago**] https://knowledge.tt/
- [**Japan**]: http://www.jmooc.jp/en/
- [**Korea**] Kyung Hee MOOC 2.0 http://www.khmooc.org/about
- [**France**] Universite Numerique http://www.france-universite-numerique.fr/
- OpenClassrooms (http://fr.openclassrooms.com/
- Neodemia https://www.neodemia.com/
- [**The Arab World**] EDRAAK http://www.edraak.org/
- Rwaq (Saudi Arabia, in Arabic) http://www.rwaq.org/
- [**Malaysia**] MOOCs https://www.openlearning.com/malaysiamoocs
- [Indonesia] https://www.indonesiax.co.id/
- The HOME Project: Higher education Online: MOOCs the European way http://home.eadtu.eu/

Examples of Subject-specific MOOCs:

- Project management http://mooc.gestiondeprojet.pm/

- For I.T and cybersecurity: http://www.cybrary.it/
- Claroline Connect, A MOOC for French as a Foreign Language designed for African learners http://fofle.claroline-connect.net/
- The Health Sciences (USA) http://www.nextgenu.org/
- IMAT (Ivory Coast MOOC, for Investment and Finance) http://imatabidjan.com/?page_id=450
- Economics (USA) http://mruniversity.com/,
- A MOOC on Autism http://www.swinburne.edu.au/health-arts-design/schools/arts-social-sciences-humanities/departments/education-social-sciences/autism-mooc.html
- Art, design, music: https://www.kadenze.com/

2.23.2 The MOOC Cycle

The Google Trends for "MOOCs" since their official launch in 2012 and the fact that recent rhetoric has shifted away from the idea that MOOCs would, as they were currently designed, revolutionise higher education and put universities out of business (Koller, 2015) seem to indicate however that MOOCs were more precisely a disruptive technology (as they have started to affect the business model of schools and universities (Terwiesch and Ulrich, 2014)). Despite showing the four characteristics and symptoms of a disruptive innovation, their impact and effects had not yet radically and structurally changed the Higher Education sector. Allen and Seaman (2014) indicated for example that the vast majority of higher education institutions in the U.S. were still undecided or had no short-term plans to launch a MOOC. This was confirmed by the Online Course report (2016) which stated that Over half (56%) of MOOCs were offered by schools in the Top 20 for financial reasons. The report also indicated that course offerings per institution dropped off "exponentially at a rate of -700% after those Top 50". (Online Course Report, 2016, [available at: http://www.onlinecoursereport.com/state-of-the-mooc-2016-a-year-of-massive-landscape-change-for-massive-open-online-courses/)

"The Most Important Education Technology in 200 Years" (Regalado, 2012) seems to be taking its time, nobody has been "crushed by the tsunami wave", announced by Daphne Koller in most of her earlier public appearances, and the pedagogical changes they have brought (such as the use by some academics/institutions of the flipped classroom format) seem to be incremental and often problematic for many academic staff, as indicated by Bart (2014). It is a gradual *evolution*, a catalyst for potential change (s) instead of a revolution, an opportunity to reassess, rethink, reflect and refocus based on the lessons learned rather than a destructive threat.

The inflexion of the trend curve in 2013 as indicated by Tapson (2013) showed that MOOCs entered the Trough of Disillusionment phase, whereas "interest wanes as experiments and implementations fail to deliver" (Gartner.com). According to Koller (2015) however, the MOOCs' hype is already behind and MOOCs are now showing signs of slowly emerging from it.

The next stage in the Gartner Hype cycle would be the Slope of Enlightenment, whereas the main protagonists (in this case institutions and academics), following an often rocky trial phase, start to better understand the benefits, potential opportunities and threats of the technology. As a reminder, the Hype Cycle suggested that each new technology went through five phases: a) the Technology Trigger, b) the Peak of Inflated Expectations, c) the Trough of Disillusionment, d) the Slope of Enlightenment, and finally e) the Plateau of Productivity.

2.24 Impact of MOOCs

Very few scholarly studies have focused on the impact of disruptive innovations and MOOCs through a critical theory perspective. According to Friesen (2008), Critical Theory designates a philosophy and a research methodology that focuses on the interrelated issues of technology and social change.

There is much literature written on online/technology-enhanced learning. There is scant research however that explicitly investigates, in depth, the role MOOCs might (or might not) have as an alternative to higher education in various educational contexts, and particularly their impact on designing and delivering higher education. (Kanwar, 2012, p.5) argued that a "MOOC, is simply a platform; it is a platform to organise an event". In other words: a mere tool. She also thought that all the data generated by researchers around the world would help institutions and academics rethink their teaching and learning practices. Kellner (2000) warned us about a technological revolution, the Great Transformation, the tremendous challenges it would pose to educators but also the "reflection" opportunities they brought that might help to "rethink their basic tenets" (Kellner, 2000), the opportunities they could provide but also the initial mistakes made, the pitfalls.

Edgerton (2008) and to a certain extent Thrun (2013) argued that one of the main answers to declarations that a particular technology had not had the powerful and positive effects it promised was to suggest that the collateral effects had not yet been directly captured or assessed. Evidence, argued Popenici (2014), had debunked for instance most of MOOCs' great initial promises. According to Popenici (2014), the "tsunami of promises" (title) originating from the Silicon Valley and particularly the promised democratising effects of MOOCs to address inequalities had not materialised, for the simple reason that California, the birth place of many innovations (such as MOOCs), had still "some of the most unequal cities in the U.S." (para.6). Popenici argued that if the MOOC solution had not solved the issue at home, it would unlikely solved it elsewhere. Selingo (2012) highlighted the fact that MOOCs were not the panacea but warned against discarding them before they could hold it to their promise.

By talking a different perspective, one could argue that it is not the technology itself but rather the (pedagogical) way it was currently used that had not had the expected and promised formidable impact. In an interview for the Australian Broadcasting Network, David White, Head of Technology Enhanced Learning at the University of the Arts in London, acknowledged for example that the fact that MOOCs were free and open was "in some sense radical" (para.12), but they were designed using very

conservative pedagogical methods " starting on module 1, reading some content, watching a video of a lecture, having a think about it, maybe talking to fellow students and then doing a quiz or some kind of fairly-automated assessment" (White, 2014, in Funnell 2014, para.14).

Boxall in 2012 in The Guardian (Boxall, 2012) wrote an article titled *MOOCs: a massive opportunity for higher education, or digital hype?* He made an accurate statement and asked a fundamental question: 1. "At this early stage of the MOOC revolution, it is premature to predict the impacts on conventional higher education providers (para.10). 2. When the elements of higher education – content, courses, support, assessments, and awards – are all separately available from world-class providers, what will the role of the university be?" (Boxall, 2012, para.12)

In 2013, Cusumano, one year approximately after the official launch of the first MOOCs pushed the argument even further and said: "Will two-thirds of the education industry disappear? Maybe not, but maybe!" (Cusumano, 2013, para.3)

2.24.1 Impact on Institutions

Can MOOCs be a catalyst for broader change in the industry and potentially undermine the ultra-dominant role that campus-based institutions have as exclusive providers of knowledge and credentials (Mazoue, 2013)? Section 2.24.2 (below) indicates for instance that the impact on business schools could potentially be significant.

A Guardian article *MOOCs are the clever way to keep up to date* (Pozniak, 2013), described what seems to be two of the attractive points of the MOOC model in comparison to a traditional university course: flexibility ('dip in and out', described in 3.9.3) and interdisciplinarity (keeping up to speed with innovative practices and changing career needs, as also described by Weise and Christensen (2014)).

Pozniak (2013) described for instance, the experience of Katy Swainston, a busy PR executive in London, Master's degree holder, who decided to join a free Coursera gamification course, as it appeared to be related to her current position in public relations and might help her to up skill. She found the interaction with the tutor "inspirational" (Pozniak, 2013).

Not only did she have enough time to complete the modules and assessment at her own pace but she also shared her experience and new techniques learned with her colleagues at work (Pozniak, 2013). This example seems to indicate that a mix of online *face-to-face* (live chats) and online exercises was what she preferred, as indicated earlier in Figure 2-9. The fact that it was free, flexible (at her home or office), immediately applicable and interdisciplinary with lots of interaction with the instructor and her peers was also very interesting for her.

The first part of the literature review has indicated that many graduates had difficulties finding a job because employers thought that they did not have the required skills to work. The example of Kate Swainston shows that a well-designed MOOC could potentially be a replacement to an expensive time-rigid on-campus theory-oriented course or even a face-to-face continuing education course often

offered in the evening by universities for busy executives seeking to upgrade their skills.

A Northeastern University survey (Straumsheim, 2014) of 1000 American adults on the use of MOOCs to enhance Higher Education outcomes indicated interesting opinions:

- 74 percent of the Northeastern University survey interviewees agreed that MOOCs provided a cost-effective way to take a college course and offered choice and flexibility.
- 56 percent agreed that MOOCs would fundamentally transform the education system while 53 percent disagreed that a MOOC experience was equal to a face-to face experience.

To the question: "How much of a standard traditional education can MOOCs replace?" was asked in a QuestionPro survey (September 2014, available at [http://questionpro.com/a/summaryReport.do?surveyID=3944620]

Responses indicated that 82 percent of surveyed American adults felt it could be entirely replaced, confirming the 68 percent of a similar Carnegie survey (Meeker, 2013).

2.24.2 Threats and Potential Opportunities of the MOOC format

While Christensen, Alcorn and Emanuel (2014) considered the MOOC format as an interesting opportunity to reach new segments of the student population such as postgraduates, professionals overseas and minorities in the U.S., a Moody report (2012) argued that universities would feel significant competitive pressure if they were not able to offer cheaper and more career-oriented degrees.

A study by Terwiesch and Ulrich (2014) from the Wharton Business School titled *Will Video kill the classroom star? The threat and opportunity of MOOCs for full-time MBA programs* investigated the threats posed domestically to Business Schools by what they call the SuperTexts, which "break the trade-off between cost and quality"(p.22): semi synchronous video-based technology, "smart testing with potentially automated grading, social networking, online communities — all of these things wrapped together".

They argued that the "technology embedded in the MOOC" (p.1) (rather than the MOOC itself) was both a danger and an opportunity. While they agreed with Christensen et al (2014) in that MOOCs could help to slightly increase the number of full-time students as they offered dramatically lower instructional costs (but not 'significantly" as "degrees would lack prestige" (p.16)), they identified two main potential threats as a direct result of this:

- A "modest" but 'pretty likely" displacement of faculty with "fewer tenured and tenure-track faculty" (p.19) and an increase in adjuncts/part-timers, "a trend driven by tremendous cost pressure" (p.25) that could help institutions save 40 percent of their costs.
- The unbundling of the functions of a business school, the emergence of credentialing alternatives, and the carving out of market positions by

companies such as Lynda.com, that directly competed with them (in the immediately applicable skills business), as "business schools are focused on providing professional skills that have some future value in the workplace" (p.21).

An Ernst &Young report (2012) identified them as "transformers", news sources of competition, "private providers and new entrants" (such as http://alison.com/) that would "carve out new positions in the 'traditional' sector and also create new market spaces" (p.5).

Terwiesch and Ulrich (2014) argued that to provide a student a course in a large MBA programme amounted to US$1,475, compared to US$11.20 via a MOOC. They stated that current business student audiences were increasingly inclined to prefer the more affordable iTunes model, the "learn-certify-deploy" pattern, the just-in-time /tailored/ on-demand and readily applicable skills model, as described by Pelletier (2010).

> A view shared by Weise and Christensen (2014, p.32) when they stated that "when outside forces such as affordability, flexibility, and faster times to completion begin to take hold outside of academia, the already strained business models of traditional universities will appear less desirable and less relevant to students".

In 2013, McLoughlin (2013) had already indicated that MOOCs (as platforms and course-specific) offered unprecedented choice, customisation and gave thousands of students the possibility to have greater ownership and control over their learning experiences. Students could consciously and intentionally choose the courses they wished to take, at their own pace, anytime and anywhere.

As 40 Percent of the US$1.3 trillion student loan debt originates from professional graduate degrees (Delisle, Phillips and van der Linde, 2014); Fearnow, 2014), customised executive education could potentially be a very profitable business model for MOOC platforms and business schools. Coursera has for instance launched twenty-eight for-profit professional [Specialisations] with certificates, such as *Business Tools for Career Readiness* in October 2014. INSEAD Business School has partnered with Microsoft and Intreprid Learning (http://www.intrepidlearning.com/, a corporate cloud-based learning technology platform) to offer a corporate MOOC on Business strategy to Microsoft sales employees (Bull, 2015).

The two researchers from Wharton also identified three major opportunities. The first two refer to the business model.

- The first opportunity concurred with Christensen, Alcorn and Emanuel (2014)'s research: The low-cost MOOC format adopted by business schools i.e. low-cost products sold for low prices but at high volumes, could potentially change the way value is created by exploiting profitable market niches (specialisations) and bringing in additional revenue through continuing executive education for working professionals who seek to upskill.

- The second opportunity lies in the possibility for elite business schools to become originators of content, termed as "producers" by Hollands and Tirthali (2014) and franchising it to other "consumers" (Hollands and Tirthali, 2014) such as HE institutions that would generate royalties: "there's a way to charge per use or per user for that material, and so that could be a potential revenue source" (Terwiesch and Ulrich, 2014). Business schools would imaginably outsource and/or share services to drive efficiency, economies of scale and maintain a competitive position. The authors of an MIT report (2014) recommended for example to "seek partner universities that can license MITx modules".
- The third opportunity referred to productivity: As some of the content, a "lot of the rote subjects" would be available online in the forms of chunked-content videos, "it frees time for new experiences" in class that could enhance student learning. In other words, it transforms the way education is delivered, supported and accessed. *When a student struggles on the MOOC, they can just rewind or they can just read something and then catch up (self-paced learning), whereas in the classroom, you're constrained by a common pace with everyone. So you really do gain efficiency.*

This opportunity is however potentially related to threat number one, as more productivity might lead to fewer faculty members teaching larger numbers of students or the unbundling of the academic role with in an increased focus to recruit cheaper adjunct/part-time faculty to teach those courses not designed by them. It would pose the issue of continuous staff development for these often unmotivated and uncommitted, less securely employed faculty members (Bulfin *et al*, 2014).

2.24.2a Commoditisation, Unbundling and Modularity

The [commoditisation] and the [modularity] concepts presented by Weise and Christensen (2014) might help to understand the *unbundling* (Johnson, 2012), *re-bundling* (Horn, 2014) *debundling* strategy adopted by universities that launch MOOCs to improve access and generate profit. It might also explain the relative success of the MOOC format among students, as it offers flexibility to customise their degree programmes.

Friedman (2005) stated that companies had to remain competitive or face failure. Commoditisation is defined by Investopedia as

> *The act of making a process, good or service easy to obtain by making it as uniform, plentiful and affordable as possible*

Business Pundit adds:

> "Happens when a product or service becomes so common that consumers no longer differentiate between brands"
>
> (http://www.businesspundit.com/encyclopedia/marketing-and-advertising/commoditization/)

The disruptive effect of these two concepts is worth noticing, as "when an education technology company like UNow can collaborate with an employer, it will have an

enormous competitive advantage without needing a U.S. News & World Report ranking" (Weise and Christensen, 2014, p.33).

Christensen defined a commodity as "a product that is un-differentiable from other products and hence competes solely on the basis of price" (www.christenseninstitute.org/).

According to Alejandro (2013), commoditisation has helped HE institutions to become more efficient and more affordable (Alejandro, 2013). Competing solely *on the basis of price,* making institutions *more affordable* to students and parents by proposing shorter programmes, might not however help universities reap large (and most needed) profits, particularly in the context of large state and federal cuts, as discussed in part one of the literature review.

Anant Agarwal's "teach engineering to a billion" (Mitra, 2013, para.1), sounds suddenly more like a cost-volume-profit bell than an altruistic one. According to Molesworth *et al*. (2009, p.6), "education as a commodity that can be bought" is therefore reduced to "just one round of consumer desire in an endless series of consumption experiences" that could potentially be very lucrative for universities (as indicated above), as you never finish anything (Deleuze, 1995; Parr, 2010), you always need another degree, another professional certificate.

The labelling of MOOCs as a disruptive technology in education therefore assumes education is a commodity similar to other goods, where a premium can be extracted (Harden and Hartsell, 2014), diminishing education's societal and intrinsic value (Castle, 2013). Mike Orey, Associate Professor at the University of Georgia argued that MOOCs were "giving people a free trial of the experience of taking a university class and, at the end, you can get the continuing education credits for a small fee" (Docebo, 2015, p.4).

The [who are the creators and the consumers of knowledge] issue is also increasingly present in the MOOC literature, which seems to echo Freire (1969) and Apple (1993): "The teacher sends; the student receives, banking education goes on" argued Freire (1969).

According to a MOOC student in Tanzania for instance, Massive Open Online Courses (MOOCs) were not "vehicles that will be helpful to his country because they involve a speaker pontificating from a Western perspective" (Sperber, 2013, para.1).

Lane and Kinser (2013), referring to MOOCs, stated that the fact that thousands of students from all longitudes and latitudes took the same course, with the same content, created by the same professor "McDonaldised" Higher Education. In an article titled *In Tanzania, MOOCs Seen as "Too Western"* (Sperber, 2013), Audrey Watters stated that "MOOCs don't seem to be about generating knowledge or knowledge communities, but about exporting content packages from elite universities in the Western world" (Sperber, 2013, para.7).

The uniformity of knowledge (Ritzer, 2011) is a recurrent theme often cited in the global South in relation to MOOCs. Ritzer (2011) argued that strong demands could

force an industry to mcDonaldise their operations to "satisfy the never-ending demand which seems to accurately describe the MOOC phenomenon. Ritzer (2011; 2013) and Hayes and Wynyard (2006) identified four main features of McDonaldisation:
- Efficiency,
- Calculability,
- Predictability, and
- Control

Which could very well be applied to current MOOCs. Using Hayes and Wynyard (2006) description of the Mcdonaldisation of Higher Education, one could argue that MOOCs are more efficient than on-campus courses as they can handle and summatively/formatively assess a massive number of students, using automated assessment tools (i.e. automated essay-grading tool or scoring rubrics for peer grading / robo-graders (De Waard, 2015)).
MOOCs developers/platforms gather metrics/data (learning analytics), track student demographics (origin, enrolment numbers, completion rates, etc.) and produce quantitative reports, which seems to fit with the *calculability* feature. MOOCs, as they are currently designed, are pre-packaged standardised (Lane and Kinser, 2012) undergraduate courses organised into flexible modules with planned intended learning outcomes, learning and teaching activities (recorded on video/podcasts), and assessment tasks;

- they do not need much updating,
- can be taught by one instructor,
- be watched and re-watched by students,
- can be offered at scale in many countries, with no time constraints (although MOOCs content is often unavailable from MOOC platforms once the course is completed by students).

They are therefore *efficient* and *predictable*. The literature review has indicated however that the issues were slightly more complex.

One of the sensitive issue related to MOOCs is *control*, neutrality, centralised knowledge production and the fair power distribution (Rorabaugh, 2012; Lane and Kinser, 2013; de Waard *et al*, 2014).

As Altbach (2014) argued that "neither knowledge nor pedagogy are neutral" (Altbach, 2014) and Freire's statement that "there is no such thing as a neutral educational process" (Freire, 1969, p.16), it also poses the issue of outsourcing teaching to external private providers and the real motivations behind edupreneurs/professional investors' multi-million investments (Kahn and Kellner, 2007; Cook, 2010; Bulfin *et al*, 2014; Kohli, 2015).
What Slaughter and Rhoades (2004) refer to as "academic capitalism" (Slaughter and Rhoades, 2004).
When Watters (2012) asked about the impacts of outsourcing public education to for-profit companies, she actually said that the addition of venture capital and grants from foundational philanthropies (Watters, 2012) into the development of MOOCs disrupted the traditional alignment of who paid for the service of education.

Kahn and Kellner (2007, p.441) in *Paulo Freire and Ivan Illich: technology, politics and the reconstruction of education* asked three additional and relevant questions: "Whose interests are emergent technologies and pedagogies serving? Are they helping all social groups and individuals? Who is being excluded, and why?"

Another crucial aspect of control of knowledge is related to whether academics have full ownership of the classes and content they created and if the quality (without their full control of it) could be maintained.

Holley and Oliver (2010) argued that the significant changes in Higher Education had brought power struggles within universities between academics and their line managers, which impacted on their work and environment. According to Holley and Oliver (2010) the adoption of a market-driven student-centred university model, where control over the strategic development of courses, of its content (shared with students), choice of pedagogy and performance targets had increasingly been taken away from academics and had significantly disempowered them.
According to Mark Edmundson, University Professor at the University of Virginia, control over content was gradually slipping away from the hands of the academics and profitability (potentially generated by the unbundling of the courses) was the key culprit (Edmundson, 2012).

The issue of 'who owns online courses' is increasingly a concern to some American academics. An American Association of University Professors report on Intellectual Property (2013) warned:

> "It is altogether inappropriate to require a faculty member to cede ownership of a course to the university merely because the course is prepared in a format, suitable to on-line presentation. Faculty members who do so should realise they may be signing away to the university their right to modify the course or control its performance. The university may modify the course or assign it to someone else to teach or change the attribution of authorship" (Intellectual Property, 2013, p.8).

Professors Jeff MacSwan and Kellie Rolstad sued for instance Arizona State University for using an online course they created, without their consent (Butrymowicz, 2014). Christopher Nelson, professor of philosophy at South Texas College had a similar experience (Butrymowicz, 2014). However, in an interview for Inside Higher Education (Straumsheim, 2014), Cathy N. Davidson argued that she had full ownership of the all the materials she created.

Wang (1975) had potentially anticipated the MOOC phenomenon and the impacts unbundling would have on courses, academics and prices when he stated forty years ago:

> "Unbundling of higher education along functional lines offers the hope of increasing the quality of lectures, making more individualised instruction available, changing education into an ongoing process continuing throughout

> life, and offering students remarkable freedom of choice as to courses, schedules, work-pace, and place of residence. Most importantly, this improved education could be provided to many more individuals throughout the world at much lower cost" (Wang, 1975, p.90).

For Ferreira (2014):

> "Unbundling is the process of breaking down a recently stable product unit size into component parts, forcing margin reduction and lower prices for consumers" (Ferreira, 2014, para.19).

Degreed [http://degreed.com/] calls it "jail breaking the degree".

In other words, apart from the current MOOC format, unbundling higher education or the disaggregation of the value chain is a good thing for all stakeholders, as the decomposition of courses into modules

-enables different learning pathways,

- is not time or place limited,

- is more affordable to students,

- can *hopefully* lead to *improved education* (higher quality lectures, individualised instruction, lifelong learning, choices) and

- creates new areas of specialisation for universities or business schools (with potentially lower margins) such as mass distribution (more volume= potentially more revenue).

This unbundling of HE might lead to an unbundling or at least a redefinition of the academic role, an increased collaboration with other university stakeholders, particularly learning and teaching/academic development staff, the creation of new more specialised jobs (Devlin, 2013), a rethink of what it is to engage students face-to-face and online, a way for universities to reconsider the value they add (Alter and Dockterman, 2013; Colombo, 2014) and the choices they offer.

One of the quotes from the interviewees of a McKinsey & Company report (Dobbs et al, 2012, p.15) titled The World at work: Jobs, pay and Skills for 3.5 billion people stated:

"As work gets more complex, we're seeing that jobs are getting disaggregated into many functions ... it's no longer one person doing ten things; instead it's ten people working on one thing."

Glyn Davis at the University of Melbourne argued that [online learning] forced you to look at your pedagogical practices for your students on campus (Dodd, 2013). The authors of the MIT report (2014) report stated that in an environment where institutions increasingly adopted online technologies for teaching, "resources, relationships, and roles may need to be recast" (p.9).

Carrie R. Leana, Professor of Organisations and Management at the University of Pittsburgh argued that teaching and learning improved not because of human capital (highly-trained teachers with mandatory certifications and accreditations) but because of the social interactions between teachers (that trusted each other) and the support of the organisation, which she defined as collective capacity (Leana, 2010).

According to Leana (2010), the current public policy focus on increasing the individual capacities of teachers was detrimental to student learning, an opinion she reiterated at a recent presentation (March 2015) titled *The social side of teaching - A new framework for improving the profession*.

Jensen (2014), author of a Grattan Institute report on the quality of teaching and learning in Australian schools advocated the formation of research-topic-oriented communities of practice, "Research groups of teachers" that identify issues and "analyse the evidence of what works and what doesn't". Teachers would then be able to "evaluate their impact on students" and "if their impact is positive, they become part of learning and teaching across the school" (Jensen, 2014, p.7).

2.24.2b Modularity

Modularity or the iTunes/ Netflix model (Terwiesch and Ulrich, 2014), one of the agile survival strategies adopted by disrupted companies proposed by Christensen (2003) is very relevant to online courses and particularly MOOCs (Straumsheim, 2014) as it might have the most transformative role for universities and academics, as discussed above.

According to Christensen, Hatkof and Kula (2013), modularity allows consumers to choose the exact number of products they need /want to purchase, allowing them to save a lot of money. The quote below is likely an analogy to the Higher Education context in the U.S. described in part one of the literature review.

> "The interdependence created by having to buy 16 songs when you only really wanted four might have been highly profitable for the record companies but over-served the consumer at a cost substantially higher than purchasing the four singles" (Christensen, Hatkof and Kula, 2013, para. 16).

Christensen argued at the Harvard IT Summit 2014 that "modularity is overtaking interdependent architectures" (of curricula) (Leddy, 2014), allowing students to take three weeks on strategy, or a stand-alone accounting class (Leddy, 2014), an option which was previously unthinkable.
Terwiesch and Ulrich (2014) questioned whether there was "another way of delivering knowledge very much on demand when you want it". MITx's three XSeries certificates in Aerodynamics, Foundations of Computer Science, and Supply Chain Management, launched in 2014, are such examples of modularity. Students earn certificates for successfully completing a series of courses on a specific subject.

According to Weise and Christensen (2014, para.6), "by breaking down learning into competencies—not by courses or even subject matter—these providers can cost-

effectively combine modules of learning into pathways that are agile and adaptable to the changing labour market".
For Weise and Christensen (2014), the main potential of modularity is in the opportunities to

- "drive down costs (p.iv),

- accelerate degree completion (p.33), and

- produce a variety of convenient, customisable, and timely programmes" (p.33).

Jason Wingard, chief learning officer at Goldman Sachs argued in an interview with Knowledge@Wharton (2015) that technology and eLearning had offered additional options and more power to individuals to select their learning path: "instead of someone else dictating the type, speed, tone and schedule of learning" (para.24).

Companies such as EdCast [http://www.edcast.com/] with its concept of "multiversities" and 2U [http://2u.com/] have started to offer credentialing mix-and-match choices of classes, universities and professors to students. An interesting report from MIT released in July 2014 drew attention to the impact of modularity, as the ways in which students selected courses (and accessed academic material) had changed: They were more selective and most of the academic material was accessed online.

According to the authors of the MIT report mentioned earlier and a study by Ho et al (2014) on first-year students taking open online classes from HarvardX and MITx, "students are focused more on learning certain elements of a class and less on completing what has traditionally been considered a module or unit of learning" (MIT report, 2014) and this increasingly "mirrors the preferences of students on campus" (p.13).

According to Reuben Tozman, author of *Learning on Demand: How the Evolution of Technology is Shaping the Future of Learning*, offering different interconnected pathways, various entry and exit points and choices allowed students to be in control and have a say in their learning journey (Malamed, 2013).

Holley and Oliver (2010) argued however that, increasingly, academics had less decision-power over the design of syllabi and this was partly caused by an increase in the choices and options given to students ("modularisation"), due to the global competition between universities.

2.24.2cFlexibility
Will the personalisation and flexibility of this *pay-as-you-go* "plug and play" (Christensen, Hatkof and Kula, 2013) system proposed by these new providers or new ways of delivery help students spend less and learn more or will it foster an even more consumerist attitude? (Woodall et al, 2014). Will the experience be the same? What sort of impact will it have on university teaching? Or as Molesworth et al (2009) put it:

> "Incorporating marketing mechanics into HE thus inevitably transforms pedagogic practice from being to having, from a learning experience of challenge, risk and potential transformation to one where we mistake such experiences as skills to acquire, 'things' to possess" (Molesworth *et al*, 2009, p.285).

The Harvard announcement (April 2014) to launch HBX [http://hbx.hbs.edu/] seemed to be an echo to consumers' demand and needs. The "credential of readiness", or CORe courses in Business Analytics, Economics for Managers, and Financial Accounting targets pre-MBA students, lasts for two months and is priced at US$1500 dollars. This was particularly important as it changed the dynamics of how and when students chose to complete their degree/certificate, how universities structured and delivered their programmes (in conjunction with existing curricula or not) to make them more agile. This might also have repercussions on the role and teaching workload of the academic in these courses (Devlin, 2013; Dodd, 2013; MIT Education, 2013).

2.24.3 Impact on Learning

According to a Preliminary Report of the Institute-wide Task Force on the Future of MIT Education (2013), advances in online education enable learning to take place anywhere at any time, forcing us to "question the meaning of the strict physical and temporal boundaries of the campus" (MIT Education, 2013). After teaching more than 90000 students on the Coursera MOOC platform ("5x as many students in a six week period than have graduated from the Darden School over its entire 50-year plus existence"), Lenox (2013) acknowledged the power of online education but confirmed however what most of the literature (Manjikian, 2013; Petriglieri, 2013b; Rivard, 2013; Roth, 2013; Selingo, 2013) had been pointing to: the *online* MOOC *experience* was not similar to a residential class experience (Lenox, 2013).

In an audio interview at the Higher Education Forum in New York on 30 September 2014, Rick Levin CEO of Coursera and former President of Yale University, stated that MOOCs were *not a complete substitute for what goes on in the classroom* as they did not provide the quality of interaction, *the opportunity for students to question and be questioned*, helping them to *think creatively and independently* (Levin, 2014).

Ehlers et al (2013) argued in *Week 1: MOOCs and Quality – Where are we – where do we go from here …?* That *quality* (of the learning experience) was the condition which determined how effective and successful learning occurred.

Petriglieri, who described himself as a conscientious objector, a MOOC dissenter (Petriglieri, 2013a), and a sceptic (Petriglieri, 2013b) believed MOOCs did not walk the talk and might end up increasing inequalities by offering credentials that did not match the essence and the value of what a university degree offered: class experience and student/alumni networks (Petriglieri, 2013a).

As Rees (2013) put it, Sebastian Thrun's *mea culpa* in November 2013 had proved "beyond a shadow of a doubt that real higher education can't be automated." William Whyte (2015), professor of social and architectural history and a fellow of St John's College Oxford argued, in a blog post titled *Does the MOOC spell the end for*

universities? That university life was *to be a student in a campus* in most people's mind that it would be very difficult for "even the most exciting MOOC" to challenge it. He also stated that students expected more of their university experience than just a purely virtual experience.

The preliminary results of a MOOC survey (Llewellyn et al, 2013) by the Georgia Tech Mini-Innovation Hub Project 2013 on their impact on learning indicated that while the schedule flexibility and the delivery methods offered by the MOOC format were considered as having a strong positive impact on student learning, the lack of interaction with the instructor and peers had a rather strong negative impact.

Despite some University leaders' reluctance (and wait-and-see attitude) that may be due to

- the potential costs as indicated earlier (and supplemented by a report by Stansbury (2015), based on Hollands and Tirthali (2014) research findings, which indicated that a MOOC would cost between US$39,000 and US$325,000 in development and delivery costs),
- lack of expertise,
- human resources involved (Hollands and Tirthali, 2014; Allen and Seaman, 2014),
- lack of substantial research on their value for student learning and a somewhat faculty reluctance to teach online courses (Bacow *et al*, 2012; Norman, 2015),

The number of courses offered on MOOC platforms such as Coursera and the number of new local platforms was still increasing in many parts of the world, as indicated earlier, in parallel to traditional universities.

In an interview for EconTalk (Roberts, 2014) and BusinessBecause (Murray, 2014) Daphne Koller of Coursera stated MOOC platforms were not a threat, were not a competitor (a view shared by Siemens, in Smith, 2015) or business schools, but were rather partners, "allies", helping them to reach "larger audiences. She added that MOOC were just a supplement, similar to a book (Murray, 2014; Roberts, 2014).
(As a reminder, the third characteristic of a disruptive innovation presented earlier indicated that a disruptive service or product did not initially compete directly against an existing service or product. It was developed in parallel to an existing product or service, often in a partnership).

In the last two years, private corporations started to "bypass" universities and directly partner with MOOC platforms to offer flexible and affordable short specialised courses, more adapted to the industry needs. The move towards partnering with corporations (Korn, 2014) to offer MOOCs and particularly nanodegrees (Udacity | https://www.udacity.com/faq#nanodegrees) seems to show that MOOC platforms take an increasing interest in for-profit vocational / corporate training.

2.24.4 Partnerships are Formed

A National Survey on Computing and Information Technology (2013) of IT officials (CIOs, CTOs) indicated that only 29 percent believed MOOCs offered a viable business model (Straumsheim, 2013).

Erica LeBlanc, Operations Development Manager for the IP and science business at Thomson Reuters, in a recent white paper published by Docebo (2015) (an elearning solutions provider of Cloud Learning Management Systems) argued that a sustainable business model for MOOCS involved a partnership with businesses.

An article by Ong and Grigoryan (2015) indicated that partnerships between universities and MOOC platforms are increasing because they were essentially win-win situations: MOOC providers would have access to a large database of students (potential purchasers of certificates or services) while universities benefitted from the expertise, logistics and hardware/software capabilities of MOOC providers.

This helped them to teach and engage with students at scale at a similar or cheaper cost.

Declara, an American Ed Tech start-up [https://www.declara.com/] partnered for instance with the National University of Singapore (NTU) to launch an online learning platform that would provide metrics and reports on students' performance and course access.

While Allen and Seaman (2012) study had already indicated that the 59.6 percent of the largest schools agreed MOOCs may attract more students, Mike Orey, Associate Professor at the University of Georgia thought that universities were utilising MOOCs to get customers (Docebo, 2015). Simon Nelson, chief executive of FutureLearn stated that MOOCs were putting universities on the international map and as such were a recruitment platform particularly for international students (Parr, 2015).

There seems to be a move towards increasingly credentialing MOOCs and charging students for a certificate to increase university (and Ed Tech investors') revenue and to attract/retain students (Moody's Investor Service, 2012).

"There is a fear that if a university does not join the MOOC movement now, it will be left behind," said Ray Schroeder, associate vice chancellor for online learning and director of the Centre for Online Learning, Research, and Service at the University of Illinois-Springfield (Mann Jackson, 2013, para.4). An opinion shared by the Vice-Chancellor of the University of Melbourne (Dood, 2013).

Mann Jackson argued that money could be made with such a large increase in enrolments (Mann Jackson, 2013), which echoed Johnson (2012) when he mentioned motives other than pedagogical for their launch, Morgan (2015) when he indicated that universities were (despite what they publicly said) businesses, the San Jose State University statement (2013) which stated in 2013 that MOOCs were "financially driven" and Russell Poulin, deputy director for research and analysis at the Western Interstate Commission for Higher Education's Cooperative for Educational Technologies, when he stated that "if that's where the coins are, these companies are going to drive there" (Kolowich, 2013, para.12).

According to John Leh, CEO and Lead Analyst at Talented Learning, the freemium model could give sustainability to MOOC providers (Docebo, 2015). Matthew

Greenfield, managing partner at Rethink Education, a venture capital firm in Manhattan stated in an article for the New York Times titled *Silicon Valley Turns Its Eye to Education* that return on investment was their key target (Singer, 2015).

As indicated in earlier sections, Coursera, MITx and HBX have launched MOOCs with verified certificates (Coursera's specialisations, MITx's three XSeries certificates, Harvard's "credential of readiness", or CORe courses and Udacity's nanodegrees). FutureLearn (UK) also charges MOOCs' participants £29 for a Statement of Participation, available after completing all the assessments of a course.
According to Butler (2015) and Carey (2015), these online specialised certifications, officially endorsed by universities and in partnership with companies, might soon have a disruptive effect, as they clearly indicate to potential employers what a person can do.

Carey (2015, para.16) argued that "traditional college degrees were deeply inadequate tools for communicating information". The recent partnership between Udacity and Accredible (an online credentials provider) is a move in that direction to provide more transparent and useful information to employers (O'Keefe, 2015).

The International Monetary Fund announced it would use the edX platform to deliver economics courses to government officials (Matthews, 2013). The World Bank has also announced a collaboration with Coursera to launch a series of courses that would "give people across the globe easier access to valuable, evidence-based knowledge on complex development problems (World Bank, 2013), in other words help deliver technical knowledge as well as foster the exchange of very practical skills among practitioners on how to tackle specific development challenges (Lee, 2013). Other recent initiatives were the Academic Financial Trading Platform (http://www.academictrader.org/), founded by Carneggie Melon Professors Raj Chaktrabarti and Anisha Ghosh, where students had the possibility to take both theoretical and practical business and investment skills courses (PRNewswire, 2013).

Futurelearn has also teamed up with ACCA and the University of Exeter in April 2014 to provide free online courses for professional recognition (http://accabrandcommunications.newsweaver.co.uk/ip5ap3oe5tfu982qbje8dy?email=true&a=1&p=46144335&t=18040654). Coursera has partnered with Jetblue Airlines to offer 10 MOOCs on its inflight entertainment programme [http://blog.coursera.org/post/103477375027/learn-from-coursera-on-your-next-jetblue-flight].

Finally, Peking University and Alibaba (a Chinese e-commerce company) have joined forces in 2015 to launch a Chinese MOOC platform: http://www.chinesemooc.org/

The Northeastern University survey (Straumsheim, 2014) mentioned earlier indicated that 63 percent of the respondents agreed that students should be able to apply for course credit after completing a MOOC. The decision taken in 2013 by several major universities in the State of California to offer credits for MOOCs (Briggs, 2013) is an example of the direction taken by some institutions. Allen and Seaman

(2014) argued in their report however that 64 percent of the academic leaders they interviewed had concerns that offering credentials for MOOC completion would cause confusion about higher education degrees, a view shared by Carey (2015).

A Qualtrics (2013) study found that credentials or college credit could help increase MOOC completion rates. About two-thirds of respondents indicated that they would be more likely to complete a MOOC if MOOC platform offered certificates or transferable college credit. About 10 percent who didn't complete indicated the lack of incentive as the main reason (see more on the Motivations and Persistence rates sections below). According to Yuan *et al*. (2014), the pay-as-you-go approach would help MOOCs fulfil their potential as they would offer a formal and recognised accreditation of learning and skills to students.

OpenLearning, an Australian start-up [https://www.openlearning.com/] secured an interesting deal with Malaysia in September 2014 to implement, for the first time in the world, a nationwide strategy that gradually integrates MOOCs with on-campus university classes (15 percent by the end of 2015 and 30 percent by the end of 2020) (White, 2014), an experiment which (would generate interesting research and), if successful, could be replicated elsewhere.

Anant Agarwal predicted in 2015 that by 2020, "at least a dozen universities around the world would give university degrees with 100 percent content on MOOC" (Verma, 2015, para.12). In May 2016, Futurelearn announced the launch of its first programmes allowing students to get credits from Open University and Leeds.

2.24.5 MOOCs and Skills

MOOCs could have potential for staff and skills development (Calonge and Shah, 2016), which might serve various countries' policy objectives to align the development of particular skills with the evolving needs of the labour market (OECD, 2013).

A study by the Brookings Institution reported for instance that STEM job skills in the U.S. are "in short supply relative to demand" and that "job vacancies requiring more education, training, or experience take longer to fill" (Brookings, 2014, p.1).
According to a study by researchers at Duke University and RTI International on employers' knowledge, experience and attitudes toward MOOCs (400 North Carolina employers, November 2013- January 2014), *The Employer Potential of MOOCs A Survey of Human Resource Professionals 'Thinking on MOOCs* (Radford et al, 2014), more than three-quarters of organisations used (7 percent), considered using (5 percent), or could see their companies using MOOCs (71 percent) for employees' professional development (Kranz,2014).

Alsop (2014) in *Forget the MBA* cited a Bainbridge study of U.S. human-resource professionals on MOOCs. According to the study, 60 percent of the respondents said Massive Open Online Courses were a "valid certification of one's skills or knowledge" and should be considered as such. While Joyner (2013) thought that online education would solve the skills gap, Karen Francis, CEO of AcademixDirect had a more nuanced opinion when she stated that MOOCs would partially help in solving

the issue (Francis, 2014). According to Aaron Skonnard, chief executive of Pluralsight (a for-profit company providing online courses to technology professionals| http://www.pluralsight.com/) "Because technology changes so quickly, software professionals lose half of what they know in a two-year period of time; They can use us as their go-to resource to stay current" (Singer, 2015, para.18).

Ferriman (2015) identified seven ways companies currently used MOOCs to engage their employees:

- Building talent pipelines (AT&T),
- On boarding employees (McAfee),
- Self-directed career development (Deloitte, Yahoo!),
- Workforce training (Google),
- Channel/customer education (SAP),
- Brand marketing (AMC),
- Collaboration and innovation (Coursolve) (Ferriman, 2015).

Google enrolled for instance 80,000 employees in Udacity's HTML5 course (Bersin, 2013). Jason Wingard, chief learning officer at Goldman Sachs, described how MOOCs had offered opportunities for *scalability* ("it's not feasible to take all of these people, put them in a room and have a group education session"), *accessibility* (to "reach wider audiences", para.33) as well as *variability* and just-in-time learning (employees "can cherry-pick the topics they want to address specific challenges they're facing", para.31) to his company (Knowledge@Wharton, 2015).
Microsoft offered for instance, in partnership with edX, IT development courses, taught by Microsoft professionals. The course [Building Cloud Apps with Microsoft Azure – Part 1] is for instance taught by Tom Dykstra and Rick Anderson, senior programming writers at Microsoft. [Programming with C#] is taught by Gerry O'Brien, Senior Content Development Manager at Microsoft Learning.

A recent Institute for Corporate Productivity (i4cp) and ATD Research report (2014) on MOOCs indicated that among 525 learning and business professionals surveyed, 22 percent were using MOOCs in learning and development. One of the interesting points of the report was that despite a high level of educational attainment and career experience, participants often dropped out, questioning previous research by Diaz (2002) and Tyler-Smith (2006), presented earlier.

Radford et al (2015) explored MOOCs for professional development in North Carolina (U.S.), examining the types of employees that would take MOOCs offered by RTI University. They found that only 7 percent (in 2013-14) were using MOOCs. According to the research, employees at lower salary grades, with less education and shorter employment contracts were among those most inclined in participating in a short MOOC to improve skills. They indicated the leadership, management and communication courses were among the most popular courses.

Another interesting example of MOOCs for continuing professional development is the Teaching Computing: Part 1 MOOC

[https://www.futurelearn.com/courses/teaching-computing-part-1] offered by FutureLearn which targets, according to the website *primary and secondary school teachers who are preparing to tackle the new computing curriculum*.

Julia Stiglitz, director of business and market development at Coursera argued that MOOCs were a great opportunity for lifelong learners to improve skills, as they provide alternative and more affordable options for those looking to improve their skills (Riddell, 2015).

Vergne (2015) provided another interesting example as well of a feasibility study on how MOOCs could be used in the staff development of professionals in the construction industry in France. One of the interesting arguments mentioned in Vergne (2015) is the thorough preliminary work and reflection on the pedagogical model needed before the launch of a MOOC.

2.24.6 Impact on Faculty, Teaching and Universities

Existing literature on Massive Open Online Courses is primarily concerned with MOOCs' development (Daniel, 2012; Yousef et al, 2014; Petkovska, Delipetrev and Zdravev, 2014), pedagogy (Conole, 2013; Grünewald *et al*, 2013), processes (Kolowich, 2013), course formats (Rodriguez, 2012), user/subpopulations data, enrolments, participation and completion/dropout rates (Kizilcec et al, 2013; Cooper and Sahami, 2013; Clow, 2013; Milligan *et al*, 2013; Reich, 2014; deBoer *et al*, 2014; Ho *et al*, 2014), and Business models (Dellarocas and Van Alstyne, 2013).

In the words of Wulf et al (2014):

> "The current academic discussion on MOOCs focuses on the different types of MOOCs, the involved didactic concepts, as well as the technology and mechanisms that facilitate the scaling of educational services" (Wulf *et al*, 2014, p. 1).

What risks/threats do MOOCs pose to universities (Rivard, 2013; Moody's 2012; Czerniewicz et al, 2014)? And what might be the implications of this transformation for academics? Are such questions not often asked in the current MOOC scholarly literature.

A report commissioned by the Department for Business, Innovation and Skills (UK), *The Maturing of the MOOC: literature review of massive open online courses and other forms of online distance learning*, argued for instance that the disruption posed by Massive Open Online Courses was real and potentially dramatic: a tipping point for higher education (Haggard, 2013).

Few studies investigated MOOCs' impact on universities' delivery models (Daniel, 2012, Voss, 2013, Bali, 2014) or on academics (Ebben and Murphy, 2014; Ross et al, 2014; Sheard et al, 2014). A study by Sheard et al (2014) examined the perception and experience of academics (mostly in computing) with MOOCs but addressed very briefly the changes MOOCs brought/might bring to their teaching practices.

Koutropoulos and Zaharias (2015, p.19) argued that the MOOC model did stimulate academics to “rethink and reconsider our approaches to teaching” but did not really detailed why.

Stacey (2014) mentioned some of the flaws of the current MOOCs’ pedagogical approach and provided a few recommendations advocating a better use of socio-constructivist and connectivist learning theories.

An article by Norman (2015) highlighted the importance of faculty engagement, faculty motivation and professional development to successfully teach MOOCs, often cited in online learning environments.

In other words, apart from some anecdotal evidence (Bowen and Tobin, 2015), the role and importance of the facilitator in a MOOC environment has so far been under-investigated (Bayne and Ross, 2014).

As MOOCs are still a work in progress, still at different levels of this educational experiment (Ticona, 2014), a certain number of answers to important questions still remain incomplete in the current literature, for instance what will be the effect (s) of the *destructive competition* MOOCs are bringing and will they be *putting out of business bad teaching*, as stated by Leon Botstein, President of Bard College during a talk at The Institute for Advanced Studies in Culture.
[Available at:
http://www.youtube.com/watch?feature=player_embedded&v=kHODhq73qtU].

William Ward, founder of Hootsuite University, a social Media education platform [https://learn.hootsuite.com/] made an interesting point in the context of this thesis: “because somebody grows up being a social media native, it doesn't make them an expert in using social media at work” (Holmes, 2014, para.2).

One could argue here that because somebody has taught all his/her life using sporadically the basic tools offered by Moodle, Blackboard or Canvas, such as discussion boards or online quizzes, in a superficial (Laurillard, 2007) fashion, he or she could design a MOOC and therefore expect to have successful results.
This relates to the argument presented earlier: it might not be the technology itself but rather the pedagogical way it is currently used that had not had the expected and promised impacts.
A survey by Kim and Bonk (2006) indicated that faculty training and support was a crucial component of quality online education. Survey results showed that pedagogical competency (moderation and facilitation of learning) of online instructors significantly affected the success of online programmes.

A Grattan Institute report (Jensen, 2014) Titled *Making time for great teaching* on teaching quality and on why teaching and learning was not improving in Australian schools pushed the argument further and stated that professional development was often not relevant and badly delivered (Jensen, 2014).

Ward stated that the real issue was that institutions, employers or educators expected people to intuitively know these online skills without the need for any training (Holmes, 2014) or support. The survey by Bart (2014) mentioned in an earlier section has shown how "problematic" it was for many academic staff to use a new technology while research by Lapointe and Reisetter (2008) had indicated that students often perceived online learning communities as "not supportive on their learning processes".

While David White's comments regarding the "conservative pedagogical methods" (White, 2014, in Funnell 2014) of the current MOOC format still resonate, Vardi (2012) in *Will MOOCs Destroy Academia?* Had already acknowledged the lack of pedagogy in the MOOCs as astonishing adding that their learning design choices was inefficient.

According to Brian Schmidt, Nobel Laureate and an astrophysicist at the Australian National University (ANU) however, the most exciting impact of MOOCs was in the future iterations and in the learning opportunities provided to academics to improve campus experiences (Hare, 2014).

2.24.7 Learning Opportunities

Brian Smith's views were echoed by Professor Jeff Haywood, Edinburgh's vice-principal, when he argued that designing a MOOC was "educational R&D" "an investment in pedagogic research" (Doughty, 2013, para.5), a view shared by Eshleman (2015) and Myers (2015).

MOOCs allowed universities to experiment (Salisbury, 2014) at scale in ways which they were not always available with fee-paying or credit-earning courses (low-risk environment), as indicated by Eshleman (2015) in the context of a small liberal arts schools.

Doughty (2013) stated that as students were increasingly taking courses online, MOOCs were providing crucial learning opportunities for academics and universities on how to manage large numbers of students online. He said: "We've also learned how to run peer review and assessment of thousands of students at this scale" (Doughty, 2013, para. 13).

Acemoglu et al. (2014) emphasised that the learning opportunities for academics brought by web-based technologies were critical. Myers (2015) described for instance the adoption of MOOCs at UW-Madison: following a year of exploration of the MOOC format, her team had decided to

- Shorten the length of the classes,
- Localise student recruitment (for a more "focused interaction") and
- Experiment with more podcasts.
- MOOC videos designed in-house were also increasingly reused and repurposed for on-campus classes.

The positive results of a MOOC Camp initiative (Koons, 2014) [http://eca.state.gov/programs-initiatives/mooc-camp] seemed to indicate that institutions were doing their homework, had started to reflect on what works and what doesn't and were starting to adapt the material to cross-cultural contexts (Koons, 2014; Koller, 2015) increasingly adopting a blended learning model, "a mix of

online education and some in-person discussion or instruction" (Koons, 2014, para.13).

Another example was provided by Northwestern University's Kellogg School of Management. It had also reformatted its [Scaling Operations: Linking Strategy and Execution] MOOC to integrate more case studies, in collaboration with Kellogg's corporate partners (Schmitt, 2015).
Finally, James DeVaney, Assistant vice Provost for Digital Education and Innovation at University of Michigan (U.S.), described how his university's experimentation with MOOCs had led to a rethink of the university's residential courses, integrating modules, repurposing and remixing content to enrich the learning experience (DeVaney, 2015, Schaffhauser, 2015).

In a short article, Skallerup Bessette (2015) described why she decided to take a MOOC (*to experience the platform we are using ourselves (para.3)*) and explained the reasons why she dropped out from it (*boring MOOC lecture videos (para.7)*, *poor assignment design*) (para.7). but mainly because of the constant monitoring of her clicks, which she thought had nothing to do with learning and teaching, confirming what Reich (2015, p.34) had alluded to when he mentioned the difference between engagement outcomes and learning outcomes: "We have terabytes of data about what students clicked and very little understanding of what changed in their heads".

Reich (2015) also stated that as MOOC research was getting more complicated with lots of data on engagement and access, individual researchers would have tremendous difficulties to address the issues and implement changes. He recommended collective action and support from Higher Education institutions, academics, academic journals, conference organisers, and course developers.
Mintz (2015) argued for instance that as current student demographics were multifaceted as indicated in an earlier section of the literature review, institutions should consider experimenting with personalisation (of pathways and of learning): "A one-size-fits-all, standardised curriculum is out of step with the times – and with student demographics" (Mintz, 2015, para.17).

2.24.8 An Iterative Process

In an interview for MOOC News and Reviews (McGuire, 2013), Dr Mohamed Noor, Professor of Biology at Duke University described the adjustments he made based on his experience and feedback teaching a MOOC.

According to Dr Noor, MOOC design was not something you can get right the first time; "it's an iterative process" (McGuire, 2013). Alan Greenberg, director of education at video learning platform MediaCore argued that the model was still at an early experimental stage constantly evolving and that it would change and evolve gradually (Pozniak, 2013). Soffer and Cohen (2015) for instance examined, in a pilot study, how to integrate a MOOC in a more formal academic course at Tel Aviv University.

Natural selection would also be a prominent factor: "Good MOOCs will be successful; the less good will fail miserably" (Pozniak, 2013, para.7).

According to Leckart (2012) and Starck (2013) the biggest flaw of the current MOOC design was its prioritisation on online *teaching* rather than on online *learning* in online environments.

In MOOC U: The Revolution Isn't Over (Selingo, 2014) argued that, to deliver on some of its promises and particularly on choice of courses, MOOC providers needed to clarify their purpose and decide how to make open online courses actually open. According to Selingo (2014), the main issues were related to

- The ownership/intellectual property of the content and the courses, (content can't be updated by a third party),
- Their perennity (once a course ends, all content is removed from the web) and
- The fact that MOOCs are run like traditional courses with a start and an end date, (preventing students from adding or dropping a course at any time, which goes contrary to the flexibility they promised).

2.25 Can MOOCs Expand Access to Education?

There is extensive published research that investigates the American educational system and the role technology plays in 20th-21st century education (Collins and Alverson, 2009; De Ferranti, 2003; Bates, 2005; Duderstadt *et al*, 2002). This theme has often been studied in the literature through the lens of cognitive approaches (Mishra and Koehler, 2006; Kaplan and Tripsas, 2008; Shea and Bidjerano, 2009).

There is less research however on the impact of MOOCs as a democratising force in Higher Education.

Hollands and Tirthali (2014) concluded their report *MOOCs: Expectations and reality* by saying that overall, MOOCs had not helped in improving access and bridging education gaps and may had in fact contributed to enlarge them.

Can MOOCs democratise education? asked Professor Asha Kanwar during her keynote Speech in Malaysia for the Commonwealth of Learning (Kanwar, 2012).

Carver and Harrison (2013) thought that MOOCs had a democratising effect, as they provided equal access (no pre-selection of students based on credentials) and had greater diversity than on-campus courses. As content was offered for free, students from all walks of life, with high or low educational qualifications and/or from lower socioeconomic backgrounds, had the opportunity to participate in top universities' courses.
Paul Bloom, a Yale psychologist observed that MOOCs gave access to Higher Education to people from various demographic and geographic backgrounds that wouldn't otherwise have had the means or prerequisites to be accepted (McDonald, 2014).
Would the widespread distribution of knowledge the current MOOCs format promised (choice, individualised learning (Means et al, 2014), tailored self-paced learning experiences, etc.) ensure an even wider access to higher education,

particularly for the disadvantaged in developed countries, those that need the most help?
Engle and Tinto (2008), in their study *Moving Beyond Access,* identified a number of significant challenges that low-income first-generation university students in the United States already faced that affected their college success.

- They came from ethnic and racial minority backgrounds with lower levels of academic preparation,
- They were non-native English speakers and born outside of the U.S.
- They tended to be female, older, and financially independent from their parents,
- They lived off-campus and were more likely to have multiple obligations outside college, like children and full-time work, which limited their full participation in the college experience.

Previous research has shown that such "have-nots" students remained at a definite disadvantage with respect to staying enrolled and attaining degrees in on-campus settings in developed and developing countries (Choy, 2001; Pascarella *et al*, 2004).

Macgregor (2007, para.1) reported for instance that "first generation students from low-income, less educated families in South Africa were the most likely to drop out" their on-campus programmes.
A study by Czerniewicz *et al.* (2014) further described the South African context as having low participation, high attrition rates (40 percent of "first-year students drop-out of university" (para.1)) and "only 5 percent of African youth succeed in any form of higher education" (para.1).

According to Pascarella et al (2004), the lack of academic preparation in high school and the difficult transition between high school and postsecondary education were among the most critical issues, resulting in early drop-outs, generally in the first year of their degree. The Education Policy Outlook 2015 *Making Reforms Happen* stated that almost one in five 15-year-old students across OECD countries did not reach a minimum level of skills to function in today's society.

Research by Diaz (2000), Stern (2004), Tyler-Smith (2006) and Allen and Seaman (2014) presented earlier indicated that more mature students (with more life and work experience), with better reading and writing skills and with some university experience would be more successful in online classes.
Three surveys of active MOOC users, in more than 200 countries and territories by Emanuel (2013) in the journal Nature, by Alcorn et al (2014) and by (Christensen, Alcorn and Emanuel (2014), published in the Harvard Business Review seemed to confirm these findings by revealing that most students on MOOC courses, from developed or developing countries, were often not low-income first-generation undergraduate university students but rather already well educated: 83 percent already had a two- or four-year post-secondary degree) and were digitally literate.

In 2012, Michael A. Wartell, Chancellor of Indiana University-Purdue University Fort Wayne wrote an essay titled *A New Paradigm for Remediation: MOOCs in Secondary Schools* (Wartell, 2012). Based on his observations of students' academic preparation for higher education, he proposed using MOOCs in Maths and English, as a remediation alternative.

Could MOOCs help reduce the number of students in need of remediation, helping then bridge the gaps between high school and university? (Selingo, 2013) Would these courses be equivalent in terms of student learning?

A recent intercontinental study (Colvin et al, 2014) by a team of researchers at Harvard, MIT and Tsinghua University (China) might have given some preliminary answers to these questions. It was found that MOOCs produced significant and "roughly equal learning for all of the cohorts differentiated along several axes that strongly influence their overall ability" (para.49):

- students with high school or less education versus those with advanced college degrees;
- students lacking good preparation in math and physics versus those with good preparation.

2.25.1 Would MOOCs Create more Inequality and Divide the Education Planets into Two — Those that Have Access to Them, and Those who Don't?

While Thomas Friedman, in an article for the New York Times *Revolution Hits the Universities,* argued in 2013 that MOOCs' potential to lift more people out of poverty was unparalleled (Friedman, 2013), Doug Guthrie, professor of Management and Dean of the George Washington (GW) University School of Management, stated that MOOCs were not the revolution that many were predicting (Guthrie, 2013).

Two years after their launch, Gunawardena (2014) in *MOOCs: students in the global south are wary of a 'sage on the stage* stated that MOOCs would have an impact in the global South only if they adapted their content to the learners' contexts.

The issues of North-South divide and adaptability to local context also appeared in Young (2013), Rivard (2013), Kamenetz (2013), Czerniewicz et al (2014) and Hollands (2014). Sperber (2013, para.14) argued for instance that MOOCs were "only accessible to Tanzanians who spoke English, had access to a computer - or money to spare for lots of time at an Internet café - and regular electricity."

While Valenza (2012) and Wells (2013) argued that the Internet and MOOCs had given students worldwide access to world class content and academics "eliminating the barriers of geography and privilege" (Wells, para.7), Czerniewicz et al (2014) and Hollands (2014) contradicted this view by saying that only those who had access to high-bandwidth Internet connections had so far benefited from them.

Hollands (2014) argued that access has been broadened to "some extent in terms of geographical spread but less so in terms of reaching individuals with fewer educational opportunities" (Hollands, 2014, p.13).

As for lifting people out of poverty, Diana Laurillard, professor of learning at the Institute of Education (University of London) stated that “these courses are being taken largely by competent learners ... who often have plenty of money and are capable of paying for education” (Palin, 2014, para.15). In other words, MOOC participants already had the academic skills, the gear (computers/smartphones) and the financial means.
University of São Paulo professor José Dutra de Oliveira Neto (in Gunawardena, 2014, para.16) argued that the absence or limited access to the Internet, prevented the most underprivileged from accessing Massive Open Online Courses, which could be have been an alternative to low quality local educational systems when he said: “the poor people now have not only poor face-to-face education, but also poor access to high quality online courses and information. This means less opportunity for them.”

According to Internet Live Stats 2014 for instance, the percentage of the population with Internet in India was 19.19 percent, 16.72 percent in Indonesia, 14.45 percent in Nicaragua, 10.84 percent in Pakistan, 1.70 percent in Ethiopia and 1.16 percent in Myanmar. [http://www.internetlivestats.com/internet-users-by-country/]. According to Bakary Diallo, rector of African Virtual University: “Transferring education from the United States to Africa wouldn’t work, because we have our own realities, our own context and culture” (Young, 2013, para.3). Evans and Popova (2015) argued that education in Africa and Latin America was of low quality, with low achievement of learning outcomes.
The Mobiles for Reading: A Landscape Research Review (2014) indicated the need for monitoring and evaluation of ICT projects implementation outcomes. According to the review, many of the projects launched in developing countries indicated stakeholders’ positive reactions but little research was done to show assessment and evidence of learning outcomes’ achievement.

Shall the developing world adopt western-designed MOOCs or develop their own?

Siemens (2013) thought that developing countries should design their own MOOCs in order to identify their specific needs, which were often unknown to Western MOOC designers.
Daniel (2012) stated that current MOOC format would not (as is) address the challenge of expanding higher education in the developing world.
Charlotte Nirmalani (Lani) Gunawardena, Professor of Distance Education and Instructional Technology in the Organisational Learning and Instructional Technology at the University of New Mexico, agreed with the statement when she said: “Unless we really look at other parts of the world and what they really need, MOOCs are not going to take off” (Rivard, 2013, para.22).
Nevertheless, Shyam Sharma, a Professor at Stony Brook University in New York (SUNY) thought that MOOCs, despite access issues, may give people in developing countries an opportunity to “catch up”, “providing economic and social/cultural benefits as well” (Sperber, 2013, para.16), a view shared by Wells (2013) and Sekhri (2013) when they argued that MOOCs increased opportunities for equality of access for many students.

According to Jon Erikson, president, Education and Career Solutions for ACT (designers of the College Readiness Assessment in the U.S.), MOOCs can expand access to education (Erikson, 2013) to many students in many countries and therefore help combat inequalities. For Shyam Sharma, Professor at the Stony Brook University in New York (SUNY) however, "joining the club only gives you membership, not necessarily a guarantee of respect, equal footing, and equal access to the new and connected economy" (Sperber, 2013, para.16).

2.26 Who are the MOOCs' Students?

> "In retrospect, the notion of students using MOOCs as a complete replacement for college now seems fanciful" (Haber, 2014, para.10).

2.26.1 Demographics

There is an extensive literature on MOOCs' demographics and participation and this section will only summarise the most recent findings. According to Selingo (2014), 71 percent of the MOOC participants were male, 35 percent were accessing MOOCs from the U.S., the average age of a MOOC participant was 26 years old and while 34 percent already had a Bachelor degree, 31 percent had a Master's. These percentages were confirmed by data from HarvardX and Alcorn et al (2014).

In an interview for CNBC (2014, http://video.cnbc.com/gallery/?video=3000312641), Diana Laurillard stated that the most popular MOOC courses worldwide tended to be in the financial, business and technology sectors, and this was confirmed by the Online Course Report (2016). She also confirmed that around 85 percent of MOOC participants had several degrees.

Coursera's co-founder Daphne Koller (2015) argued that 75 percent of Coursera's users had college degrees and that MOOC platforms' main target audience were working adults (Koller, 2015), in stark contract with initial rhetoric (see Anant Agarwal, CEO of edX statements, in Kanani, 2014).

Data from HarvardX and Alcorn *et al.* (2014) suggested that a typical MOOC student was a well-educated, male in his mid-thirties, living and working full time in a developed or BRIC (Brazil, Russia, India, China, and South Africa) country. Dr Paul Francis, who launched, with Nobel-prize winner Professor Brian Schmidt, four MOOCs on modern astrophysics at Australian National University, described the 40,000 students from 178 countries MOOC participants as, for a large majority, degree holders (Francis, 2015).

According to Internet Live Stats 2014, (as of 2014) sixty-eight percent of Coursera's users came from outside the United States. India was in second position, followed by Brazil. As only 36.5 percent of MOOC participants were female, Christensen and Alcorn (2014) were concerned by the worrying gender divide, which was more significant than in traditional education. Kizilcec and Halawa (2015) confirmed this gender and achievement gap in a recent study.

According to the Teaching and Learning: Achieving equality for all (2014, p.181) report, education was particularly powerful in helping women in sub-Saharan Africa and South and West Asia make more informed choices concerning health issues, be more aware of their civil rights, could help them "overcome unequal and oppressive social limits and expectations so they can make choices about their lives", such as delaying their decision to get married or to have a child. Macleod *et al*. (2015) argued however that gender proportions in MOOC courses often depended on the subject chosen. Macleod *et al*. (2015) indicated that their Equine Nutrition course at the University of Edinburgh had for instance a 90 percent female audience (while their AI planning MOOC only had 15 percent female students) and that these numbers were consistent between iterations.

2.26.2 Motivations

Additional data also suggested that MOOC participants used the courses to improve their professional or personal knowledge (Fearn, 2014; Ho et al, 2014). According to a Qualtrics survey (2013) of 1,834 students on the motivations of MOOC participants for instance, *course topic* was the main motivator for enrolment among 35 percent of MOOC participants, followed by *personal or professional development* (24 percent) and the fact that MOOCs were at no cost (16 percent). A Nature and Scientific American survey of 5851 science students around the world (Bartholet, 2013) had found however that the main motivational factor was the fact that they were [free].

A majority, according to Bartholet (2013) and Alcorn et al (2014) took a MOOC for fun or out of curiosity, while less than half took it for career purposes. Among those who didn't complete, according to the Qualtrics survey (2013), 29 percent said the main reason was the learning experience did not match their expectations, and the same number said they were too busy to finish. About 24 percent of those who completed their MOOCs reported being highly engaged in course discussions with fellow participants, compared to only 3 percent of those who failed to complete it (Qualtrics, 2013).

An article by Rosé *et al* (2015) presenting a case study of a MOOC course at the University of Pittsburgh (U.S.) argued that students who joined a MOOC course at a later stage had enormous difficulties in catching up with the large amount of interactions posted on the online forums, which impacted on their ability to fit in, stay and complete the course. They also argued that a significant number of students were not satisfied by the level of feedback they received. They concluded their article by stating that the level of social interaction and engagement in discussions was primordial to ensure success in the course.

A paper by Guo and Reinecke (2014) analysed the navigation strategies of 140,546 students in four edX MOOCs (mostly maths and science). They confirmed research by Liegle and Janicki (2006) and Lee *et al*. (2010) who had argued that student learning styles, control over the learning path and cultural differences in online environments needed to be considered. According to Guo and Reinecke (2014), those who didn't jump content or modules and who preferred a more linear approach were often younger and from teacher-centred educational systems such as

India, China or Pakistan. Halawa *et al.* (2014), in a study on persistence factors, argued that self-regulation varied greatly among MOOC participants.

2.26.3 Persistence Rates

Another study by Penn University researchers (Perna *et al*, 2013) looked at one million users of 16 courses offered via Coursera over a year (June 2012-June 2013) and found that only half of students who signed up for courses actually took them, engagement dropped off dramatically in the first few weeks, and a only 4 percent completed the courses, which might suggest that successful engagement online with MOOCs required specific learning skills, technology skills (mentioned in Jensen et al study, 2015), learning preferences and foundational knowledge described by Diaz (2000), Stern (2004), Liegle and Janicki (2006), Tyler-Smith (2006), Lee *et al.* (2010), Allen and Seaman (2014) and Guo and Reinecke (2014) on part of the participants. It also required better course designs (Holley and Dobson, 2008) on part of the institutions (additional feedback, (Shatnawi et al, 2015 and better peer-learning opportunities) to encourage more meaningful and active participation to improve retention, as described by the Docebo (2015) White Paper, (Hew, 2015), Koutropoulos and Zaharias (2015), Rosé *et al.* (2015) and Rothkrantz (2015).
Glance argued that "no matter how many students enrol in a course, only between 5 to 10 percent of them will ever complete it" (Glance, 2015). An interesting example to illustrate this point is the case of Selena Larson. She took a MOOC course and talked about her experience in *I Failed My Online Course—But Learned A Lot about Internet Education* (Larson, 2014), particularly peer-reviewing. She felt completely alienated by the experience, "uncomfortable and powerless. Stupid". According to Larson (2014), the way the MOOC environment was currently designed did not encourage productive learning, with few opportunities to engage with fellow students and the professor. Larson (2014) concluded her post by saying that she would not trade an on-campus experience with any online courses. This experience had however provided her with valuable lessons on online learning and teaching, reflected in the title of her blog post.

Two surveys (in Chinese) by Guokr a Chinese MOOC platform in 2013 and 2014 indicated that the main reasons for students to drop out were the language barrier (55 percent), the lack of learning partners (20 percent), network connection issues (20 percent) and the difficulty of the course (18 percent).
Source: [http://mooc.guokr.com/post/610674/]
[http://mooc.guokr.com/post/610667/]

Furthermore, a study by Wintrup et al (2015) in the UK for the Higher Education Academy indicated that only a minority of FutureLearn MOOC participants (of courses run at the University of Southampton) engaged in collaborative learning. The findings of this study also showed that 80 percent of MOOC participants said that they never explained course material to one or more learners. Finally, a study by Kizilcec and Halawa (2015) on 100,000 learners in 21 MOOCs (ranging from Education to Natural Sciences and Mathematics) indicated empirical evidence in the context of this thesis, reproduced here:

- Women were 12 to 20 percent less likely than men to persist with lectures and assessment
- Learners in Africa , Asia, and Latin America were 24 to 50 percent less likely to persist with lectures and 31 to 52 percent less likely to achieve grade milestones than learners in Northern America
- More educated learners, those with a bachelor's or higher degree, were 15 to 25 percent more likely to persist
- Learners in Africa, Asia, and Latin America were more likely to disengage due to technical difficulties
- A large majority of respondents indicated time-related reasons (to keep up with deadlines or "it's time consuming") as influencing their decision to drop the course

Khalil and Ebner (2014) in a recent literature review that investigated MOOC participants' completion rates indicated that time constraints, absence of motivation, insufficient instructor presence which caused a feeling of isolation, lack of interactivity and skills were the main factors that compelled a MOOC participant to drop out. According to Trucano (2015, para.13), "the role of the teacher is almost always more central, indeed fundamental, than it was before the introduction of technology". Beaven et al (2014) argued that the absence of skills such as critical thinking and analysis, creativity, the capacity to collaborate and contribute orally or in writing to the discussion forums and social networking spaces embedded in MOOC platforms would most likely prevent a student from being successful and completing a MOOC.

Finally, Albert and Sekhon (2015) described, in a recent article for Learning Solutions Magazine, the seven critical factors or ("Cs") that incited 850 (over 1000, a very high percentage if compared with most MOOCs) Microsoft [sales] employees to complete a corporate MOOC (Business Strategy and Financial Acumen) offered by INSEAD, in partnership with Microsoft and Intrepid Learning. According to the two authors (director of design at Intrepid Learning and project manager at Microsoft), active learning and student engagement were fundamental in the success of this customised corporate course and the "One-way, inflexible, broadcast-style training fails to work, to the extent that it doesn't respect the modern learner's time, intelligence, workload, and competing life and work demands" (Albert and Sekhon, 2015, para.3).

- Content: was up-to-date, added value to the expertise of the participants, was relevant to the audience (sales people) and the fact that it was taught by INSEAD faculty brought credibility and trustworthiness
- Context: content in the course was readily applicable to situations faced by the sales force at Microsoft
- Curation and co-creation: participants were acknowledged co-creators of content. Relevant (to many) discussion threads or specific issues posted on the discussion forum were often used as group discussion topics and were tackled in teams
- Communication: instructor presence was regular, messages were kept short and concise (to respect employees' busy workload), timely reminders were sent

and expectations were explicitly stated to participants to keep them engaged and on target

- Collaboration: reality-based learning and teaching activities were designed to mirror Microsoft employees' daily tasks, which often involves groups working together on tight deadlines to solve real-world issues. Employees were encouraged to work offline with colleagues, apply concepts learned in the course to their daily activities and share insights and difficulties with other participants
- Competition: To foster a sense of competitiveness, all employees had access to a leader board that indicated individual (and overall) scores and progress in the course.
- Certification: An executive education certificate from INSEAD Business School was offered to those completing the course.

The Online Course report (2016) confirmed this trend: the average retention for participants who took a MOOC through Microsoft, AT&T and McKinsey & Company was 85 percent.

According to Peter K. Bol, Vice Provost for Advances in Learning, Harvard University however completion rates were not the issue: "people who register for free MOOCs, like those offered on edX, differ from conventional students, and are not using them like conventional courses" (Bol, 2013, para.2).
Bol (2013) and Ho *et al.* (2014) stated that HarvardX and MITx registrants were not "students" in a conventional sense so their behaviour differed from traditional students or as Claus (2014, para.5) put it, "with goals and participation levels that diverge vastly from those of the conventional student, these participants illustrate that MOOCs fit a different societal niche than traditional education".
Persistence rates were therefore not as relevant as in on-campus education.

Moreover, the fact that socially disadvantaged students, who lacked the fundamental (and technology) skills mentioned above, were not exposed to a social expreince when they were taking a MOOC (Paun, 2013) was predictive of bad performance and may be the explanation for the large attrition figures and the disappointment expressed by some commentators.

2.27 Disappointing Results

While the democratisation of content MOOCs provided cannot be underestimated and despite the transformational role MOOCs might play in the future (Downes, 2013), four years after the launch of the first MOOC, results seem to be far from positive.

Sebastian Thrun, co-founder of Udacity envisioned in 2012 a future in which there would only need to be 10 universities in the world. Udacity had, according to Thrun, found the secret code that would unlock learning on a global scale (Chafkin, 2013), "a recipe that works" (Leckart, 2012, para.34).

A year later, in November 2013, in an interview for Fast Company, Thrun had to admit that the current "MOOC product" was lousy (Chafkin, 2013).

According to Green (2013, para.8), “in the dot.com/dot.edu era and perhaps again now, the expectation among some observers is that going online has the potential to be highly profitable and ‘only’ requires a syllabus, servers and students willing to sit in front of screens”.

According to Stephen Downes however, MOOCs were “created by people who for the most part were not aware of the history of online learning” (Parr, 2013, para.19). Downes questioned the creativity, the interactivity and the dynamism of the MOOCs as they were currently offered (Parr, 2013). An opinion shared by Kathleen Nicoll, associate professor of geography at the University of Utah who took an MIT mathematics MOOC class. According to Nicoll, MOOCs provided a very passive experience (Bartholet, 2013b).

Robert Ubell, vice dean of Online Learning at New York University’s Polytechnic School of Engineering, argued that the traditional-style lecture with its lack of engagement was equivalent to current MOOCs when he said: “The lecture in-person is just an on-campus MOOC, they’re both ancient in style” (Smith, 2015, para.7). For Siemens (in Smith, 2015) MOOCs had not innovated much since their start, they had “stagnated”.

MOOCs were supposed to bring higher education to the masses, to those who were not able to afford it. The MOOC model was supposed to offer a “compelling vision in terms of democratising education”, which would have “a profound impact on pretty much any problem that plagues the world” (Koller, 2015, para.33).

In the words of George Siemens, they were supposed to “encourage the development of learners through open and transparent learning… through continual…improvement (Parr, 2013, para.17).

The failure of the MOOC experiment at San Jose State University and at other institutions (in Australia for instance) has demonstrated otherwise.

Disadvantaged students at San Jose did not appear to be ready for the “commodified, impersonal higher education” (Rees, 2013, para.8) that the MOOCs they took offered. Questioned about their apparent failure, Thrun argued that the medium (MOOC) was not a good fit for this particular [low socio-economic] group (Chafkin, 2013). Schuman (2013) pointed out that those students represented the precise targeted audience for MOOCs.

If those already successful and already able to afford on-campus education were the only university students who could benefit from taking a MOOC, then what is the point? wondered Schuman (2013).

Weller (2013) thought that MOOCs would not work if offered as standalones. He thought however that they could play a supplementary role (Weller, 2013) to a face-to-face programme.

Molly Corbett Broad (2013), President of the American Council on Education stated that as a large majority of university students were non-consumers and non-traditional, the opportunity that MOOCs could provide to those student populations

was still an open question that needed more longitudinal research (Corbett Broad, 2013). Shanna Jaggars, assistant director of the Community College Research Centre at Columbia University's Teachers College argued that it was still too early to really gauge if MOOCs were an effective way of engaging students (Marcus, 2013) in various contexts. She also indicated that more research was needed to investigate whether MOOCs could replace an on-campus education in the longer term.

According to Kris Olds, professor of geography at the University of Wisconsin-Madison, despite the unkempt promises, MOOCs were nevertheless playing unexpected roles related to professional development and personal enrichment (Balenovich, 2014) at some institutions.

So was the MOOC hype over yet? (Borden, 2013) Or was the MOOC format in need of a serious rethink?

According to the Vice-Chancellor of the University of Melbourne (Dodd, 2013), the absence at this stage of development of a clear and sustainable commercial model showed that the hype was indeed finished (Dood, 2013). Koller (2015) argued however that the revenue generated by the Verified Certificates had had positive results as it "climbed steadily from less than 10 percent to roughly 20 percent or 25 percent" since 2014 (Koller, 2015, para.18).

Are we then entering a different and more constructive and reflective phase? Is this the end of the Hype Cycle and the start of the Slope of Enlightenment, as suggested by Koller (2015) and Anderson et al (2015)?

2.28 The Real Value of MOOCs

While earlier section have presented the opportunities for institutions and the learning opportunities MOOCs could provide for academics, a question remains:
What makes MOOCs or more precisely the MOOC model fundamentally valuable?

According to an Enterasys survey, 44 percent of respondents found that keeping up with developments in education was the greatest value of MOOCs.
Raising the visibility of the school was a major benefit for 35 percent, and 15 percent reported that improving the quality of their residential teaching was the most important MOOC benefit (Broughton, 2013).

Another possible main motivation for universities or private providers (in possibly partnerships with industry) to launch MOOCs was to extend reach as well as build, maintain (Hollands, 2014; Jensen and Schuwer, 2015) and potentially improve their brand (Moody's Investor Service, 2012) to attract students (Parr, 2015).
For Aaron Silvers, a designer, technologist and strategist, MOOCs were a great vehicle for brand evangelism (Docebo, 2015).
The partnership between the Bank of America and the Khan Academy to launch Better Money Habits
[https://www.bettermoneyhabits.com/index.html] is such an example, of "PR generation".

According to Ho et al, 2014, despite massive drop-outs and low completion rates, the real value of MOOCs was that some valuable information had been learned by MOOCs participants, without paying thousands of dollars or even having to leave their homes to attend a campus course (Harris, 2014).
MOOCs were nevertheless an “addition to, not a take away from, the education experience” (Hill, 2014, para. 15).

According to Michael Webber, professor at the University of Texas – Austin, the value of MOOCs was in its adaptability, low price, its interactivity and their “potential to replace textbooks” (Hamilton, 2014). A view shared by Levin (2014) and Michael Parker, Assistant Professor of Medicine and the Faculty Director of Online Learning for External Education at Harvard Medical School.

Parker stated that the critical value of MOOCs was mostly to help us re-think the way we teach to better engage students online, “explore creative approaches to conveying the material in a digital format, such as overlays on video or 3D viewing …with the hope of creating an extraordinary end product–one that’s really a living textbook in a way” (Claus, 2014, para.6).

2.29 Conclusion

The literature review chapter has presented an extensive but non-exhaustive review of the literature central to the main research question and sub-question of this study regarding disruptive technologies, MOOCs, their potential to democratise Higher Education and their possible impact (s) on universities, teaching and academics.

In the first section, the main context was set by describing the current U.S. Higher Education economic and business models, identifying the main factors contributing to the overall rising costs of Higher Education, in order to understand why a disruptive technology such as MOOCs would emerge and challenge the status quo.

This first part suggested that changes in Higher Education funding have had major consequences and have deeply impacted on universities and academics (academics contracts often not renewed, increase in adjunct/part-time contracts, administrative costs reduced, etc.), on families and students (higher tuition costs, higher debt), particularly those from low-income backgrounds.

It also reviewed the literature relevant to inequalities in schools and concluded that accessibility, equity and inclusion in American higher education were still worrying but unresolved issues. Research on 21st century higher education demographics was discussed as well as current alternative paths to education and universities for non-traditional students, as traditional university preparation that most graduates receive was found to be inadequate for the incessantly evolving demands of the global job market. Research on the relationship between the Internet, economic development and democracy in developing and developed countries was explored as well.

The second part of the Chapter reviewed the literature pertinent to past (the printing press) and present (social media) disruptive technologies suggesting that their effect on learning, spread of information, scale, cost, societies, control, democratic rights and people were/are consequential.

The characteristics of disruptive innovations were discussed as well as the capacity of online education to increase access and affordability. It was suggested that despite online courses' tremendous potential to match traditional campus-based courses' learning, particularly in a hybrid/blended model, not all the disciplines were suitable to an online environment.

This section introduced Massive Open Online Courses (MOOCs) and reviewed the opportunities and threats they might bring to Higher Education such as modularity, flexibility, the unbundling strategies and their implications. MOOCs seem to be challenging Higher Education Institutions business models, particularly those of Business Schools.

The limited literature related to the impacts of MOOCs on learning, teaching, institutions, and academics was reviewed as it is directly related to the sub-research question of this study, and the main MOOC students' demographics were presented, in an attempt to determine whether MOOC participants were those initially targeted by MOOC developers, explore whether MOOCs were suitable to all learners and

whether MOOCs were challenging Higher Education Institution's one-size-fits-all pedagogical model.

Finally, this section explored MOOCs' real value and whether they could play a significant role in skills / professional development.

The aim of this thesis is to attempt to close the existing gaps in the literature by examining the democratising effect of the MOOC model in various educational contexts and by investigating MOOCs' impact on institutions, teaching and academics.

- Will MOOCs be able to increase access to education in developed and developing countries and bridge divides? (Perris, 2013),
- Will they be transformative in markets where there is not enough capacity to meet demand for university education (Khemkha, 2013; Liyanagunawardema et al, 2013)?
- Will they be a "useful addition to the growing array of educational opportunities" (Hollands, 2014, para. 4) or do they have a more important role to play and a place in the education ecology?
- What threats will they pose to faculty and university teaching?
- Will they destroy Academia (Vardi, 2012)?

Before presenting the findings (Chapter Five), next chapter (Chapter Three) presents the theoretical framework and Chapter Four introduces the research methodology adopted for this study. Critical Theory and Glaserian Grounded Theory were chosen as appropriate to address the Main Research Question (MRQ) and sub-question of this thesis, following a thorough look at the literature.

CHAPTER THREE: THEORETICAL FRAMEWORK

3.1 Introduction

This section presents the theoretical framework and the methodological approach adopted for this study. It discusses four other qualitative approaches originally considered and the reasons why they were discarded.

3.2 Critical Theory

This study is inspired by the work of contemporary theorists such as Freire, (1969), Taylor (1998), Giroux (2003, 2008), McLaren (1994, 2003), Apple (1993, 2004, 2013) and Friesen (2008), applying critical theory to education. Critical theory originated from work produced by members of *Das Institute für Sozialforshung* (commonly known as the Frankfurt School), such as Walter Benjamin, Herbert Marcusse, Jürgen Habermas and Theodor Adorno. The second generation of critical theorists included Henry Giroux, Paulo Freire and Bourdieu. According to Phillips (2000), critical theory has similarities with Marxist theory as it endeavours to highlight inequalities experienced by people in societies (Phillips, 2000). Marxist theory emphasised for instance the mechanisms of control, the division of labour where the ruling class were able to produce ruling ideas, and where working class people did not have the privilege to control or produce any ideas (Marx and Engels, 2002). Rather than focusing on the "notion that class struggle as well as the mechanisms of domination takes place primarily within the confines of the labour process" (Giroux, 2001, p.11), critical theory differs however from Marxist theory in that it focuses on how subjectivities are constituted as part of everyday social practices (Giroux, 2003). Soltis (1992, p.621) argues that using a critical theory approach is often an objective, partisan and politically motivated research approach.

3.2.1 Critical Approaches

The focus of the Frankfurt School's research was on how subjectivity was initiated, as well as the issue of how the spheres of culture and everyday life represented a new terrain of domination (Giroux, 2003). Critical theory provides insights for this thesis through its ability to identify social and cultural dominance, as well as insights into ideology, hegemony (the fact that mostly elite universities dominate the MOOC landscape), dominance, power and subjectivity, often mentioned as criticisms of disruptive technologies in Education (Amory, 2007) and MOOCs. Critical approaches emphasise values such as democracy and emancipation, critically scrutinise the conditions, impacts and the long term direct and indirect causes of such issues and aim at empowering subordinate or minority groups (Kincheloe and McLaren, 2002). Hiltonsmith and Drau (2014) pointed out for instance that higher education was an indispensable component of our democracy (Hiltonsmith and Drau, 2014). Giroux (2003), McLaren (2003) and Apple (2004) provided detailed critiques of curriculum, ideology, western bias and hegemony in educational contexts. Friesen (2008) critiqued for example three myths of e-Learning: the myth of Knowledge Economy, the Anyone, Anywhere, Anytime myth and the Technology drives Educational Change myth, an interesting work which was particularly relevant to this study. McLaren (1994) in Life in Schools: an introduction to critical pedagogy in the

foundations of education, addressed the topic of inequality in the American schooling system (McLaren, 1994), another theme relevant to this study. Critical theory investigates how knowledge is constructed in public spaces and the extent to which inequality and an imbalance of power exists in these spaces, including the Internet. The unequal access to opportunities for personal and professional development is most felt by minority groups in developed countries and a majority of the populations in developing countries. The growing gap between the social classes incited researchers to investigate the root cause of the problem and develop solutions in order to close the socio-economic gap and allow populations to gain equal access to health, education, and career opportunities.

A study by Gaddis (2014) has indicated for instance that black Americans with Harvard degrees were at a disadvantage in the U.S job market and were often offered lower starting salaries than their white classmates, with similar credentials. In short, studies that were guided by the critical theory sought to determine why and how social inequality occurs and identify solutions that could be implemented to diminish it. Antonia Darder (1991) argued for instance that "American schools strongly reinforce an acceptance of differential roles in the economy and society as a just and democratic way of organising social relations" (Darder, 1991, p.6). Critical theory has a dual purpose: a lens and a means. It acts as a lens to view contexts and situations and it is a means to change those contexts or situations (Giroux, 2003)

3.2.2 Critical Theory and MOOCs

In *Ideology and curriculum*, Apple (2004) discussed the neutrality (or absence of it) of curriculum, an issue often raised in MOOC curriculum development (in conjunction with low engagement). Developing countries could for example harness the enormous potential of MOOCs to expand access to quality education at low cost. However, curriculum and pedagogy are often seen as "ideologically laden and potentially perpetuating dominant values" (McLaren, 2003, p.70) with some educators indicating that MOOCs, designed in the West by mostly western academics, could be a new form of intellectual neo-colonialism. Apple (1996) raised significant concerns about reproducing systemic oppressions through hegemonic curriculum.

The issues of voice and active citizenship are also prominent in critical theory studies. Habermas (2003) argued for instance that the inability of individuals to freely communicate their thoughts or participate in public discourse would generate social imbalance, problems and gaps. Paltridge (2006) emphasised that those individuals who had opportunities to openly communicate were in power during discourse. Therefore, the *privileged* controlled and maintained their power over minority groups in social situations. This is crucial for this study as it attempts to investigate whether MOOCs, as they are currently designed, reproduce inequalities, relations of subordination and domination.

In Teachers and Texts: A Political Economy of Class and Gender Relations, Apple (2013) concluded by saying:

> "The new technology is here. It will not go away. Our task as educators is to make sure that when it enters the classroom it is there for politically,

economically, and educationally wise reasons, not because powerful groups may be redefining our major educational goals in their own image" (Apple, 2013, p.174).

The works from these critical theorists mentioned above and particularly Freire (1969), Friesen (2008) and Giroux (2008) have been used to inform the theoretical framework of this thesis, due to the particular nature of the themes they focused on and their pertinent critiques. Finally, this research is guided by the work of Feenberg (2005, p.61):

> "Educational automation decontextualizes both the learner and the educational "product" by breaking them loose from the existing world of the university. The new world disclosed on this basis confronts the learner as technical subject with menus, exercises, and questionnaires"

Feenberg made the case that online teaching is relational and not merely delivery of information. This is the first reason for choosing Critical Theory as this relates directly to MOOCs. The author of this study selected a diverse range of documents (e.g., academic papers, media articles and government reports) from a diverse range of subject areas in order to attempt to capture the competing voices, turmoil and tensions in various spheres that surround Massive Open Online Courses in the global North and South.

The second main reason for choosing Critical Theory (CT) for this study is because C T a) looks at wider contexts such as economic and political influences and impact, b) inquires and questions, c) is concerned with discovering and uncovering, d) critiques, e) challenges, f) deals with issues of democracy, equality and social justice (Nichols and Allen-Brown, 1996) and g) provides alternative ways to look at the world. Critical Theory seems therefore very appropriate to answer the main research question (MRQ) and sub-question that emerged from this study. Glaser (1998) argued against the selection of a theoretical framework prior to commencing a grounded theory study.

Finally, Gibson (in Bryant and Charmaz, 2007) stated that accommodation between critical theory and Grounded Theory (the methodology adopted for this thesis, see below) was possible and often complementary. He said:

> "It is my firm belief that there is nothing to fear in the production of further blends of grounded theory, so long as the origins of the method are clearly recognized". (Gibson in Bryant and Charmaz, 2007, p. 437)

3.3 Research Methodology

This section discusses the rationale behind the choice of methodology for the thesis, examining the "methodological approach and methods", justifies the methods used, considers the context of the research and explains how this influenced the choice of methodology (Louviere *et al*, 2012).

Bryman suggested that a research methodology should be chosen to fit to the nature, purpose, and context of the research in question (Bryman, 2012). In other words, the appropriate methodology is the one that will answer the research question (s) (Holloway and Todres, 2003; McPherson and Leydon, 2002; Holloway and Wheeler, 2013). Trauth (2001) argued that the nature of the research problem should be the most significant influence on the choice of a research methodology. It is also primordial to select one that a) fits the researcher (Walsham, 2006; Fendt and Sachs 2008), b) that offers the greatest amount of freedom in the development of theory (Somekh and Lewin, 2011; Charmaz, 2014) and c) that has a more open approach to data analysis (McCallin, 2003; Boychuk, Duchscher and Morgan, 2004; Heath and Cowley, 2004). Walsham (2006) explained that by choosing a methodology the researcher enjoys and engages with, convincing others of the justification of the methodology became easier.

A qualitative approach was chosen for this thesis: Quantitative researchers tend to express positivist assumptions, while qualitative researchers use antipositivism. The goal of antipositivist research is to understand and interpret behaviour rather than to generalise and predict causes and effects. For an antipositivist researcher it is important to understand "motives, meanings, reasons and other subjective experiences which are time and context bound" (Hudson and Ozanne 1988, p.511). The exploratory nature of the main research question and sub-question guiding this thesis would then suggest a qualitative approach is the most appropriate.

A methodological approach suited to this research was found in Glaserian Grounded Theory. Glaserian Grounded Theory is a conceptual theory that primarily aims to enhance understanding. Stern (1994, p.220) pointed out that "Glaserian grounded theory keeps the attention on the data and asks: What do we have here?" (Stern, 1994): This fits exactly with the current experimental stage of MOOC development (i.e. where emergent but still scarce systematic research exists about the area) and the exploratory nature of this research.

Specifically, Grounded Theory is particularly suitable when "the topic of interest has been relatively ignored in the literature or has been given only superficial attention" (Goulding, 2002, p.55). Grounded theory seeks to discover participants' main concern and explain how participants are engaged in resolving it.

A meticulous search in the literature since 2012 yielded emergent but few academic studies that examined, in depth and from a critical theory perspective, the main research question (and sub-question) formulated for this thesis. Strauss and Corbin, 1990:37-40) suggested that an initial research question was needed in order for a researcher to identify and focus his attention upon the phenomenon he wishes to investigate. They cautioned however against making any assumptions (Strauss and Corbin, 1990) as the research question and sub-questions might evolve, change and become progressively focused. Glaser (1978) argued that it was possible for researchers to enter the field with some concepts in mind or a few clear questions,

as a result of previous training. As mentioned in 1.4, seven guiding questions were originally generated to identify the phenomenon. By moving back and forth between the data collected and analysis using a constant comparative method, an evolved sub-question emerged from the data.

3.3.1 Other Approaches

Four other qualitative approaches, outlined by Creswell (2012) were considered for this study: case study, ethnography, phenomenology, and narrative research.

Before choosing one that would fit the purpose of this thesis, understanding the similarities and differences between these various approaches was (initially confusing) but paramount. A thorough review shows that these methodologies vary in their philosophic assumptions and in their strategies for data collection and analysis.

The researcher briefly introduces/summarises them (below) and explains why they were not adopted for this study.

3.3.1a Case Study: Case studies are frequently used in educational research (Merriam, 1998). According to the literature, the main aim of a case study is to understand a case in depth and in context, recognising its complexity. Yin (2003, p.13), for instance, defines a case study as, "an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when boundaries between phenomenon and context are not clearly evident". According to Merriam (1998), case studies are useful when presenting information about innovative practices and programmes where "little research has been conducted in the past". A [Case study] approach seemed originally to be most suitable for this thesis as the aim of this study is to investigate whether disruptive innovations and particularly MOOCs are needed in Higher Education, the context for their launch and development and their impact on universities.
According to Yin (2003), however, a case study design should be considered when the focus of the study is to answer "how" and "why" questions. According to Stake, (1995; 2013), case study research describes the context and study population (s), discovers the extent to which a programme is implemented, explains the cause of the process and its effect or impact, with a particular focus on "ethnographies or observation of participants". If this study's main research questions included "How to explain MOOCs' massive dropouts?" / Or / "why are MOOCs' business models not sustainable in their current form?" case study research could have been the best option. If the purpose of this study was to investigate a single university (i.e.; staff's experience in designing/students' experience in taking MOOC courses) or compare the implementation/results of MOOCs courses in various institutions, the researcher would have opted for a case study approach. As this study's main focus is to answer a 'to what extent' question, and seeks to understand the wider context and larger picture (economic, political, etc.), case studies research was therefore not considered as the most appropriate for this study.

3.3.1b Ethnography: According to Creswell (2007), ethnography focuses on an entire cultural group (Creswell, 2007). Ethnography is a suitable method to use when describing how a cultural group works and to explore the beliefs, behaviours, language, and issues such as power, resistance and dominance (Creswell, 2007). This methodology has undeniably much to offer to my study as scholarly research on disruptive innovations/technologies is meagre, and as power, hegemony in educational contexts, control of knowledge issues are certainly associated with technology in the literature . However, as participants in my study have 'a range of backgrounds, age, and qualifications and teaching/leadership/administrative experience… to gather a wide range of perspectives' (Santandreu/Ethics form), they can hardly be described as an homogeneous 'cultural group' (Higher education cultural group?). The aim of this study was also to go beyond description and exploration; Ethnography research would therefore not meet the aim of this study.

3.3.1c Phenomenology: The main purpose of phenomenology is to describe phenomena, from the perspective of the individual. According to Denscombe (2003), "phenomenology is an approach that focuses on how life is experienced' (Denscombe, 2003). Phenomenology is concerned with human experience and provides a description of how things are experienced by participants and how people interpret events. According to phenomenology approaches, interpreting events is not an individual experience but rather a sharing with others who are part of that community. Phenomenology could have been the best option for this study if it was focusing on [student experience with MOOCs], as connectivist MOOCs participants [register for a course], [experience a course and reflect on their experience], [share course content and views with other participants]. It could also have been a viable option if this study focused on staff's experience in designing MOOCs. This methodology has, again, much to offer to the author's study, but it was felt that phenomenology may not fully answer the main research question (MRQ) and sub-question and meet the aim of the study.

3.3.1d Narrative Research: According to Creswell (2007) narrative research involves "focussing on studying one or two individuals, gathering data through the collection of their stories and reporting their life stories chronologically as well as the meaning of those stories". According to Clandinin and Connelly (2000) narrative research is best for capturing the "detailed stories or life experience of a single life or the lives of a small number of individuals" (p.20). Adopting narrative research for this particular study could have been possible by selecting a specific contextual focus such as [designers of MOOCs and the chronology of their course (s) design] or [my experience as a participant in MOOCs courses]. However as this study planned to involve more than fifteen participants, narrative research was not adopted.

3.4 Grounded Theory

Grounded theory (GT), developed by Glaser and Strauss in the early 1960s, is a methodology for inductively generating theory (Patton, 1990). Glaser and Strauss' definition of grounded theory is

> "A general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area" (Glaser and Strauss, 2009, p.225).

The "original" Strauss Grounded Theory method was underpinned by the following principles: "(1) the need to get out in the field to depict and understand accurately what was going on, (2) the importance of theory grounded in reality to the development and advancement of a discipline, (3) the nature of experience as dynamic and continually evolving, (4) the active role of persons in shaping the worlds in which they live, (5) the importance of change process, the variability and complexity of life and (6) the interrelationships among conditions, meaning, and action" (Strauss & Corbin 1990, p.90). In addition to these principles, Glaser realised that a systematic set of techniques and procedures for coding and testing hypotheses, generated from qualitative research methods, was needed (Strauss & Corbin, 1990), a series of steps "none of which can be skipped if the analyst wishes to generate a quality theory" (Glaser, 1978, p. 16). A disagreement between Strauss and Glaser led to a separation of approaches. In *Basics of Grounded Theory Analysis*, Glaser (1992), explicitly explained the differences between his conception of Grounded Theory, arguing that his was the "correct one" (Glaser, 1992, p. 6). Despite their differences, both Glaser and Strauss advocated flexibility in the method but strongly argued that the approach and procedures had to followed seriously, otherwise researchers would "end up claiming to have used a grounded approach when they have used only some of its procedures or have used them incorrectly" (Corbin & Strauss, 1990, p. 6). In 2000, Charmaz (2000) developed a *constructivist grounded theory* combining both elements of both Straussian and Glaserian approaches.

Corbin and Strauss (1990, pp.6-12) described the eleven canons and procedures in Grounded Theory:

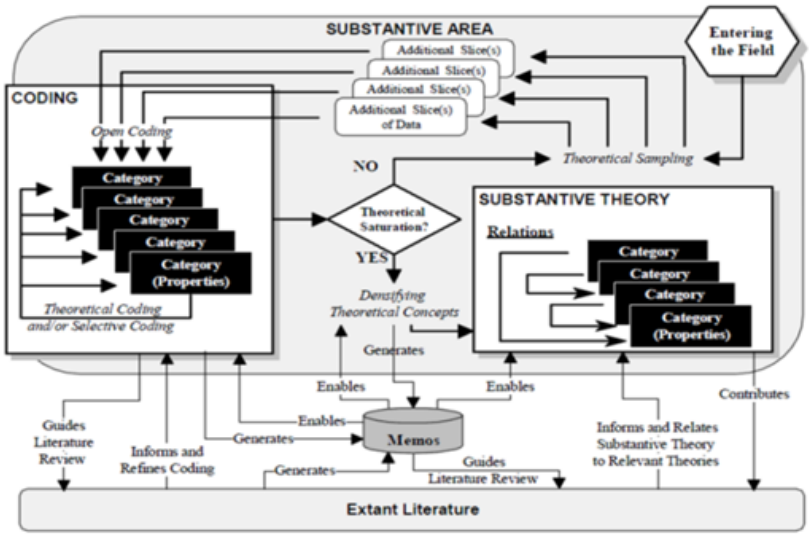
1. Data Collection and Analysis are Interrelated Processes,
2. Concepts Are the Basic Units of Analysis,
3. Categories Must Be Developed and Related,
4. Sampling in Grounded Theory Proceeds on Theoretical Grounds,
5. Analysis Makes Use of Constant Comparisons,
6. Patterns and Variations Must Be Accounted For,
7. Process Must Be Built Into the Theory
8. Writing Theoretical Memos Is an Integral Part of Doing Grounded Theory.
9. Hypotheses About Relationships among Categories Should Be Developed and Verified as Much as Possible during the Research Process.
10. A Grounded Theorist Need Not Work Alone.

11. Broader Structural Conditions Must Be Analysed, However Microscopic the Research.

Martin and Turner (1986, p.143) defined grounded theory as an "inductive theory discovery methodology that allows the researcher to develop a theoretical account of the general features of the topic while simultaneously grounding the account in empirical observations of data". Grounded theory is therefore recommended when investigating social problems or situations to which people must adapt (Corbin and Strauss, 2014). What most distinguishes Grounded Theory from other research methodologies is that the analysis begins when the first bit of data is collected and that it is emergent. Its purpose is not to test a hypothesis. Glaser (1992) stated "it is to discover the theory implicit in the data" (Glaser, 1992, p.2).

The sub-question of this study [What impact will MOOCs have on faculty, teaching and universities?] exemplifies the choice to use GT.

One simple way of representing the grounded theory process is found in Fernández (2004), Figure 3-1.
Figure 3-1: Grounded theory research model



Source: Fernández, W. D. (2004). Using the Glaserian approach in grounded studies of emerging business practices. Electronic Journal of Business Research Methods, 2(2), 83-94. *Used with permission of Sue Nugus (21/10/2015)*

Fernández and Lehmann (2005, pp.79-107) suggested seven principles (reproduced below) to assist in the adoption of Grounded Theory, which are most relevant to this current study of MOOCs, in the midst of their development and with the absence of extensive scholarly literature relevant to the MRQ and sub-question:
1. Tolerate confusion—there is no need to know a priori and no need to force the data;
2. Tolerate regression—the researcher might get briefly 'lost' before finding his or her way;
3. Trust emerging data without worrying about justification—the data will provide the justification if the researcher adheres to the rigor of the method;

4. Have someone to talk to—Grounded Theory demands moments of isolation to get deep in data analysis and moments of consultation and discussion;
5. Be open to emerging evidence that may change the way the researcher thought about the subject matter, and to act on the new evidence;
6. Be able to conceptualise and to derive theory from the data; and,
7. Be creative—devising new ways of obtaining and handling data, combining the approach of others, or using a tested approach in a different way.

Grounded theory (GT) is therefore a continuous approach, where there is a constant collection, constant comparison and constant analysis of data. This was Modus Operandi for this study. The value of GT is not on producing and verifying facts, but is in "generating concepts that will have different meanings to different people, and that the final theory is open to modification and new data" (Breckenridge & Jones, 2012).
The Grounded Theory Institute [http://www.groundedtheory.com/], (managed by Glaser), advocates this as the basis for the creation of a new theory.

3.4.1 Why Glaserian Grounded Theory?

Creswell (2002) described Glaserian Grounded Theory' objective as an explanation of "a basic social process through a constant comparative analysis of coding, in which incidents are compared to incidents, incidents to categories and categories to categories. The focus is on connecting categories and emerging theory, not on describing categories".
While Grounded theory facilitates the move from a description of what is happening to an understanding of the process by which it is happening (Strauss and Corbin, 1990; Corbin and Strauss, 2014), the rationale to adopt Glaserian GT was that:

- Glaserian grounded theory is concerned about the broader contextual environment that influences the phenomenon, which is reflected in the MRQ and the sub-question.
- GT seems to be compatible with the epistemology of social constructivism (and connectivism), which underpins Massive Open Online Courses pedagogy. Crotty (1998) stated that "the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context"

According to the Glaserian method, the researcher does not begin with a precise research question, but probes a "larger area". By asking the question [Have disrupted innovations arrived at the gates of Academia?] instead of [Will MOOCs transform Higher Education] and by first skimming the literature (entering the field), more flexibility is allowed as the problem is not preconceived, does not start with a theory to prove, disprove or extend (Fernández, 2004) but will emerge as the researcher will investigate, collect and analyse the data. The purpose of grounded theory is to generate a set of integrated hypotheses that offer theoretical

propositions rather than proven fact. “That is all - The yield is only hypotheses” (Glaser, 1992, p. 16).

Going against one of the basic tenets of Grounded Theory, Cuttcliffe (2002) argued that prior reading may be required if the researcher wished to clarify concepts and build an emergent theory. Glaser and Strauss (2009) cautioned however about the covering of too much literature (Glaser and Strauss, 2009). Glaser (1992) suggested that the literature should be turned into part of the data collection process. The author of this study therefore did a preliminary review of the literature, and followed Heath and Cowley (2004)’s recommendation: “more focused reading only occurs when emergent theory is sufficiently developed to allow the literature to be used as additional data” (Heath and Cowley, 2004, p.143).

The most distinctive difference in types of Grounded Theory approaches lied in the way literature should be approached and how data should be analysed. Glaser (1978) strongly advocated the need to “wait” before conducting a thorough literature review until initial findings had been made in order to not influence the researcher with preconceived ideas and ensure that concepts are relevant and fit. A review of the literature should be undertaken only when core categories, patterns and concepts emerged. Glaser (1992) stated however than great amounts of literature in unrelated fields could be read to foster theoretical sensitivity.

Glaser also postulated that "data emerged” and thus would present a similar picture of facts to every researcher.

A grounded theory is directly related to the data from which it has been generated; it is therefore grounded in the data. Two types of theory are distinguished: substantive and formal theory. Substantive theories provide a theoretical interpretation or explanation for a particular area, in other words this type of theory is used to explain and manage problems in a specific setting. This study has developed a substantive theory as the collection of data and their interpretation focused on participants’ perception and views on MOOCs potential to democratise Higher Education in their contexts.

Glaser and Strauss (1967, p. 237) provided guidelines for measuring the empirical grounding of a grounded theory. These can be summarized as follows: (1) Fit – does the theory fit the substantive area in which it will be used? (2) Understandability – will non-professionals concerned with the substantive area understand the theory? (3) Generalisability – does the theory apply to a wide range of situations in the substantive area? (4) Control – does the theory allow the user some control over the “structure and process of daily situations as they change through time”?

Sherman and Webb (1988, p.151) identified six categories including the degree of fit (derived from the data and not forced), functionality (explains variation in the data and the interrelationships among the constructs), relevance (immediate recognition by the participants in the study of the importance of the phenomenon), modifiability (accommodate the fluctuating nature of the phenomenon), density ("possesses a

few key theoretical constructs and a substantial number of properties and categories"), and integration (a systematic relationship between the constructs and propositions).

3.4.2 Critique of Grounded Theory

Grounded Theory is an established research method that attempts to develop theory that is grounded in participants' experiences. There are however a number of divergent opinions and views on Grounded Theory (GT) in the research literature. The main criticism relates to the lack of conformity of some GT aspects to traditional conventions of academic research, such as inductive/deductive inquiry as well as determining sampling, coding techniques and data analysis. While Glaser advocated a more structured style of coding and analysis, Strauss adopted a more interpretative theory development style. The rigor of grounded theory, particularly related to reflexivity, whose purpose is to increase transparency and trustworthiness has also often been criticised in the literature. Glaser (1978) warned the novice researcher to acceptable to start with purposeful sampling, however, the researcher must revert to theoretical sampling where the "process of data collection is controlled by the emerging theory" (Glaser, 1978, p. 36). Others such as Kemmis (1995) suggested that reflexivity might not produce better results. There is also increasing criticism, particularly in relation to axial coding which is considered to be excessively formulaic and at risk of forcing the data (Bryant and Charmaz 2007). The validity and reliability of the findings in this study are based on the rigorous "constant comparative method" (Glaser & Strauss 1967) which encouraged the author to focus on the concerns that emerged as critical for the participants. .

3.5 Summary

This chapter has presented the theoretical framework adopted for this study. Next chapter (Chapter Five) presents the research design and rationale, data sources, data collection and data analysis procedures that will be used in this thesis.

CHAPTER FOUR: RESEARCH DESIGN AND METHODOLOGY

4.1. Introduction

This section describes the instruments and methods used to gather the qualitative data used in this thesis. Using a qualitative approach and based on a preliminary search of the literature, the author of this thesis designed a series of open-ended interview questions (Appendix A). Questions were constructed in order to elicit relevant answers that would effectively shed light on the democratising effects and potential impact (s) of MOOCs on universities, teaching and academics.

To select interviewees, the author of this study began by contacting academics and senior administrators in my LinkedIn network. The author also did a Google /Google Scholar search using key words such as *MOOCs* and *disruptive innovations in Education* to find relevant recent literature and participants from the Global North and Global South who would provide a unique perspective and insights, from several angles, on their educational context (s). The Global North includes the economically-developed North America, Western Europe, and Australia, amongst others, the Global South includes Africa, The Middle East, India, and China amongst others. A preliminary search of the literature had indicated that there were certain contradictory views in different educational and research contexts, particularly between countries in the Global North and the Global South, in relation to the democratisation effects of Massive Open Online Courses. One of the purposes of this study was to attempt to clarify it. According to Morse (1995) and Patton (2002), there are no definite or standard rules for sample size in qualitative inquiry, and "what can be done with available time and resources" (Patton, 2002, pp.242-244) needs to be taken into consideration. As this study was self-funded, the author employed purposive, expert and opportunity sampling to save time and resources. Merriam (2009, p.6) indicated that selecting a sample "from which one can learn the most" was necessary. The number of participants (18) was determined by the achievement of 'theoretical saturation' better described in the context of this study by "saturation of knowledge" (Bertaux 1981, p. 37). According to Guest et al (2006) study on sampling in qualitative research, saturation of knowledge refers to the point at which patterns emerge from the data, information or themes become redundant or no new information or themes can be observed in the data. Guest et al (2006) indicated for instance that saturation may occur within the first six to twelve interviews. As certain themes and issues developed and as the author kept reading the published literature, the author tried to contact interviewees whose expertise, opinions and experiences with MOOCs were assumed to be different or contradictory (because of their educational context or geographical location) from those of early participants (Ritchie et al, 2013). The major limitation of this research was however gaining access to faculty/university leaders in various geographic zones that had experience in/gone through MOOC design/courses. The willingness and capacity of some of the potential participants to answer questions within the timeframe in relation to MOOCs was also impeded. One potential participant from New Zealand, a published academic on the use of e-technologies in education

answered for example: "*I have considered the possibility, but given the in-depth nature of the questions, and the need to give decent answers, I'm afraid I don't have time right now*". As this is a relatively new research topic, some did not have the relevant experience or expertise to answer the questions raised in this study and add to the data. An Australian participant, a senior academic specialising in virtual worlds, replied: "*I have not had that much experience with MOOCs other than assisting in the development of a prototype MOOC, which is currently undergoing piloting with a restricted audience. So not sure how much value I can add to your research*".

4.2 Participants and sampling

The author identified and contacted by email thirty eight potential participants (P) in five continents. The selection criterion for participants was purposive (Huberman and Miles, 2002). Eighteen participants from nine countries and nine institutions were available during the interview period, had the relevant expertise to answer the questions and agreed to be interviewed. The research design was innovative because the scope of the research extended across different countries (global South and North) and included different views (academic/management/corporate), providing a global perspective often missing in similar studies. A recent data analysis of the MOOC Research Initiative (MRI) by Gašević *et al.* (in Siemens and Dawson, 2015, p.169) indicated that "the majority of the authors of the proposals submitted to the MRI were from North America, followed by the authors from Europe, Asia, and Australia" pointing out to "a strong population bias". They recommended more research in other parts of the globe when they concluded by saying: "In the future studies, it would be important to investigate whether this trend still holds and to what extent other continents, cultures, and economies are represented in the MOOC research". One of the main motivations of this study was to gather a global perspective on MOOCs, from a range of geographical locations, with their own local context and issues. Questions such as "can MOOCs help solve the skills' gap?" for instance would elicit very different answers if you consider contexts such as rural Australia or students originating from townships in Cape Town or if you interview a participant from a top-tier University in the U.S., Australia or the UK. As this study is self-funded, fifteen interviews were made on Skype to save travel costs. Glaser and Strauss (1967) advocated the use of "theoretical sampling" to first select participants for their theoretical relevance and second structure the data process: the "*where next* in collecting additional data, the "*for what"* following the emergence themes and codes, and the "*why" deriving from* the analysis of the memos."

The author, based on a] his twenty + years' experience in academia, learning and teaching and senior management at various universities (Hong Kong and Australia) and b] a preliminary review of the literature, determined if participants had the credentials, expertise, insights and/or background to provide the level of response needed to answer the main research question and sub-question of this thesis and ensure the results of this research would hold upmost relevance. Sixteen of the interviewees were involved in research. Fourteen of the participants were faculty members (one semi-retired) of which, six had senior administrative duties and two were also international educational consultants, one was a senior administrator, one

was an eLearning manager in a corporate setting, one was an academic developer and one an educational technologist.

Table 4-1 summarises interviewees' gender, the interview date, and the participants' current role (academic/administrative) as well as the where they are currently based.

Table 4-1: Participants in In-depth-interviews and their affiliation

Participants	Gender	Date of the interview	Academic/Administrative title	Medium	Country
Participant 001 **P001**	M	03/09/2014	Lecturer	Skype 49:49	Australia
Participant 002 **P002**	M	08/09/2014	Director	Skype 38:28	USA
Participant 003 **P003**	M	11/09/20014	Professor	Skype 49:45	France
Participant 004 **P004**	M	16/09/2014	Emeritus Professor	Skype 49:23	South Africa
Participant 005 **P005**	F	23/09/2014	Emeritus Professor Educational Consultant	Skype 36:42	Abu Dhabi
Participant 006 **P006**	M	24/09/2014	Dean	Skype 44:01	Australia
Participant 007 **P007**	M	25/09/2014	Associate Professor	Skype 47:50	USA
Participant 008 **P008**	M	25/09/2014	Academic Developer	Skype 34:48	UK
Participant 009 **P009**	F	26/09/2014	Director	Skype 31:22	South Africa
Participant 010 **P010**	M	30/09/2014	e-Learning Manager	Skype 41:29	Australia
Participant 011 **P011**	F	02/10/2014	Principal	Skype 39:28	USA
Participant 012 **P012**	M	07/10/2014	Professor	Skype 33:06	UK
Participant 013 **P013**	M	15/10/2014	University Vice Chancellor	Face-to-face at conference	Brunei Darussalam
Participant 014 **P014**	M	15/10/2014	University President	Face-to-face at conference	Russian Federation
Participant 015 **P015**	M	15/10/2014	University Chancellor	Face-to-face at conference	India
Participant 016 **P016**	F	Received on 12/11/2014	Teaching Fellow	Questions answered in writing (email)	UK
Participant 017 **P017**	M	Received on 02/12/2014	Educational Consultant	Questions answered in writing (email)	USA
Participant 018 **P018**	M	Received on 03/12/2014	Research Fellow	Questions answered in writing (email)	Australia
Total Number of participants: 18	**14M 4F**	**Sept-Dec 2014**	**Total Number of universities**: 9	**12 Skype calls 3 face-to-face 3 emails**	**Total Number of countries**: 9

4.3 Method

Twelve interviews were conducted between September 2014 and October 2014 on Skype (six countries) using a semi-structured format with probing sub-questions (Appendix A). A semi-structured interview protocol gave the possibility to deviate from the primary questions and allowed the author to use clarifications and elaboration probes to better understand interviewees' responses and follow up interesting ideas from the participants. Following Glaser's (1998) approach, the use of semi-structured, neutral interview questions were crucial to ensuring that they did not guide data collection. Three participants were interviewed in October during a QS conference panel discussion (QS in Conversation) in Brunei Darussalam (from three different countries) and three interviewees (P016-P017-P018) answered the

questions by email (between November and December). The twenty-three questions were divided into three parts (B/C/D, Table 4-2 /Appendix A), part A focused on demographics. They firstly addressed the participant's general views on disruptive innovations in education and on Massive Open Online Courses (MOOCs, the main example of this thesis) in particular; the challenges MOOCs face and their limits; their disruptive impact and the role MOOCs (could) play in the current education landscape; the interviewee's experience with MOOCs, as designer, critic or participant; and the interviewee's viewpoint on other (current or future) more disruptive technology-mediated learning approaches. The second part of the interview focused on disruptive technologies' democratising impact to reduce inequalities. MOOCs' potential for remediation, corporate learning and skills; the characteristics of MOOCs, including choice, flexibility, interaction and collaboration; the last part of the interview addressed their impact on HE and its delivery, academics and students and the participant's analysis of the future of MOOCs.

Table 4-2: Interview questions

THEME	INTERVIEW QUESTIONS
A. Interviewee Background	1. How long have you been in your present position /at this institution? 2. What is your highest degree? 3. What is your field of study? 4. Briefly describe your role as it relates to teaching, administration, research, technology and student learning (if appropriate).
B. Disruptive technologies	5. What are your views on disruptive innovations in education? 6. What are your views on (Massive Open Online Courses) /MOOCs? 7. Do you think MOOCs are the new model of education? 8. Do you think MOOCs can replace traditional 'bricks and mortar' higher education? 9. What do you think are the biggest challenges of the MOOC format? 10. Do you consider that there are other technology-mediated learning approaches that are going to be more disruptive than MOOCs?
C. Democratisation of education	11. To what extent, do you think, might disruptive technologies democratise higher education? 12. Do you think MOOCs have a 'remedial' potential? 13. Can MOOCs revolutionise corporate learning & development? 14. Can MOOCs solve the 'skills gap'? 15. What are your views on giving students the opportunity to select study programmes themselves, rather than being selected by institutions? 16. Do you think MOOCs promote collaboration and interaction in learning or do MOOCs hinder it? 17. What worries you about MOOCs? 18. Do you think MOOCs will help reduce inequalities?
D. Impact	19. What impact do you think MOOCs will have on higher education and its delivery? 20. What impact do you think MOOCs will have on academics? 21. Do you think students' expectations in higher education changed / will change because of MOOCs? 22. Do you think MOOCs will de-skill and de-professionalise academia?

	23. What is, according to your analysis, the future of MOOCs?

In total around nine hours of interview data were transcribed verbatim.

To ensure a rigorous analysis process, the author used an inductive approach to identify the research problem from the research participants' perspective.

The author started by immersing himself in the data, made initial manual notes and looked for interrelationships, patterns and prevalent themes. The author used *in vivo* codes to elicit data from participant's perspectives and to distance himself from the literature, open coding (highlighted broad concepts using colours, Word document) and axial coding to identify meaningful groups that captured an important element for each participant. Axial coding involves rebuilding the data by establishing relationships between categories and their subcategories. Axial coding involves making connections *iteratively* amongst the categories and the subcategories and *conceptually* grouping similar codes. Glaser (1972) advocated the use of a constant comparison method to elicit categories and properties. Individual tables were created. Codes were checked with published literature to identify links, concepts and similarities. The author was on alert to anything in the data that might reinforce or refute these concepts. A few codes didn't seem to fit in any of the themes, didn't have enough data to support them or were redundant. They were discarded. Part 1 (below) addresses the main research question, Part 2 addresses the sub-question. A substantial number of indicators related to the MRQ emerged from the interviews, as shown in Table 5-1 (Northern hemisphere in red) and by number of occurrences in Table 5-2. Table 5-2 indicates which indicator belongs to which theme. Participants (P) were given a number to ensure anonymity. Participants who mentioned the indicators were added to the table to show the occurrence of the theme.

4.3 Research Design and Rationale

Creswell (2012) argued that looking "for the complexity of views" was the goal of social constructivism (Creswell, 2012). Merriam (2009, p.5) pointed out that qualitative research's focus on "understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" and this is what guided this study. Qualitative research is, in other words, a "situated activity that locates the observer in the world" (Denzin and Lincoln, 2011, p.3). The author of this thesis was/is an observer in the education world but he was not a *participant observer* of this study as this study is not an ethnographic study. Hennink, Hutter and Bailey (2010) and Saldaña (2012) noted that coding was often "subjective" as we brought our subjectivities, our assumptions and personalities to the process, that were further influenced by the methodological approach used, and the researcher's set of beliefs and feelings about the world (Denzin and Lincoln, 2008). The author of this study had to be aware of the coding "filters" which may affect how data were perceived, documented and coded. During data collection and analysis, the author kept these filters in check by constantly looking at other published sources of data that supported the interpretations and by discussing informally with other researchers at conferences. The author was also

aware of the notion of *positionality* (Merriam *et al*, 2001). Merriam *et al.* (2001) indicated that positionality was decided by the closeness or farness at which one stood in relation to 'the other'. As the author works in Australasia for the last 20 years and established contact with various senior administrators/ scholars associated with learning and teaching units and university policies - decision-making bodies, locally and internationally, it could be argued that this gave an "insider" status vis-à vis the tertiary learning and teaching culture of this study's participants. Banks (1998) described four levels of positionalities (indigenous-insider/ indigenous outsider / external-insider and external-outsider) or insider/outsider statuses that varied and often "shifted" (Merton, 1972; Merriam *et al*, 2001) depending on how "close" to a group, community or a culture a cross-cultural researcher was. Banks (1998) cited Merton (1972) and argued that both insiders and outsiders were necessary in the process of "truth seeking". Merton (1972, p.22) stated for instance that one could become "fully aware" of the life of a group "symbolisms and socially shared realities", "understand the meaning of values, behaviours and feelings only if the person had been "socialised in the group", in other words only if he/she was an insider. As distance constantly adjusted depending on various factors (years spent working in a different educational context in another country for example) a cross-cultural researcher could, at various moments, be both insider and outsider. According to Banks (1998, pp.7-8)' typology of cross-cultural researchers, the indigenous-insider "endorses the unique values, perspectives, behaviours, beliefs, and knowledge of his or her indigenous community and is perceived by people within the community as a legitimate community member who can speak with authority about it'. Chavez (2008) argued that much can be drawn from being an insider but warned against a few methodological complications inherent to "insiderness" such as the difficulty to sometimes "detach" oneself from the group under investigation (p.478). Chavez (2008) also referred to the shifting "closeness" which might be influenced by social differences (age, gender, expertise, geographical region, etc.) and indicated that both insiders and outsiders were not free of subjectivity. In the context of this study for example, the author's experience in academia, learning and teaching and senior administration in the last two decades in various countries (as frequent visitor or resident, which, technically, made him an external-outsider) helped build rapport with participants and provided multiple levels of insights that facilitated the interpretation of their experiences, insights and contexts. In that sense the author was what Banks (1998) described as an indigenous-insider. As the author spent most of his professional career in various Asian countries and Australia and "experienced high levels of cultural assimilation into an outsider culture", he could also be considered as an indigenous-outsider. According to Banks (1998) external-outsiders may have more objective views. The author has "partial understanding" of the Bruneian, Indian or South African contexts and he was "socialised" in the past within those communities by working with colleagues from those regions. In summary, being both an insider and an outsider gave the author an objectivity balance to counteract the coding filters and subjectivities that might have arisen from the analysis of the data.

4.4 Research Questions

According to King and Horrocks (2010, p.26), "the research question for a qualitative interview should not focus on establishing causal relationships or generalised patterns of behaviour. What it should focus on is *meaning* and *experience,* with reference to a particular group of participants". Glaser (1992) recommended that the initial research questions for any study had to be emergent, either from the interviews with the participants or from the background literature. Originally, the research questions for this study were designed as follows:

1 Are Higher Ed economic and business models no longer adequate?

2 Can the university's traditional and dominant role as creator and exclusive provider of knowledge, skills and credentials be questioned (Mazoue, 2013)?

3 What impact will MOOCs have on faculty, teaching and universities?

4 Can MOOCs expand access to education?

Nine guiding questions were also originally generated to refine the study. The review of the literature helped identify important gaps but while the focus of this thesis was considered to be right, the scope was found to be too broad for this thesis and as some of the research and sub-questions seemed to focus on causal relationships, they were discarded. According to King and Horrocks (2010), when the research questions are too broad, they may in effect be unanswerable. The author narrowed down the scope using a constant comparative process. As the aim of qualitative research is to investigate the meaning of social phenomena as experienced by the people themselves (Malterud, 2001),

The Main Research Question (MRQ) and sub-question of this thesis that emerged from initial discussions with participants and from the gaps identified in the background literature were therefore:

> **MRQ: [To what extent might disruptive innovations democratise access to Higher Education?]**
>
> **Sub-question**: What impact will MOOCs have on universities, teaching and academics?

4.5 Data Sources

Multiple data sources were used in this study to enhance rigour and data credibility (Patton, 1990; Yin, 2003; Baxter and Jack, 2008; Thomas and Magilvy, 2011). The principle of theoretical sampling (Glaser and Strauss 1967) was used. Theoretical sampling involves the purposive selection of participants with characteristics that could potentially contribute to developing analysis, theories and explanations. Constraints of time, costs and the availability of participants limited however the extent to which theoretical sampling was carried out.

Eighteen participants were interviewed (on Skype and face-to-face) and the author triangulated the data to validate it and confirm inferences by searching for evidence in previous published research studies and using different independent informants at conferences with experience in and expertise on MOOCs. The open panel

discussion in Brunei Darussalam was such an example as the author sought the same information from different sources, three participants from three different institutions from three different geographic locations. The audience composed of senior and frontline academics and senior administrators was also invited to share opinions and views. The author also sought feedback from this study's participants. The aim was to strengthen the findings of the research (Miles and Huberman, 1994; Punch, 1998).

Researchers conducting qualitative studies must expect to be "overwhelmed with the sheer volume of data" (Glesne and Peshkin, 1992) but nevertheless want to collect as much data as they can that will "allow them to capture all of the elements of an event" (Sandelowski, 2000, p.336). The author of this thesis collected every relevant document (press articles, peer-reviewed academic papers, interviews, podcasts/videos, books, etc.) available online between 2012 and 2015, without any *a priori* assumptions, concepts or models to minimise bias. It was "time consuming, intimate and intense" (Patton, 2002) but as Baxter and Jack (2008) argued, each data source is crucial as it is one piece of the puzzle, with each piece contributing to the researcher's understanding of the entire phenomenon (Baxter and Jack, 2008). According to Nagel *et al*. (2015, p.372), "a priori grounding in literature has been recognised as being virtually inescapable since all researchers come to the field of inquiry with some level of exposure to literature". Others such as Hart (1998) argued that a prior literature review helped the researcher to think rigorously about the topic, to narrow the focus of the topic, define the research question (s), select a theoretical framework, and justify the research methodology. This goes contrary to what Glaser (1998) advocated. According to Glaser, the literature should be discovered as the theory is (Glaser, 1998, p.69). As the author of this study had to develop a research proposal that met UWE's academic requirements, which involves an analysis of the published literature in order to identify and map out what is existing knowledge and gaps, propose a methodology and theoretical framework to be used, the author carried out a preliminary literature review in the area of interest.

4.5.1. Data Collection Procedures

The researcher is the principal instrument for data collection and analysis (Merriam, 2009). Qualitative data was collected to answer the Main Research Question and sub-question outlined in this thesis. Maxwell (2012) argued that the strengths of qualitative research derived primarily from its inductive approach, its focus on specific situations or people, and having its emphasis on words rather than numbers.

The method used to gather data in this study was a mini demographic survey and individual semi-structured interviews on Skype with each selected participant. The main purpose of theoretical sampling is to collect data in order to facilitate development of theory. According to Flick (2014, p.11) "the goal of research is less to test what is already known (e.g.; theories already formulated in advance): rather it is to discover and explore the new and to develop empirically grounded theories" (Flick, 2014). The selection criterion for participants was purposive (Huberman and Miles, 2002) in that participants needed to be involved with or have an expertise on technology-enhanced learning, online education, blended learning, disruptive innovations or MOOCs, either in postsecondary institutions or in a corporate setting to get various perspectives. They also had to be located, have experience or have

worked in different geographical zones, in the global North and the global South: Issues such as literacy, democracy, social justice, access, equality as well as institutional, social and political realities while presenting similarities in various countries often differ in terms of context, history and local realities.

Interview questions were kept simple and brief (Kvale, 2008). McCracken (1988) suggested that the interview format should use probes which give structure to an interview and allow participants to use their own voice to relate experiences. Patton (2002, as cited in Merriam, 2009) suggested six types of questions that can be asked in interviews.

1. Demographic questions: descriptive questions about the personal characteristics of the participants: age, education, income, occupation, etc.
2. Experience and behaviour questions: they focus on the interviewees' experiences, behaviours or actions
3. Opinion and values questions: Questions that ask about what the participants think about the topic as well as their beliefs regarding the topic. "In your opinion…"
4. Feeling questions: they focus on participants' emotional experiences. "How did you feel when…? " How did you feel about it?"
5. Knowledge questions: Questions about factual information the participants hold.
6. Sensory questions: Questions about sensory aspects of their experience (s).

This research study used 1/2/3/4/5. For [1] participants were asked for instance how long they have been in their present position, what their highest degree and field of study was as well as some brief details on their role at their current institution.

Interviews on Skype used a guided conversation/ collaborative conversation format, often used in grounded theory methods, were focused and kept short, as all of the participants were/are based in different geographic zones and the interviewer was mindful of time differences (very early morning/late evening). The order and coverage of questions/topics varied slightly in each interview. Where relevant issues related to this study's questions were not spontaneously described/addressed by participants, the author rephrased the questions and used probes to direct the participants toward these issues. Interviews varied in length (31 minutes to 50 minutes). Flexibility to accommodate participants was primordial as many are in senior (academic and/or administrative) positions and therefore not available for a second interview within the time frame of this study. Three participants answered the questions in writing and three participants were interviewed at an international conference. All the interviews calls were made from the author's professional office, at the author's university in Hong Kong (Hong Kong Baptist University), to ensure anonymity, high-speed Internet and quietness. Participants were either at their professional office desk or at home, depending on the time of the call. Each participant was asked to send informed consent form (duly signed) prior to the interview and was assured, before the start of each interview, that confidentiality would be maintained and that the author would not intentionally misrepresent them

(Kvale, 2008) or cause any harm. Permission for recording occurred prior to the start of each interview and participants were informed that the interviews would be transcribed verbatim for use in this study. However, as two interviews were sometimes slightly *off* subject, with non-specific answers, they were not transcribed in their entirety and this did not affect the analysis of data as the [off] parts were mostly not related to this study. Instead, the author transcribed only key relevant aspects of the two interviews related to the MRQ and sub-question and used written notes taken during and immediately after the interview. Additional motes were taken after subsequent listening of the audio recordings. Fasick (2001), Wengraf (2001) and Halcomb and Davidson (2006) indicated that this method was often superior to the exclusive use of a verbatim-transcribed audio recording.

Few of the participants asked for the questions beforehand. Two academics sent informed consent to allow themselves or the interviewer to post the interview online "for public, open consumption". One edited interview was posted on Marcel Salathe's WIRED Innovation Insights' community blog:

http://insights.wired.com/profiles/blogs/moocs-and-disruptive-innovation-in-higher-education-an-interview#axzz3F3X3hqHH

A second edited interview with Prof Remi Bachelet was posted on LinkedIn:

https://www.linkedin.com/pulse/article/20141106072100-20256867-democratising-effects-and-impact-of-moocs-on-higher-education

An open panel discussion, chaired by the interviewer, on [*To what extent might MOOCs democratise Higher Education?]* was organised during QS in Conversation conference in Brunei Darussalam (15 October 2014) with three participants and the edited version of the conversation can be found at:

https://www.linkedin.com/pulse/article/20141114063639-20256867-to-what-extent-might-moocs-democratise-higher-education-a-panel-discussion?trk=prof-post

All participants were reminded of the purpose of the study and of the main research question at the beginning of each interview. Skype interviews were audio-recorded using the Voice Memo function of the author's iPhone 5c. There were a few issues with sound during the interviews and videos had to be turned off for some of the interviews. Notes were taken and initial coding (descriptive codes) was done during each interview. According to Saldaña (2012), a descriptive code is often a word or a short full sentence that can be put in the margin. He stated that coding was often done during and after collection of data, he warned however that a descriptive code was often only a "summary" of the data not a "reduced" form of it. Miles and Huberman (1994) argued that data reduction could also be done before and during collection of data. A Hyundai Digital Intelligent Voice Recorder was trialled prior to the first interview but the sound quality was far from optimal. It was nevertheless kept as back-up. The convenience to email the voice memos immediately after each interview to the author's personal email address was also an important factor in choosing to use an iPhone. Recordings were downloaded to a password-protected office computer right after each interview and deleted from the server and the

iPhone. Recordings were transcribed verbatim with the help of Express Scribe Transcription Software Pro v 5.69. The software allows the increasing or decreasing of the speed of the recording to facilitate typing. At the end of each Skype call, preliminary notes were locked in the author's personal office locker. In addition, each individual involved was immediately given a number (i.e. Participant 001, etc.), in order to ensure confidentiality and privacy in reporting.

4.5.2. Data Analysis Procedures

Data analysis involves organising what has been read, heard and possibly seen so that sense can be made of what has been learned (Glesne and Peshkin, 1992). It also involves "transforming data into research results" (LeCompte, 2000, p.2). Charmaz (2014) suggested that concepts earned their way into the theory through emergence or construction (Charmaz, 2014; Glaser and Strauss, 2009; Glaser, 1978, 2007)

The analysis of each transcribed interview followed a process of data reduction, data display and the drawing of conclusions outlined by Miles and Huberman (1994). The phase of data reduction from interview transcripts sought to simplify and organise the data into more easily manageable components. The process of simplifying the data involved the use of first-level and second-level coding approaches (Punch, 2013). First-level coding involved examining small parts of text and identifying concepts contained in what was said by interviewees. The data was further simplified through the use of second-level coding. This involved examining the first-level descriptive codes and clustering similarly coded units together into categories (Strauss & Corbin, 1998) themes or "families" (Saldaña, 2012), as they shared characteristics. A third level of coding was done to further simplify the data, in which similar conceptual categories were further clustered and given a more abstract third-level conceptual label (See Chapter Five, Figure 5-2, for an example). As this study is not using a quantitative research design, extraneous variables such as gender were not studied. The author was aware that it could affect the results and validity.

The phase of data display involved the mapping of second-level categories and third-level categories on a chart into a compact form. As grounded theory is known as "the constant comparative method of analysis" (Glaser and Strauss, 1967), the chart provides a map, a visual representation of how categories relate to each other, similarities, patterns and differences which help to identify the key themes emerging from interviews.

Data analysis took place throughout the data collection process as the author worked to listen and re-listen analytically to the (Skype) calls (and audio-recordings), taking notes and *a priori* codes. In addition, each interview was immediately transcribed and analysed so the researcher could clarify and probe regarding data collected and follow up by email/Skype if necessary. Kvale (2008, p.1) said: "If you want to know how people understand their world and their life, why not talk to them?" Seidman (2012) recommended conducting several interviews. Due to time constraints and the availability of the interviewees during the time of the year when interviews took place (start of the academic semester), it was considered very difficult to do a second round of interviews. The time spent between interviews was spent transcribing, constantly comparing/contrasting notes and refining questions that focused on the issues raised by the participants. Creswell (2012) noted that the researcher takes qualitative information apart while looking for categories, themes

or dimensions of information. In LeCompte (2000, p.2) words “analysis is a bit like taking apart puzzles and reassembling them”. Patton (2005) explained that qualitative research is “an effort to understand situations in their uniqueness as part of a particular context and the interactions there” (Patton, 2005, p.1).
When all interviews were completed, the author first read each interview transcript separately, without taking any further notes. The author then read interview transcripts from all participants as one document, again not marking or taking any notes. The author then re-read the interview transcripts and made a record of key terms, themes, and ideas, making a separate table for each interviewee (on Word). Conceptual memoing or the use of reflective and theoretical notes was also used to capture the observations (patterns, significance, and uniqueness) and ideation of the emerging theory and allowed the author to keep track of frequency of the concepts that emerged from the data. The process was to capture thoughts and “identify inconsistencies, contradictions, gaps in data and emerging consensus on key concepts and relationships” (Glaser, 1992, p. 5), in a few sentence or a paragraph. The process of memoing continued until the end of the study. Glaser (1978, pp.83-84) described the memoing process as "the theorising write-up of ideas about codes and their relationships as they strike the analyst while coding ... memo can be a sentence, a paragraphs or a few pages ... it exhausts the analyst momentary ideation based on data with perhaps a little conceptual elaboration". He further argued that “the writing of theoretical memos is the core stage in the process of generating grounded theory. If the researcher skips this stage by going directly to sorting or writing up, after coding, she is not doing grounded theory’ (Glaser, 1978, p.83). For instance memo DS20150132: “Noticed that quite a few participants mention political and power struggles within their institutions. Haven’t originally thought of that in the context of MOOCs. Seems to be more prominent in the global South though, Need to explore this further. I should probably follow up with participants by email”
Wolcott (1994) noted that noteworthy data should be placed in broad categories to provide a “good description” of the issue under study. After making these separate tables (In Word) based around the major guiding research questions, the author compared the tables, using a *constant comparative method* (Merriam, 2002), making again note of words, terms, themes, and ideas that appeared in more than one of the respondents’ interviews. Constant comparison was used to establish analytic distinctions, elicit new dimensions (codes) which in turn leads to the identification of conceptual categories. Categories were then be further refined. It is important to indicate that indicators were compared as a means of generating and saturating categories and their properties until no other dimension emerged from the data, indicating theoretical saturation.

As Holliday (2002) pointed out, the iterative nature of the inquiry adds to the complexity of the task. After recording the key words and key comments from each of the interviews into the respective tables using (Text Highlight) colour codes, the author then combined the results into two combined tables (one for the MRQ and another for the sub-question) and looked for common words, topics, concepts, and themes that emerged with regard to the Main Research Questions and the sub-question According to Merriam (2002, p.14), qualitative data collection and analysis are “simultaneous” (Merriam, 2002). She defined the constant comparative method

as “continually comparing one unit of data with another in order to derive conceptual elements” (p.8). For Strauss and Corbin (1998), grounded theory study inclined the researcher to look for, and interpret data as elements in a “conditional/consequential matrix” (Strauss and Corbin, 1998). The data collected was brought together, clustered under headings, main themes were identified (as explained above, see Chapter Five, Figure 5-2, for an example) and triangulated manually (as described above) for analysis to address the overall research question: To what extent might disruptive technologies democratise Higher Education? And the sub-question related to the impact MOOCs would have on academics and universities. Creswell (2012) and Crabtree and Miller (1999, p.267) indicated that triangulation is a process that “involves corroborating evidence from different sources to shed light on a theme or perspective”, in order to create evident connections.

The phases in this study were:

1. Data collection
2. Note-taking
3. Coding
4. Memoing
5. Sorting
6. Writing

The entire process was done a second time to ensure that the author took a reflective stance, was critical of his own research methodology, that his preconceptions, understanding of the literature and his knowledge of the topic had not skewed the analysis and forced the data.

4.6 Trustworthiness

The trustworthiness of qualitative research is often questioned (Shenton, 2004) as it is considered not as rigorous as quantitative research (Ryan-Nicholls and Will, 2009). Guba's (1981) model is widely accepted as the best response to the critics. It identified four aspects of trustworthiness that are relevant to both quantitative and qualitative studies: (a) truth value, (b) applicability, (c) consistency, and (d) neutrality. Lincoln and Guba (1985) pointed out the importance of internal validity, external validity, reliability and objectivity when it comes to establish a sound criterion of trustworthiness in a study (Lincoln and Guba, 1985). In other words, has the researcher spent enough time with participants to build trust and time collecting data to establish confidence in the truth of the findings/credibility? (Lincoln and Guba, 1985; Glesne, 1999)

In the case of this study, the author felt that the time spent with each participant was sufficient to collect data, as no fixed time limit was set (either by the author or the participants) prior to any of the interviews. For instance two of the participants mentioned earlier had few insights about the sub-question and the conversation was brought to a close. Most of the interviews flowed like an engaging conversation and ended naturally, the author was attentive however to any sign of impatience or annoyance from the interviewees.

4.7 Transferability

Transferability refers to the degree to which the findings can be applied to other contexts and settings or with other groups, the ability to generalise from the findings to larger samples. Patton (2002) was for instance concerned about the small samples often used in qualitative methods and the "impossibility of generalising" (p.243-244). Sandelowski (1986) argued however that transferability is often not possible because every research situation is made up of a particular researcher in particular interactions with particular interviewees. Transferability is therefore not seen as very relevant to qualitative research because its main purpose is to describe a phenomenon or an experience, not to generalise to others. Lincoln and Guba (1985) noted that transferability is more the responsibility of future researchers to transfer the findings than that of the researcher of the original study. They argued that as long as the original researcher presents sufficient descriptive data to allow comparison, he/she has addressed the problem of transferability, as is the case in this thesis.

4.8 Neutrality

How to define neutrality? According to the Oxford English Dictionary (2014): Impartiality; the quality or state of not supporting either side in an argument; the state or character of being neutral (Oxford Dictionaries).

Can we guarantee absolute neutrality in our interpretations and analyses and particularly when using Critical Theory? Can critical theorists be neutral? According to LeCompte (2000):

> "Good qualitative data are as unbiased as possible. However, because such data are collected by human beings, and because people are interested in certain things and not others, selections are made" (LeCompte, 2000, p.2)

A qualitative research approach can be criticised for being subjective, "in large part because the researcher is the instrument of both data collection and data interpretation" (Patton, 1990, p.54), as was the case in this study. Qualitative research implies being fully immersed with the topic but there is a need to "detach from it" and constantly ask questions about the research to avoid biases (Maykut and Morehouse, 1994; Glesne, 1999; Diebel, 2008). In other words, interpretations and analyses should constantly be kept in check/monitored (Rose, 1985). As the author was aware of this when conducting the research, he also kept in mind that phenomena can also get distorted by participants' own biases. Rose (1985, p.77) stated: "There is no neutrality. There is only greater or less awareness of one's biases. And if you do not appreciate the force of what you're leaving out, you are not fully in command of what you're doing". To enhance the validity of the data, the author therefore checked for representativeness of data, ensuring that at least two participants from each geographic zone and a different level of expertise were interviewed to get a clearer and more complete picture of the phenomenon. The author constantly compared and contrasted data and cross-checked it with newly published research. The author also sought feedback from participants as evidenced earlier in the published interviews with participants.

As mentioned above, the author of this thesis used theoretical sampling as the process for collecting data for generating theory and purposively selected the participants. The *checking* process continued after each interview until reaching theoretical saturation. During the interview process, the author was also constantly aware to minimise leading questions as these can elicit responses that are biased (Kvale, 2008). And "if bias creeps in, then it will surface as another category by constant comparison and saturation" (Glaser, 2007, p.150) and this is exactly what was experienced with this thesis.

Objectivity is the criterion of neutrality and is achieved through rigour of methodology through which validity and reliability are established (see below). Objectivity also refers to the proper *distance* between researcher and participants. The researcher in this thesis did not "set out to prove a particular perspective or manipulate the data to arrive at predisposed truths" (Patton, 2002, p.51). The author did however adjust categories to fit the data (Merriam, 2002). Finally, Glesne (1999) declared:

> "Your responsibility is to do the best that you can under certain circumstances. Detailing those circumstances helps readers to understand the nature of your data" (Glesne, 1999, p.169)

4.9 Validity and Reliability

4.9.1 Validity

Validity in qualitative research has to do with whether descriptions and explanations fit, in other words, accuracy and comprehensiveness of the data (Janesick, 1994; Kvale, 2008).
Shenton (2004, pp.64-69) outlined strategies to ensure internal validity:

1. Triangulation: the use of multiple data sources and methods to validate the collected data
2. Member checks: asking interviewed participants to evaluate the researcher's interpretation of the data
3. Peer scrutiny: allowing colleagues new or familiar with the research to comment on emerging findings
4. Researcher 'reflective commentary' or 'reflexivity': the process of the researcher reflecting upon the research process, potential biases and assumptions

In this study, the researcher

1. Triangulated the data to confirm inferences as well as ensure validity and reliability. As "many sources of data were better in a study than a single source because multiple sources lead to a fuller understanding of the phenomena you were studying" (Bokdan and Biklen, 2003, p.107), besides interviewing participants, the researcher reviewed other data such as past relevant interviews and articles of the participants (on video/posted on websites), published reports, peer-

reviewed articles, conference proceedings, and rechecked multiple sources of data (literature review)
2. Informed participants about the availability of transcripts of interviews
3. Discussed emerging findings with academic colleagues at conferences and informally
4. Kept notes and mind maps to reflect on the process (Hesse-Biber and Leavy, 2006).

4.9.2 Reliability

The researcher plays a major role in qualitative research (Patton, 2002). Reliability in qualitative research differs however from reliability in quantitative research. Most quantitative researchers recognise and document the worth of a study by assessing the consistency and the reproducibility of the results (Krefting, 1991; Joffe, 2011; Bogdan and Biklen, 2003; Kvale, 2008). In qualitative research however, and as described in Transferability (above, 4.7) "rather than insisting that others get the same results as the original researcher, reliability lies in others' concurring that given the data collected, the results make sense, they are consistent and dependable" (Merriam, 2002, p.27).

Strauss and Corbin (1998, pp. 17-19) proposed seven criteria (reproduced below) which allowed the emerging theory to be validated:

"Criterion #1: Are concepts generated? If concepts are drawn from common usage (such as, "uncertainty") but are not put to technical use, they are not parts of a Grounded Theory, for they are not actually grounded in the data themselves".
In this study, the five thematic categories and the 6 emergent themes were grounded in the data from participants, as shown in the two tables below.

"Criterion #2: Are the concepts systematically related? The key to scientific research is systematic conceptualisation through explicit conceptual linkages".
The Schema of the findings of this research related to the Main research Question (below) shows how concepts ate systematically related.

"Criterion #3: Are there many conceptual linkages and are the categories well developed? Do the categories have conceptual density? A Grounded Theory should tightly relate categories to one another and subcategories in terms of the basic paradigm features-conditions, context, actions/interactions (including strategies) and consequences".
The Schema of the findings of this research related to the Main research Question (below) indicates how categories are tightly related to each other, either to a broader theme or a subtheme, contexts for each concept is presented as well as its interactions. Consequences are presented at the bottom of the schema.

"Criterion #4: Is there much variation built into the theory? A Grounded Theory should be judged in terms of the range of variations and the specificity with which they are analysed in relation to the phenomena that are their source".

Variation is built into the theory by providing a conceptual model which can be modified and adapted according to a variety of contexts. Themes and subthemes are relevant to online learning environments in disadvantaged contexts in developed and developing countries.

“Criterion #5: Are the broader conditions that affect the phenomenon under study built into its explanation? Any Grounded Theory publication that omits the broader conditions or fails to explicate their specific connections to the phenomena under investigation falls short in empirical grounding”. A thorough literature review presenting the rationale for this research, a clear methodology as well as a wide range of participants from the North and South were used to clarify the phenomenon under study.

“Criterion #6: Has "process" been taken into account? Identifying and specifying change or movement in the form of process is important to Grounded Theory research. Process may be described in terms of stages or phases and as fluidity or movement of action/interaction overtime in response to prevailing conditions”.
The process of using Critical Theory and Grounded Theory was explicit from the start of this study. Examples were given to illustrate how themes emerged from the data and how critical theory framed the development of the model.

“Criterion #7: Do the theoretical findings seem significant and to what extent? The question of significance is generally viewed in terms of a theory's relative importance for stimulating further studies and explaining a range of phenomena”.
Significance and contributions of this study to the literature are presented at the end of the Findings Chapter. There are significant as they will inform MOOC design for various contexts.

4.10. UWE Ethical Approval

The University of the West of England (UWE Bristol) Ethics Committee approved the author’s study on July 2nd, 2014. All interview participants received a [participant information sheet] and signed a [consent form]. Copies of these (blank) forms are in Appendix B and C of this thesis. The data collection phase did not identify any of the participants, beyond their educational and academic level.

4.11 Summary

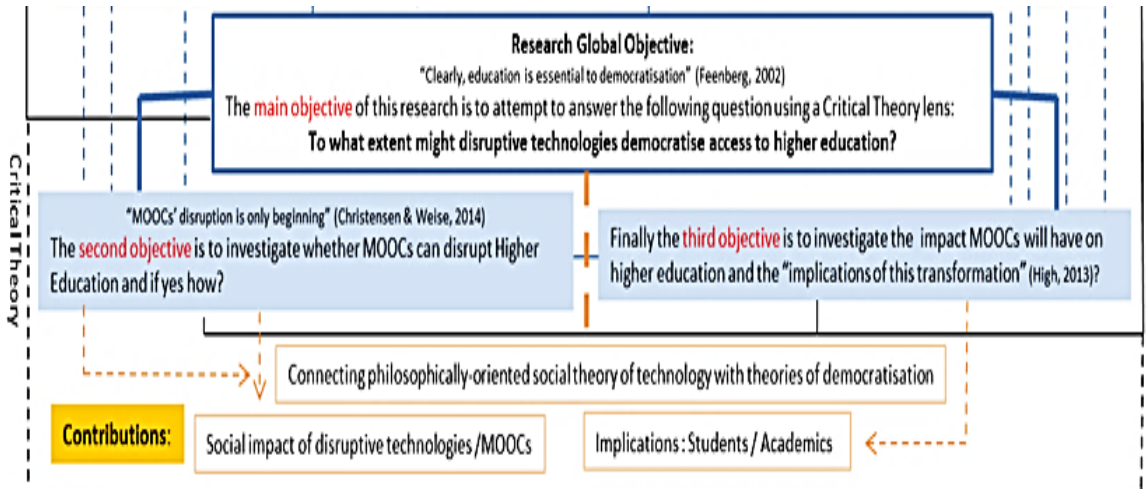
This section described the instruments and methods used to gather the qualitative data used in this thesis. It also discussed trustworthiness, neutrality, transferability validity and reliability.
Next section (Chapter Six, Findings) presents the findings generated from the eighteen qualitative interviews related to the Main Research Question (MRQ) and the sub-question.

CHAPTER FIVE: FINDINGS

5.1 Introduction

Chapter Five focuses on the data generated from the interviews relevant to answering the Main Research Question of this thesis [**To what extent might disruptive technologies/MOOCs democratise access to Higher Education?]** and the sub-question [**What impact will MOOCs have on faculty, teaching and universities?**]. This Chapter is divided into two parts. Part 1 will address the MRQ. Part 2 will examine the sub-question. Figure 5-1 summarises the main objectives of this study.

Figure 5-1: Schema of the main objectives of this research



As mentioned in Chapter Five, the researcher started by immersing himself in the data, made initial manual notes and looked for interrelationships, patterns and prevalent themes. The researcher used open coding (highlighted broad concepts using colours, Word document) and axial coding to identify meaningful groups that captured an important element for each participant. Axial coding involves making connections *iteratively* amongst the categories and the subcategories and *conceptually* grouping similar codes. Individual tables were created. A few codes didn't seem to fit in any of the themes, didn't have enough data to support them or were redundant. They were discarded. Part 1 (below) addresses the main research question, Part 2 addresses the sub-question. A substantial number of indicators related to the MRQ emerged from the interviews, as shown in Table 5-1 (Northern hemisphere in red) and by number of occurrences in Table 5-2. Table 5-2 indicates which indicator belongs to which theme. Participants (P) were given a number to ensure anonymity. Participants who mentioned the indicators were added to the table to show the occurrence of the theme.

5.2 PART 1: To what extent might disruptive technology democratise access to higher education?

Table 5-1: List of emergent indicators from in-depth interviews (See Appendix E, p. 360)

Table 5-2: Occurrences of indicators and how they relate to the themes

INDICATORS	Occurrences		Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6
Technological determinism	1	GN:1						
Inevitability of disruption	8	GN:5 GS:3						
Power relationships	8	GN:5 GS:3						
Geopolitics of knowledge	8	GN:5 GS:3						
Knowledge production and knowledge dissemination	8	GN:5 GS:3						
Developing countries	8	GN:5 GS:3						
Political will	8	GN:5 GS:3						
Ideologies	8	GN:6 GS:2						
Knowledge produced from the north	8	GN:5 GS:3						
McDonaldisation of knowledge	8	GN:5 GS:3						
Self-regulation	12	GN:9 GS:3						
Expert student	12	GN:9 GS:3						
Postgraduate	12	GN:9 GS:3						
Self-directed	12	GN:9 GS:3						
People who take these opportunities already have higher education degrees	12	GN:9 GS:3						
Interest rather than qualification	12	GN:9 GS:3						
Novice students	12	GN:9 GS:3						
Struggling	12	GN:9 GS:3						
Scarcity	12	GN:8 GS:4						
Selectivity	12	GN:8 GS:4						
Barriers to access	13	GN:9 GS:4						
Not great for rural/regional students	13	GN:9 GS:3						
Won't solve the problem	13	GN:9 GS:4						
Part of new model of education	13	GN:9 GS:4						
Mixed feelings	13	GN:9 GS:4						
Not 100% on board	13	GN:9 GS:4						
Lack basic skills	13	GN:9 GS:4						
Resource intensive	13	GN:9 GS:4						
Less suited for low level skills	13	GN:9 GS:4						
Challenges around Cost	13	GN:9 GS:4						
MOOCs will increase Inequality	13	GN:9 GS:4						
An opportunity	13	GN:9 GS:4						
Improving skills	13	GN:9 GS:4						
Flexibility	13	GN:9 GS:4						

Credentialing	**13**	GN:9 GS:4						
Digital literacy	**13**	GN:9 GS:4						
Fundamental literacies	**13**	GN:9 GS:4						
Skills	**13**	GN:9 GS:4						
Access to education and skills is only possible with the use of online technologies	**13**	GN:9 GS:4						
Affordability crisis	**13**	GN:9 GS:4						
Choice	**13**	GN:9 GS:4						
Limits in terms of technology	**13**	GN:9 GS:4						
Hard work and not cheap	**13**	GN:9 GS:4						
Very promising	**13**	GN:9 GS:4						
Numeracy and quantitative literacy underdeveloped	**13**	GN:9 GS:4						
Community colleges won't benefit much	**13**	GN:9 GS:4						
MOOCs wouldn't Replace HE	**14**	GN:10 GS:4						
Assist with Democratisation	**14**	GN:10 GS:4						
Not good for disengaged students	**14**	GN:9 GS:5						
Unequal educational system in the US	**14**	GN:10 GS:4						
Wealthiest have access to highest quality	**14**	GN:10 GS:4						
Not everyone has equal chance of finishing	**14**	GN:10 GS:4						
MOOCs won't do much to enable a larger Segment to participate	**14**	GN:10 GS:4						
MOOCs will not in itself democratise HE	**14**	GN:10 GS:4						
MOOCs as a catalyst	**14**	GN:10 GS:4						
Access vs completion	**14**	GN:10 GS:4						
MOOCs will help Replace a HE Experience in Developing countries	**14**	GN:10 GS:4						
Social mobility	**14**	GN:10 GS:4						
Equality of access vs equality of opportunity	**14**	GN:10 GS:4						
MOOCs replace courses	**14**	GN:10 GS:4						
Treat everybody the same	**14**	GN:10 GS:4						
Remedial potential	**14**	GN:11 GS:3						
MOOCs don't have an important remedial role	**14**	GN:10 GS:4						
Equal treatment	**14**	GN:11 GS:3						
Equal chance of access and equal voice	**14**	GN:10 GS:4						
Knowledge for democratisation	**14**	GN:10 GS:4						
More access to cultural and social capital	**14**	GN:10 GS:4						
Poor job in graduating students	**14**	GN:10 GS:4						
Disadvantaged backgrounds	**14**	GN:10 GS:4						
Convert access into value	**14**	GN:10 GS:4						

Collaboration and equality	**14**	GN:10 GS:4						
Quality dependent on family income	**14**	GN:10 GS:4						
Levelled playing field	**14**	GN:10 GS:4						
Main impact is lifelong learning	**15**	GN:11 GS:4						
Absence of peer learning	**17**	GN:13 GS:4						
Learning analytics	**17**	GN:13 GS:4						
Insights	**17**	GN:13 GS:4						
Pairing MOOCs with existing access programmes	**17**	GN:13 GS:4						
Quality	**17**	GN:13 GS:4						
Relationship	**17**	GN:13 GS:4						
Utilise MOOC as a tool	**17**	GN:13 GS:4						
Class experience Is missing	**17**	GN:13 GS:4						
Relationship with the educator	**17**	GN:13 GS:4						
Education is not transmitting content	**17**	GN:13 GS:4						
Scaffolding	**17**	GN:13 GS:4						
Design	**17**	GN:13 GS:4						
Adaptive and customizable pathways	**17**	GN:13 GS:4						
Scale	**17**	GN:13 GS:4						
Competency-based learning	**17**	GN:13 GS:4						
Educational value of MOOCs	**17**	GN:13 GS:4						
Blended learning	**17**	GN:13 GS:4						
Human mediation	**17**	GN:13 GS:4						
Heavily mediated online pedagogy	**17**	GN:13 GS:4						
Peer to peer interaction	**17**	GN:13 GS:4						
Conventional MOOCs do not provide mediation	**17**	GN:13 GS:4						
Balance between education and entertainment	**17**	GN:13 GS:4						
Demanding	**17**	GN:13 GS:4						
Reflection	**17**	GN:13 GS:4						
Brain power	**17**	GN:13 GS:4						
Overwhelmed	**17**	GN:13 GS:4						
Learning opportunities	**17**	GN:13 GS:4						
Experience in working online	**17**	GN:13 GS:4						
Learning-enabling technologies	**17**	GN:13 GS:4						
Presence-based learning	**17**	GN:13 GS:4						
Experimentation	**17**	GN:13 GS:4						
Corporate MOOCs	**17**	GN:13 GS:4						
Sequencing	**17**	GN:13 GS:4						
Emotional support	**17**	GN:13 GS:4						

Strong interactive work	**17**	GN:13 GS:4						
Support	**17**	GN:13 GS:4						

GN = Global North
GS = Global South

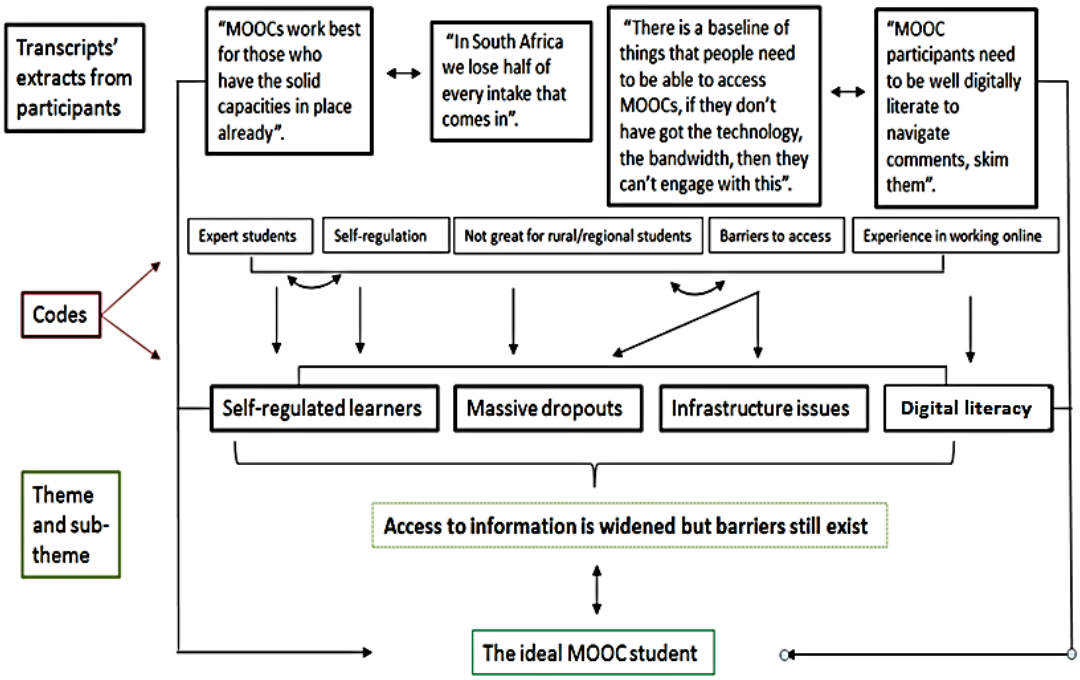
5.3 Emergent Themes

Following an initial review of the literature, the author carefully read through the transcriptions, searched for commonalities and identified the themes that recurred in the data. Five thematic categories were derived from the indicators, by using a constant cross comparison method (Merriam (2009) (See 4.5.2 Data Analysis Procedures for more details) :

- Infrastructural issues,
- Social issues,
- Political issues,
- Design issues and
- Pedagogical issues
-

Through a constant process of comparing incidents and codes, which helped to reduce and refine, patterns were discovered. Six emergent themes were then established. Some codes were based on descriptive phrases used by the interviewees such as “McDonaldisation of knowledge” or “Hard work and not cheap”. The themes were broken into subthemes that reflected the nuances in the data (codes that had a similar meaning, but were worded slightly differently were grouped together as “major” codes then themes that attempted to capture the essence of these codes e.g. “struggling” “novice students”, “disengaged students” and “lack of basic skills” into “Self-directed, self-regulated postgraduate students are the ideal audience”). Another example of the constant comparative process is shown in Figure 5-2.

Figure 5-2: Example of the constant comparative process used in this thesis



Themes were then reviewed and cross-compared with existing/emerging literature (and previous interviews as frame of reference) and additional coding appeared to add more content to existing themes and subthemes, rather than creating additional themes. Interviewees' responses are not necessarily exclusive to a particular category and there is some overlapping.

- Access to information is widened but barriers still exist
- Access versus success and social mobility
- Power relationships and geopolitics of knowledge
- Specific courses might be substituted
- Design, human mediation and scaffolding are critical
- Self-directed, self-regulated postgraduate students are the ideal audience

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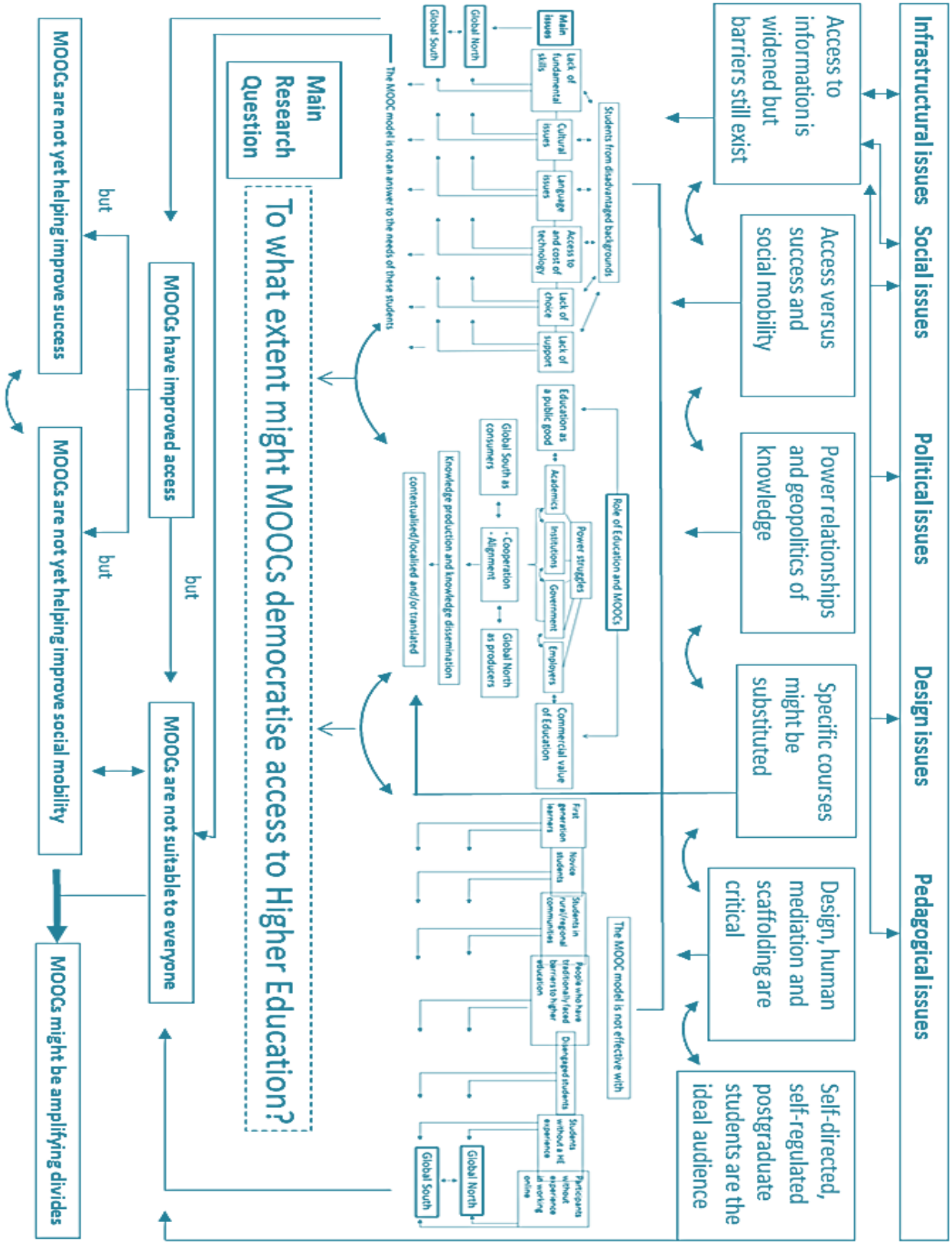
These incidents in the data informed therefore the development of codes, which further informed the development of theoretical concepts. Concepts were also continually compared with the incidents of data and literature to inform memos. This helped in the development of the theoretical concept as the code needs to "earn its way into the theory" (Glaser 1978, p. 57). Theoretical saturation was reached when, despite looking for additional participants who may have different perspectives, no new insights were being provided for the thematic categories.

Figure 5-3 describes the data as a network and shows relationships and causal chains between the five overall thematic categories (**in bold**) and the emergent themes. The five thematic categories and the six emergent themes earned their way into the developing model as they reflected the participants' perspectives on their experiences.

An explanation of the schema is presented in the themes below and further detailed in the discussion (Chapter 6).

Figure 5-3: Schema of the findings of this research related to the Main research Question.



Infrastructural issues

5.3.1 Theme 1 - Access to information is widened but barriers still exist

There was a clear agreement of views among interviewees from the Global North and South as to whether MOOCs were democratising Higher Education to those who most needed it, the undeserved in Higher Education, in developed and developing countries. In this study and in contrast with a number of articles in the published literature, it was noted that very few participants mentioned cost and access to technology.

An interviewee from the UK observed that there was "*a baseline of things that people need to be able to access MOOCs, if they don't have the technology, the bandwidth, then they can't engage with this*" (P008).

To tackle the access issues and allow students to access online courses, an Indian participant (P015), Chancellor of a major university in India, decided to bring the technology and Internet access directly to those living in low density and rural areas: "*we realised that access to education and skills would only be possible with the use of online technologies, we have actually created mobile vans, equipped with computer systems connected to the Internet, going to every small city, students go to the vans and they can attend some of our online courses*" (P015).

One interviewee stated that MOOCs could in some difficult and fragile contexts be the only way to many from developing countries to access any quality education at all. He also pointed out that in some countries there were not enough university places for qualified secondary students: "*when you are a student in Africa and you want to learn, MOOCs will help replace a higher education experience because you have no other choice*" (P003).

An American participant echoing participant P003's comments remarked that the traditional system of education in most developed countries did not currently provide enough access for everyone "*brick-and-mortar institutions cannot scale to provide either current or future levels of access to the masses of potential students who would benefit from higher education*" (P014). A view shared by participant P004 when he said: "As you know, *we only have 23 higher education institutions in the country with another two just very very tiny just being added. There a few private institutions that are very small. Most of them are in the urban areas. So the access for people in rural areas which is a huge part of the population and indeed in many townships is very low*".

What is interesting in this data is that participants' concerns was on the level of preparedness to use MOOCs for learning.

While an Australian participant said he was "*not a 100 percent on board*" and argued that "*MOOCs on their own won't solve the problem*", an exasperated participant based in Cape Town (South Africa) strongly felt for instance that the all too often heard rhetoric from MOOC developers that stated that MOOCs would be the solution to most developing countries' access to higher education issue was not only quite erroneous but misleading, as it gave false hopes.

He stated: "*MOOCs are the way to civilise Africa to get first world education into Africa, all of these poor people who don't have had access, it's the new saviour is coming our way. Well, I must say that I don't think we see it that way. MOOCs can add to our stock of educational opportunities in a very nice way, but to assume that they are going to be that panacea is entirely wrong*" (P004). According to this participant, MOOCs designed in the West/North would play a very minor role to help resolve "*our major educational problems*". The majority of South Africa's tertiary institutions' population came from "disadvantaged *educational backgrounds*", from rural areas or townships, with often low levels of English and with a lack of basic skills and experience in reading or analysing "*sophisticated texts*". He said: Students "*would almost certainly never have written an essay in their life*" (P004) and for these reasons MOOCs would not be appropriate.

There was also a large agreement among participants from both the Global North and South that MOOCs were offering unique learning and access to content opportunities as they offered *"people around the world the opportunity to engage with some of the best minds, the best ideas, and the best people in higher education"* (P012). This was an opportunity to listen to/take world-class courses many would not have had otherwise. One participant from France stated that "3*5 percent of our participants are from developing countries. So clearly for them, it's an opportunity*" (P003). He clearly highlighted however that despite the opportunities given to people and despite the small number of success stories often advertised in the media, the real picture was somewhat different: "*So, let's make it clear: we are not teaching the farmer in Africa. Let's be realistic. We are improving the skills of people who already have a lot of things"* (P003)*.* In his view, MOOCs' participants already had skills, access to education and were from higher socioeconomic backgrounds. He further explained that those best able to take the opportunity of free online education were *"those who already are the best. So we are improving the best*" (P003). He mentioned that those who already had the intellectual capabilities to be accepted at good universities would improve even further and benefit from the opportunities offered by MOOCs, while the others in the global North or global South who had faced difficulties in their educational journey would be left behind, as most MOOCs, despite being free were not "accessible" to them.

One American interviewee (P002) confirmed previous interviewees' arguments when he stated that MOOCs, despite providing "*wider access to the material*" (P006), "*won't do much to enable a larger segment of the student population to participate in the highest quality educational activities*" (P002), such as networking, academic advising or face-to-face group projects.
This might in fact be increasing inequality (P002), as both educational experiences (on campus and online) would not be equivalent, potentially promoting a two-tiered system,

- a campus-based education for those who were able to afford it and those who had the skills to cope, and
- the other tier consisting of low and no-cost MOOCs for those who didn't have the choice.

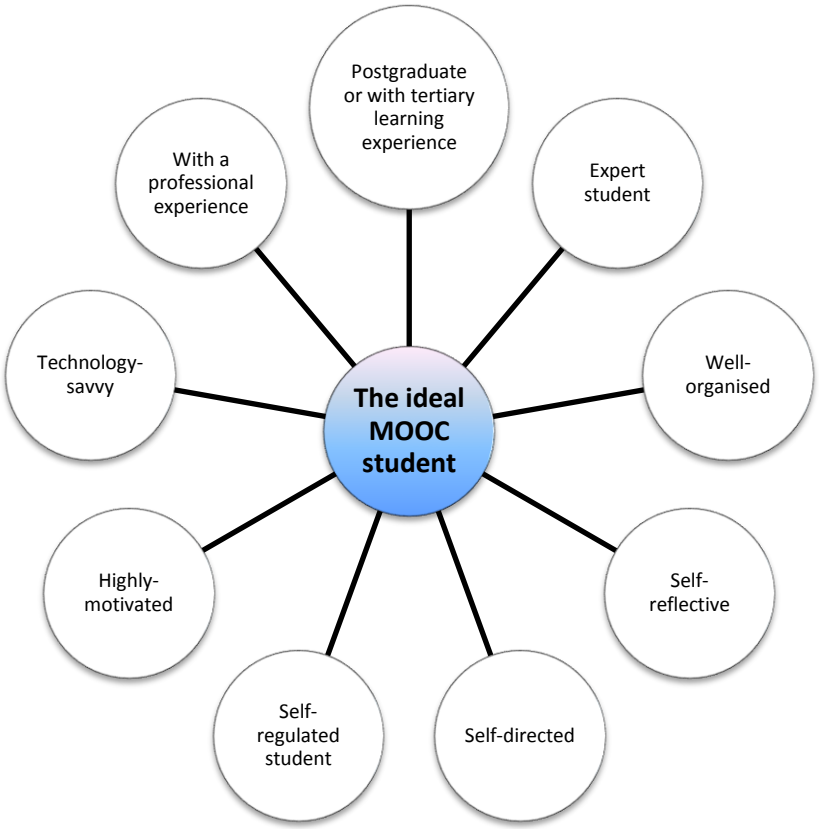
Participant P004 from South Africa echoed this opinion when he argued that even the best students in his institution would face tremendous hurdles with MOOCs. He said: "*These kids are often very bright; they are top 10 percent of our youth. But they need the teaching that they haven't had at school…80 percent or more of our population do not have English has their home language… it just doesn't work*".
In fact, one participant based in the UK (P016) stated that MOOCs were increasing access to people who already had access to higher education, confirming earlier comments by interviewee P003, but they were not widening or broadening access to the others, those most desperate for education.
This in fact further increased the gap between *the haves* and *the have-nots*.
For one participant (P012), the main opportunities brought by disruptive technologies lied in enabling "*people to access higher education wherever they are, wherever they have a need, to be able to access resources, be able to access courses, and particularly to be able to engage in a community of other learners, who are exploring, engaging in taking courses online"*. While an American participant (P002) suggested that MOOCs could be a "*catalyst to take active steps*" towards democratisation of Higher Education, an Australian interviewee argued that MOOCs "*might help fulfil a gap in availability of materials and channels for self-directed learners to collaborate but it's hard to see how they will do much more than that*" (P018).

According to the Southern participants in this study, the MOOC model did not however seem to fulfil all the opportunities mentioned above and be adequate to a large proportion of their student population.

5.3.1a The ideal MOOC student

Most interviewees, from the global North or South, from HE institutions and the corporate sector, acknowledged that MOOCs were best suited for highly motivated and self-directed students, those capable of identifying and reflecting on their learning needs, those with the ability to work independently in an online-based course, as indicated in Figure 5-4. The most surprising aspect of the data is in the part related to professional experience.

Figure 5-4: The ideal MOOC student



One interviewee, a MOOC pioneer in France, designer and MOOC facilitator stated that 85 percent of the students in his MOOCs were not undergraduate or postgraduate students but rather experienced working professionals (P003) who sought to upgrade their skills.

According to most interviewees from the North and the South, the archetype MOOC student was a well-organised mature student who already had a tertiary learning experience, possibly coupled with the maturity of a few years of professional experience. He/she was technology-savvy and knew how to navigate the intricacies of working and interacting online with other people. According to one interviewee, students needed to be "*digitally literate to navigate comments and skim them*" (P016), as many MOOC participants would post comments on the discussion board or create new threads. In some contexts, in the global North and South, where primary and secondary schooling had not helped learners develop/polish fundamental skills, where the use of computers and eLearning was sparse and where the language of communication or instruction was not English, MOOCs were deemed not suitable for many students, even with translated content.

In other contexts, according to two participants from France and India, MOOCs could possibly be the only widely available free Higher Education learning alternative to low quality local higher education (P003, P015), as mentioned earlier. One interviewee from South Africa pointed out that literacy levels in schools in his country were often unsatisfactory: "N*umeracy or quantitative literacy is terribly under developed, because of the poor nature of our schooling*" (P004). He also

observed that there were significant language barriers "*in the whole of sub-Saharan Africa*" that prevented students from succeeding in traditional education and that could potentially prevent them from understanding a MOOC. He said: "*80 percent or more of our population do not have English as their home language. It's a major issue for us. Students do English as an additional language at a very low level*".

One Indian participant confirmed that primary schooling in his country, particularly in rural communities, was also still rather rudimentary: "*For Indian students at the grassroots skill level, education is lacking*" (P015). A participant from Africa (P004) indicated that in his country "*fewer than 5 percent of our majority population group youth were in fact getting any form of higher education at all successfully*".

An interviewee from Brunei (P013) argued however that "*not everyone is destined to go to university*" and questioned whether all those going through university gates were able to cope with tertiary education learning.

Participants from the North and South felt that providing the technology, particularly Internet access, was a good thing, they cautioned however against assuming that every student had the necessary fundamental and I.T skills to use the complex tool without initial and continuous support, or as participant P003 pointed out: "*someone who is illiterate, who doesn't know how to use a computer won't benefit from MOOCs*".

Social Issues

5.3.2 Theme 2 –Access versus success and social mobility

This theme was repeated in several places by participants from the Global North and South. It is here important as the original rhetoric for the launch of MOOCs was to help those underrepresented in Higher Education climb the ladder. This theme was also repeatedly used in the mass media to highlight the goal of MOOCs and was presented in the literature review of this study.

There was agreement among interviewees from the global North and South that the world was far from being a "*levelled playing field*" (P002, P008, P014, P017), and that many educational systems were still unequal. This theme was however more prominent in the quotes from participants from the North. For one interviewee (P002) for instance, the American educational context was "*unequal, where those with the most resources, the wealthiest families have access to the highest quality colleges and universities*". Despite the fact that Massive Open Online Courses had increased opportunities for access to Higher Education,

- "*we can't argue that MOOCs are proving learning opportunities to hundreds of thousands of people who wouldn't probably have those opportunities"* (P008)*,*
- *"MOOCs can accommodate tens of thousands if not hundreds of thousands of people, and people who might not have had access to that content can now access it and I think that alone it's very disruptive, you don't have to be*

in London or America to get access to this high-level content or pay the money, because they are free" (P010),

the number of students not able to enter a tertiary education institution for lack of financial resources (P004, P017) and the number of students not graduating on time/completing their education (despite available academic support, financial aid) was still significant in many parts of the world (particularly in developed countries).

This raised the complex question of access versus success and whether MOOCs could potentially be one of the solutions for developing countries' often complicated educational issues.

One participant from the U.S stated: "*I know of many people who decided to not get a college education because of the money*" (P007). Another American interviewee stated: "*We know that in the U.S., we do a very good job sending a lot of people to college, and a poor job in graduating students*" (P002).
A South African participant stated that drop-out numbers were staggering and retention was a very serious issue in his context: "*In South Africa we lose half of every intake that comes in*" (P004). Echoing these numbers, one American participant argued that only half of the "70 percent who started Higher Education in the U.S would have finished in 6 years and that's terrible" (P002).

For many of the interviewees, MOOCs had indeed widened access to information and knowledge to many people but the access, as in the case of a traditional university education, was not necessarily a guarantee of educational success (P006) or upward mobility. For interviewee P006, "*we will see, you know, wider access to the material, however, one of the biggest issues is access doesn't actually equal success. Just because you have access to content doesn't mean you are actually going to succeed as a student".*

According to one interviewee, "*access is understood only as the opportunity to enter into the education space, but not necessarily to succeed in the education space. And I think what we have learnt from our experience here is that access cannot only refer to being able to enter. It's not just a matter of access to get into; it's a matter of being able to succeed."* (P009). A view echoed by another interviewee when he argued that making knowledge and information available was not enough as it did not necessarily guarantee learning. He said: "*learning is not about having access to the distribution of content; access to content may be a necessary condition for learning but it is not sufficient*" (P017).

According to one participant, access to content was less important than helping people become independent and reflective learners. He said: "*However, one of the biggest issues is access doesn't actually equal success. Just because you have access to content doesn't mean you are actually going to succeed as a student*" (P006) or as one participant pointed out, "*it's not just about providing access, but it is about enabling people to study effectively*" (P012), "*actually understand how learning actually works*" (P002), echoing participant P009 comments.

One interviewee, senior academic and senior administrator at a top Australian university, briefly mentioned the often polarising commercial value of education and degrees and argued that the constant focus by governments on widening access to education was often misguided as it would not in itself be the answer to social mobility when he said: "*access to education is really I mean the first step, it's what you can do with it, because you need to be able to convert the access to education into something you as an individual can then sell in the market place. I mean, that's probably a very calculistic view of education but you know, it doesn't matter how many degrees you've got, or how much knowledge you've got if no one else cares, no one is actually gonna pay you to use that knowledge or, you know… those degrees that you've got, what was the point of it all"* (P006).
According to this interviewee, the most significant value of a degree was in its applicability, in the transferable and professional skills learned while studying for it.

Most interviewees felt however that the widely-advertised MOOC platforms' original pledge to democratise access to Higher Education to the underprivileged was still far from being achieved, or as a participant concluded: "*Opening up and giving access to people and giving everybody potentially an equal chance of access or an equal voice in terms of learning is definitely the case, whether it achieves that? I don't think it does*" (P008).

5.3.2a Promises un-kept
One participant, an academic developer from the UK, argued that MOOCs had not entirely kept their democratisation promises. He said: "*I don't think they are achieving what they set out, what they claimed to do, in terms of actually improving access and all sorts of things"* (P008). An opinion shared by another participant, from Australia (P018): "*They do not seem to be meeting the aims that were originally laid out for them*" (P018). Participant P010 stated that people had *"over-hyped them, have over-promoted them and I don't think that that's right at all*".

Another argued that while MOOCs provided wider access to information, content and assessment of learning at almost no cost, they seemed to fail to live up to their vertical mobility promise a campus-based degree might, in some cases, provide. He said: *"Sure we can democratise the access to the content; we can even democratise access to some of the assessment if we really want to, but are you really going to democratise access to social capital? And are you going to democratise access to social stratification?" (*P006). He added that providing equal opportunity of access didn't necessarily mean equal opportunities to complete a degree or getting a job: "*Just because you've got access doesn't mean there is equality and doesn't mean is, you know, progression, so we can have equality of access but it doesn't mean equality of opportunity outside of the access"* (P006).

Finally, one participant stated that the fact that a majority of MOOCs participants had initially a relatively better educational background (those who already had "a lot of things", as indicated by participant P003 earlier) and better access to content and

knowledge would give them a distinctive advantage in completing their studies (and their MOOCs).
The value of MOOCs for non-expert students from developed/developing countries without the necessary backgrounds and skills and significant and continuing instructor support was again questioned here. She said: "*we know that the people who are doing MOOCs are more educated and they are the people with more access to cultural and social capital and then more likely to succeed*" (P009).

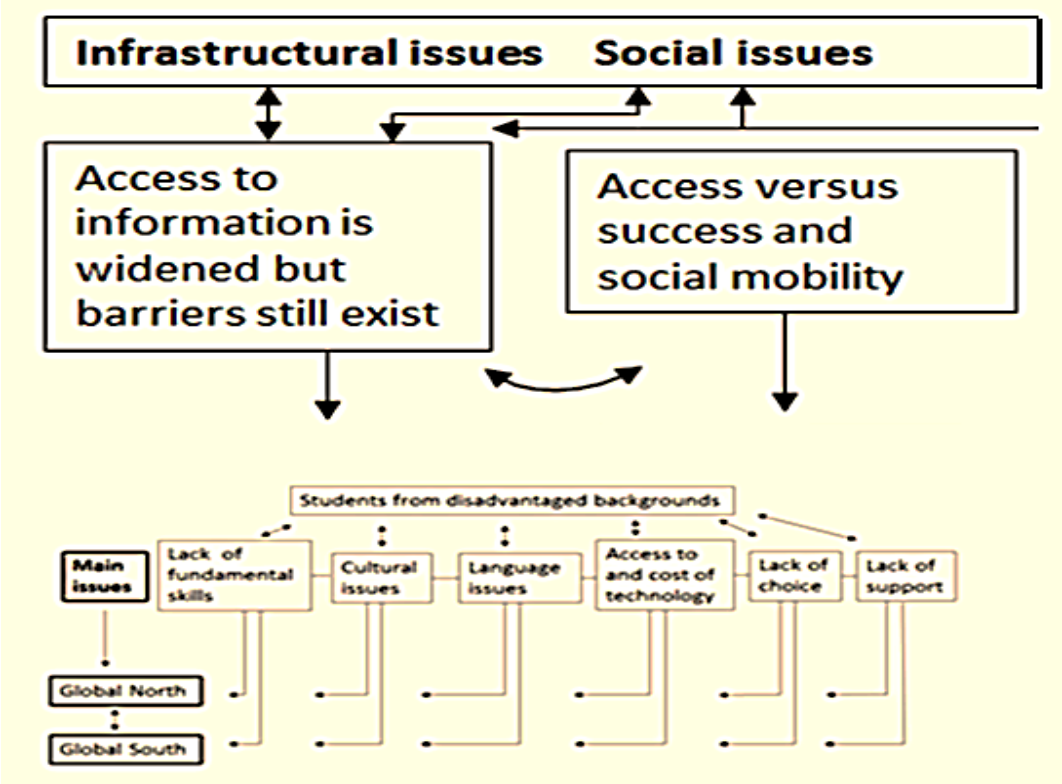
Most interviewees felt that MOOCs' instructor support was insufficient in most courses but critical for students' metacognition and self-efficacy, particularly in the novice online environment /MOOCs participants' Zone of Proximal Development.

In summary, participants in this study were concerned about:

- The levels of preparedness and the lack of fundamental skills to be able to use MOOCs
- The lack of support
- The fact that MOOCs worked best for self-directed participants with a Higher Education background, work experience, digital capabilities and skills
- Language barriers
- The lack of choice as MOOCs could become the only alternative to low quality local higher education
- Increasing inequalities that would widen gaps

The relationships between the concepts relating to Infrastructural Issues and Social Issues are shown in Figure 5-5:

Figure 5-5: Infrastructural and Social Issues



Political issues

5.3.3 Theme 3 –Power relationships and geopolitics of knowledge

Interviewees from the global South (P004, P005, P009, and P013) seemed to consider MOOCs as interesting pedagogically but not central to tackling their severe educational issues (P004) and not the appropriate solution to their current and urgent needs (P013).

Another important issue mentioned during interviews was that global South participants, as consumers of MOOCs, largely produced in the North/West, were "*consumers of global North knowledge"* (P009) which posed the "*seriously contested*" (P009) issue of knowledge production, control and knowledge dissemination (P009), described as the *geopolitics of knowledge* by one participant (P009).

As North-produced most prestigious courses' were not contextualised/localised and/or translated (despite the recent launch of local platforms in local languages in many countries), it also posed the issue of uniformity or the homogenisation ("*McDonaldisation*", P009) of knowledge. Should everyone learn the same content and is it relevant to all educational contexts?

According to two participants (P013 and P014) from the East and South, North and South needed to closely cooperate, build bridges and better engage with each other to find some common ground, identify and discuss "*specificities inherent to the*

North and South" (P014) that could be beneficial to both, "*look at opportunities where both can develop*" (P013), as many countries, despite various and often very different economic contexts, had similar inequalities issues (with similar root causes) within their country.
According to another interviewee, however, despite tremendous advances in open and online education allowing thousands of students from developed and developing countries to have access to faculty and courses from the best universities, democratisation would unlikely happen overnight as "*society, organisations and governments are the only forces that can meaningfully democratise education*" (P018). Finally, according to two interviewees (P005 and P009), the battleground and the struggles within Higher Education covered larger grounds and were more profound and tactical than just technological. Participant P009 mentioned "*very serious contestation"* within tertiary institutions about the fundamental purpose of Higher Education, *"about knowledge production and knowledge dissemination*", "*knowledge as a public good, knowledge for citizens, knowledge for democratisation*" and questioned whether the rationale behind the various interest groups was mostly commercial, mostly due to the "*intense and difficult financial circumstances that most universities and most higher education institutions find themselves in at the moment*" (P009).
In other words, in a very competitive environment and in difficult financial times, the idea of education as public good was often relegated to the rear, while capitalistic interests and revenue generation were on the frontline.
She said: "*I think there is almost a battle going on around the fundamental purpose of higher education and to my mind, it boils down to philosophical approaches about knowledge as a commodity and knowledge as a good*".

According to participant P005, a semi-retired seasoned Higher Education consultant based in the Middle East, tertiary education institutions were afraid of losing ground, their prestige and their power in this now global academic battlefield. She said: "*The way in which most traditional universities have handled MOOCs is by popping up something on the MOOC to say that they are part of the game, in a sense that's maintained their power in the field*". She also argued that MOOC platforms had not yet clearly decided or explicitly stated what their real aim was when she indicated that "*the people running them haven't defined a purpose for them*" (P005).

Participant P018 argued that despite an apparent, advertised and public will to widen access to education, there were strong political and social forces that determined the level of democratisation, as "*many ideologies would see the majority of the world continue to have limited access to information and knowledge. A more educated world is an extant threat to established economic and political power so there are many vested interests that do not wish to see education in any form democratised*".
A view echoed by participant P005 when she said: "*Power holders in society that need to decide what they really want, a workforce, a populous who are really flexible and well-informed and I don't think that's' true at the moment*" (P005).

Another participant (P008) argued that the power relationships within education were "*much more about the individuals having the power and possibility to develop their own learning space, that sort of sharing, rather of being the excellent model of the powerful professor who is disseminating information*". According to participant P017 however, to be "*truly democratic*", a system of education would not be based on a selective, elitist "*model of scarcity*", favouring academically privileged students as it was currently the case in the U.S. and in many other countries and would not "*discriminate on the basis of either academic ability or economic ability*".

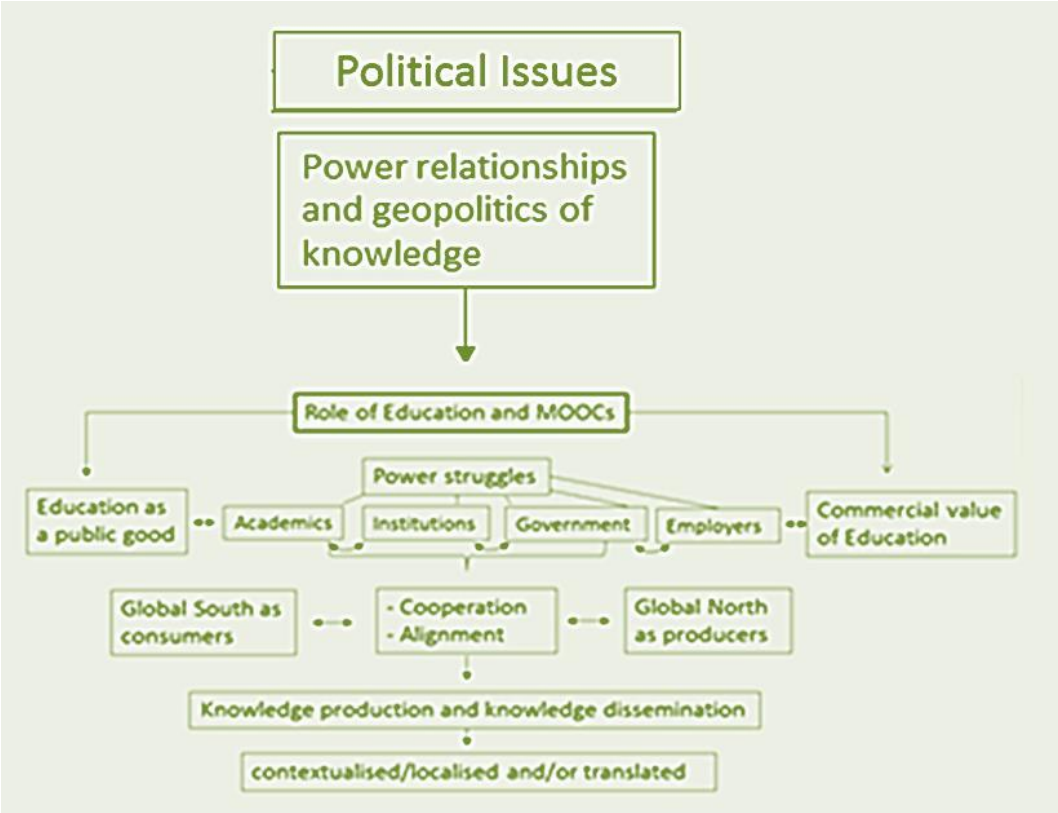
Finally, participant P008, an academic developer in the UK mentioned "l*ots of tensions and things that will hold you back"* when designing learning and teaching workshops for faculty. He argued that faculty still had narrow views on how and where learning was taking place.

In summary, participants in this study were concerned about:

- The often conflicting views between academics, university management and the corporate world, related to the fundamental purpose of Higher Education
- Power relationships with the sphere of education and between the Global North and South
- Power struggles within institutions and with external stakeholders
- Who produced and who consumed knowledge
- Lack of cooperation between stakeholders

The relationships between the concepts relating to Political Issues are shown in Figure 5-6:

Figure 5-6: Political Issues



Design issues

5.3.4 Theme 4 - Specific courses might be substituted

"*I don't think MOOCs will replace universities, and that will be unrealistic to say, because MOOCs are courses, and you know, courses should... why should course replace institutions? I think what they will do is… because MOOCs are courses, they will replace courses*" (P007).

What has emerged from the interviews is that some courses, particularly standard first-year foundation/short professional development courses (P001, P006, and P012) might be threatened by MOOCs, which might pose a homogeneity/ McDonaldisation of knowledge issue (P009) to the global South countries and in some cases affect adjunct faculty employment in the global North.

In the case of some developing countries, provided that there was high-speed broadband access, Internet-connected computers widely available, an affordable mobile access (P016) and MOOCs designed to properly function on mobile devices (P011), MOOCs could be used as supplement or possibly one of the alternatives to a defaulting education system (P003), but only for those self-regulated audiences described above and only if some "*specificities inherent to the north and south*" (P009, P014) were carefully taken into consideration by MOOC developers and added. One interviewee stated for instance that "*MOOCs have a very important role in introductory courses and also postgraduate level... their opportunities for research*

is to be able to promote their research, their findings through MOOCs" (P012). Participant P004 from South Africa said: "*we've got 3 years to get students to graduate in chemistry in a way that the students are going to go out and work as a chemist or whatever it might be, with sufficient if you like, technical skills, scientific and technical skills, they will be able to do that. And the same, the great majority of students never managed to do that in 3 years because of the backgrounds*".

Another argued that to be a successful MOOC participant, students needed to be technology-literate and familiar with social media interactions with "*some understanding of how to discuss online, how to take notes, how to build effective study* (P012), have a "*certain discipline*", and be able to be a reflective student (P010), skills that all students, particularly in the global South did not necessarily possess, as mentioned earlier. Or as participant P009 pointed out: "*we know that by themselves if you just put all your content up, you know, freely available on the web and then don't provide a support mechanism or a structure around that, we know that your completions rates are gonna be probably low*".

Finally, one participant raised one crucial question, which seems to be absent from the current educational literature: "*How MOOCs might be able to support the development of fundamental literacies for the vast majority of people who don't have access to education*?" (P005). A question partially answered by one participant from South Africa when he stated: "*We have to make sure that we give students the opportunity to develop the more fundamental literacy skills first. And that is precisely the kind of thing that MOOCs do not do well for us*" (P004).

While participants mostly agreed that MOOCs provided people around the world an access to high-level content and knowledge previously unavailable to non-registered and non-paying university students, there were some concerns, particularly from interviewees from the global South, about their actual use in their particular challenging contexts, but also about the origin, production and dissemination of that content and knowledge.

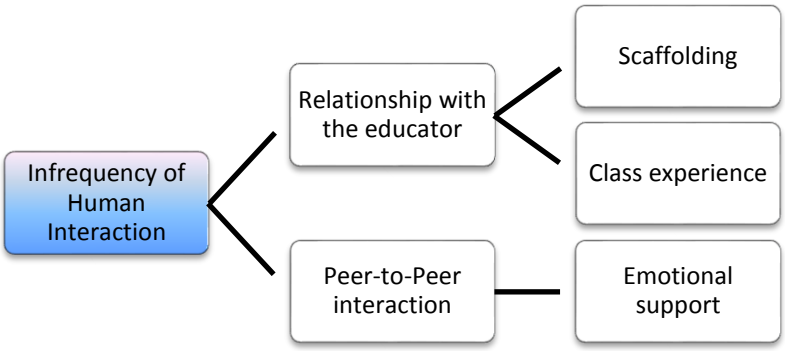
Pedagogical issues

5.3.5 Theme 5 - Design, human mediation and scaffolding are critical

5.3.5a Human interaction

What is interesting in this data (Figure 5-7) is that interviewees from the global North and South were most concerned by the infrequency of human interaction with peers (emotional support), and particularly with the instructor. This is crucial in helping guide the learning process but also the navigation in an often unfamiliar and puzzling online environment. Talking about this issue participant P002 said: "*it's part of what we do as educators, we help them [students] figure out how to navigate*".

Figure 5-7: Infrequency of human interaction in the MOOC model



Participants from the North and South felt that one of the most critical facets of education, in a face-to-face or online setting was the student-student (reciprocal scaffolding) and student-instructor relationship (P002, P008) and this was often lacking in the current MOOC model. A participant from South Africa (P004) was very clear about it. He said: "*my worry is that people see upon it as a panacea for our educational difficulties. But in my view, that panacea is not going to be a panacea; it's not going to work. The lecture mode unsupported by sufficient interactive work is not effective in our circumstances*".

Participant P002 argued for instance that "*what's most important in education is relationship*".

According to a majority of interviewees from the global North, MOOC developers and institutions had not learned from and reflected on the successes and mistakes of decades of eLearning policies and implementation before launching MOOCs. One interviewee stated that online student engagement was primordial: *"We've known online education for many many years, and online education very much follows that model of having faculty and students develop relationships, trying to create student environments, trying to create active learning environments"* (P002). Participant P006 argued : "*I think there is sort of this false idea that students are quite happy to sit alone by themselves, sitting on a computer, just doing a MOOC, I mean they are not going to be happy doing that, students still need social engagement and they still need professional engagement*".

Interviewees from both the North and South pointed out that personalised interaction, a "*lack of one-to-one interaction*" (P001), the way peer-to-peer interaction was designed in most MOOCs was still basic/rudimentary (P018), "*very primitive*" (P007), not capitalising on its tremendous potential for social learning, social constructivism and scaffolding (P004), in other words not doing what it originally was set to do. One interviewee said: *"I don't think there is much peer to peer interaction going on*." (P007). He added: "*it's very primitive in many ways, and it has a forum which is a text-based… a tool that was developed in the 90s, when we dialled out with a modem*".

Another participant highlighted the critical role of the facilitator to manage learning at scale and the importance of instructional design and well-designed learning and teaching activities /discussions when she said: "*I don't think you can assume that you can put ten thousand people online and they will talk to each other simply because they are in the same space*" (P009).

One participant, eLearning manager at a major Australian company, noted an interesting point related to the relevance and applicability of the low-cost MOOCs' content. He observed that many of the professional skills and content currently needed by employees were not presently available on the Internet at no cost and if it was, facilitation was essential : a "*lot of what people need still isn't on there, a lot of what you need to do your job, you can't learn it for free because the content just isn't there; or for some types of education you do need instructors to guide you and to teach you; you cannot learn everything just by going on the interne*t." (P010).

This could be an indicator of the disconnection between what MOOCs currently offered to executives and employees and what employers actually needed to better preform their tasks. He added that while the content of the MOOCs he participated in was of "*a very high standard*", coursework was rather difficult, exigent and demanded "*a bit from you certainly in terms of time, but also in brain power, you have to think about the content and reflect upon it and discuss it with your fellow students and you know work on the assignments that they give you*" (P010). Participants felt that the quality of the courses varied, from very good to very bad (P003).

Most interviewees from the North and South acknowledged however that some MOOCs could be used in parallel to an on-campus programme, as supplement or add-on.

5.3.6 Theme 6 - Self-directed, self-regulated postgraduate students are the ideal audience

There was wide acknowledgement among interviewees from the global North and South that MOOCs were great for "*people who already have a quite strong educational background"* (P004), "*solid capacities*" (P009), "*expert students*" (P001), those with "*postgraduate study"* (P001, P016) and work experience, students who "*understand the technology*" (P001) and who had "*developed self-regulation*" (P016, P018), those who were able to "*cope with tertiary learning*" (P013), those "*who already have higher education degrees*" (P003, P016).

However, MOOCs were not so great, "*for people who have traditionally faced barriers to higher education*" (P001), "*disengaged students without support*" (P001, P002, P004), those who in other words lacked basic/fundamental skills (P004, P005, P009), such as analytical skills, engagement skills (P009), "*the kind of thing that MOOCs do not do well for us*" (P004).

One interviewee stated: "*I think they* [MOOCs] *are limited to the motivation and the aptitude of the participant*" (P010). According to some participants, MOOCs were not

very suitable for students from "*disadvantaged educational backgrounds*" (P004), first-generation learners (P011) or students in rural/regional communities (P001, P004) as students in those contexts had either no frequent access to the Internet and/or were often missing the necessary skills and/or self-regulation to be able to cope with the high-level content posted online without continuous academic support.

One interviewee from South Africa observed that MOOCs would not resolve their vital and deeply-rooted educational issues when he said that MOOCs were not "*central to our major educational problem*" (P004). A view shared by another participant from Brunei Darussalam who argued that MOOCs would not solve complex and contextual educational issues: "*MOOCs is not the answer for what's required for our friends down South*" (P013).

One of the interviewees observed that the high-level content and the assignments of most MOOCs would be too difficult and very challenging for most of his students. He said: "*when a first year student come to us from a rural area in South Africa or a township school, that student will almost certainly never have written a discursive essay in her or his life, because the schooling that the students have had has just not provided for that*" (P004).

According to a participant from the UK, an academic and published researcher on MOOCs, the experience of taking various MOOCs was a lonely endeavour, exigent and testing her abilities and organisational skills. She said: "*I have registered in many MOOCs, completed at least 5 of them (including 4 Coursera). Coursera courses are a lonely battle to complete. I did Programming courses in languages I was not familiar with but because of my background I could follow.* She argued that MOOC participants without a fair amount of subject background would *"struggle"* with the "*information overload*" and with time management: "*If you are to submit for completion they have strict deadlines and it doesn't go with my other commitments*" (P016).
One participant, a researcher in Higher Education from Australia observed that students in regional, rural and remote Australian communities, often from low socioeconomic backgrounds, were disadvantaged. They faced restricted access to Higher Education (cost and geographical location), with often no brick and mortar schools to attend. MOOCs, despite the fact that there were mostly free and allowed participants to access courses online (provided that there was Internet connection in these rural communities) would not be suitable to these students, as levels of literacy and numeracy were often significantly lower than national averages: "*in Australia we have issues with rural and regional students. There are barriers to access to education and I don't think that MOOCs are necessarily a great thing for those students*" (P001).

Finally, one of the interviewees (who had participated in various MOOCs) said that he was not surprised to know that MOOCs' main audience was composed of postgraduate students as MOOCs were rather challenging and very demanding, confirming comments by participant P016. He mentioned that his fellow classmates

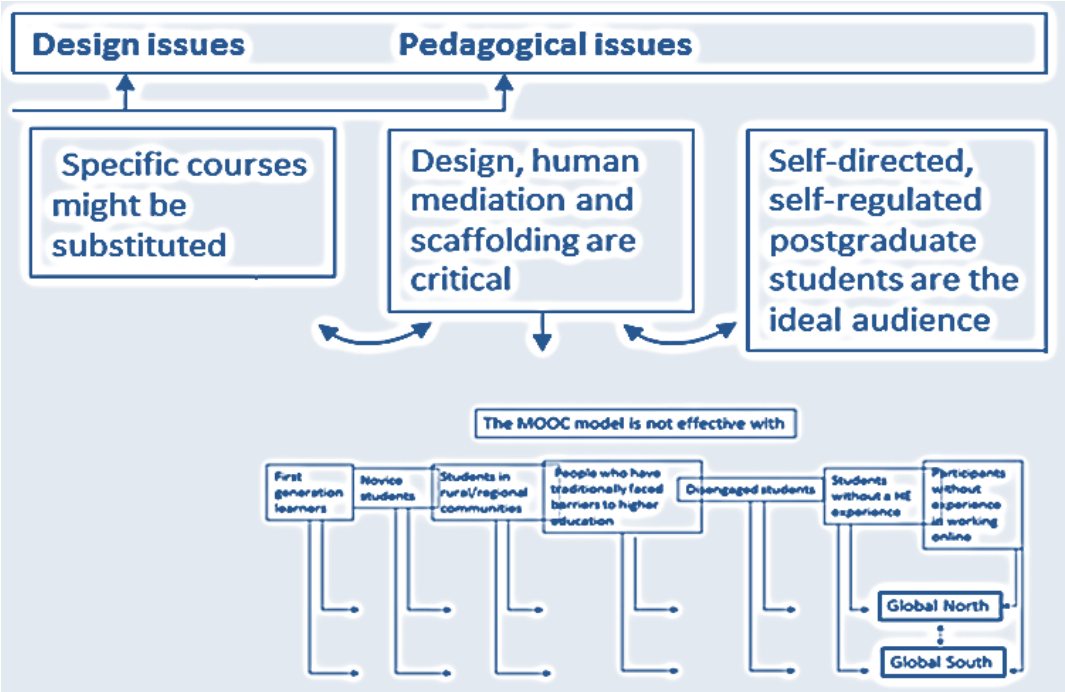
(mostly seasoned professionals) in a MOOC he took felt "*overwhelmed*" at times by the sheer amount of work and time they had to dedicate to it as they also needed to juggle the challenging demands of full-time work and family. He said: "*outside you've got family commitments, you've got a job, other things that you'd rather be doing in life, so if you want to do properly so to speak, if you want to complete the MOOC officially it takes a lot, and it takes a lot of time and effort*" (P010). Participants felt that in many developed and developing countries, many students faced unique challenging contexts when aspiring to gain access to and complete their studies in Higher Education.

In summary, participants in this study were concerned about:

- MOOCs replacing introductory courses that would only be valuable to the Ideal MOOC student
- The lack of facilitation, scaffolding and support mechanisms
- The infrequency and often lack of human interaction (peer-to-peer| peer-instructor)
- The challenging complexity of the content
- Time constraints and life commitments

The relationships between the concepts relating to Design Issues and Pedagogical Issues are shown in Figure 5-8:

Figure 5-8: Design and Pedagogical Issues



5.4 Summary

This section has presented the findings related to the main research question of this thesis. According to interviewees from both the global North and South, Massive Open Online Course have democratised access to information to a certain extent, have "*allowed access to knowledge without the middleman*" (P003) to a certain audience, but they seem to be falling far off from their social mobility promise. While interviewees acknowledged that some specific introductory courses might be replaced by MOOCs with well-designed and systematic scaffolding opportunities and argued that MOOCs would not be a total substitute to a campus-based education ("*those of us working on these, these open online courses did not take that they will replace the higher education system as we know it",* P002) for the underserved in High Education, the question of who produces and who consumes the knowledge was raised.

Next section will present the findings from the interviews relevant to the sub-question.

5.5 PART 2: What impact will MOOCs have on faculty, teaching and universities?

As mentioned in the [Methods] section of this chapter, the author used open coding and axial coding to identify meaningful groups that captured an important element for each of the interviewees. Individual tables were created for each participant. Codes were combined to form themes and sub-themes. Participants (P, Table 5-3) were given a number to ensure anonymity. Participants who mentioned the indicators were added to the table (below, random, colour codes) to show the occurrence of the theme.

Table 5-3: List of emergent indicators from In-depth interviews

Expertise P001 –P002	**Technology-savvy** P001- P006	**Self-regulation** P001	**Delivery** P001-P002-P003-P004-P006-P007-P008-P009-P010	**Learning Opportunities** P001-P002-P008-P009-
Valuable insights P001	**Learn a lot** P001	**MOOCs work well for technical courses** P001	**Student experience** P001-P008	**Conservatism** P001-P002-P003-P004-P005-P006-008-P010-P017
Worries P001-P009	**MOOCs can replace short courses** P001-P010	**Resourcing model** P001	**Challenges** P001-P002-P003-P004-P006-P007-P009-P010	**MOOCs can't assess all the courses** P001-P009
MOOCs will evolve P001	**Delivery tool** P002	**Not a replacement** P002	**Refocus on student learning** P002	**Rethink pedagogy** P002-P004-P006-P010
Incredibly important P002	**Relationship between educator and learner** P002-P004	**Delivery model will change** P002	**Transformative** P002	**Student learning** P002
Promote learning P002	**Learning and teaching is getting centred attention** P002	**Improving higher education** P002	**Evidence seeking** P002	**New attention on T&L** P002
Academic Identity P002-P003- P004-P006- P007- P008-P009- P010- P012-P013- P015- P017-P018	**Role of the academic** P002-P003-P004- P006-P007- P008- P009-P010- P012- P013-P015- P017- P018	**Reconceptualization of the academic identity** P002-P003- P004-P006- P007- P008-P009- P010- P012-P013- P015- P017-P018	**Orient students** P002-P012	**Teaching as a skill** P002
Educator cannot be commoditised P002	**Commoditisation** P002	**Team management** P002-P003	**Time** P002-P007-P016	**Confusion** P002
Realisation P002-P003-P006-P012	**Increased institutional consciousness** P002-P003-P006	**Exploration** P002	**Experimenting** P002	**Experiments** P002
Passive lecture model P002	**Complicated** P003	**Quality** P003-P004-P010-P012	**Complex** P003	**Conventional** P004
Teamwork P003-P006	**Improve teaching** P003	**Old ways not working** P004	**Possibilities** P004	**Developmental** P004
Basic/fundamental skills P004	**MOOCs not a saviour** P004	**Increased interaction** P004	**Experimentation** P004-P006	**Increased opportunities** P001-P004
Interact P004	**MOOCs replace first year courses** P006-P012	**Rethink workload** P006	**Alternative teaching methods** P006-P009	**Alternative ways of engaging** P006
Rethink role of the academic P006-P008	**Pedagogy at scale** P006-P007-P010	**Rethink programme design** P006	**Ubiquity of knowledge** P007	**Better delivery** P008
Distance education P008	**New forms of delivery** P008-P009	**Opportunities to explore** P008-P012-P013	**Expectations** P006-P008	**Creating resources** P008
Traditional P008-P017	**Disaggregation** P008	**Tensions** P008	**Traditionalism** P008-P017	**Profound changes** P009
Purpose of HE P009	**Knowledge as commodity** P009	**Knowledge as public good** P009	**Financing** P009	**Curriculum pedagogy**
Blended learning P009-P012	**Alternative pathways** P009	**Legitimacy** P009	**Threat** P009-P010-P014-P017	**Qualifications** P009
Skills	**Shake up**	**Connectivity**	**Danger**	**Power relations**

P009	P009	P009	P009	P009
Supplementary role P009	**Coherence** P009	**Dissemination of knowledge** P009	**Financially unsustainable** P017- P007	**Consumers of knowledge** P009
Homogenisation P009	**Unis are complacent** P009	**Ignorance** P003-P009	**Close-minded** P003	**Naiveté** P009
Pressure on academics P009	**Improve teaching quality** P009-P012	**Assessment is conservative** P010	**High standard** P010	**Change delivery** P010
Bad quality P010	**Up skill academia** P010-P012	**Competition** P012	**More flexibility** P012	**Impoverished Higher Ed model** P012
Formative assessment P012	**Personalised learning** P012	**Incentives to improve** P012	**Frightening** P012	**Bad lecturing** P012
Raise standards P012	**Change academics** P012	**Fear** P012	**Engage learners** P006-P012-P015-P017	**Own professional development** P013
Different delivery models P012-P015	**Changed interaction** P015	**Rethink classes** P015	**Current model outmoded** P017	**Orthodoxy Versus progressism** P017
Brought more attention to Technology-Enhanced learning P018	**Unbundling of academic role** P012-P018	**No drastic change** P018	**Different roles** P011-P012-P017-P018	**New jobs** P007
Enough trained staff P007-P012	**Non-realistic expectations** P006	**Unis will adapt MOOCs** P011	**MOOCs challenges current model** P017	**Not repeat similar courses** P014
Multiple entry/exit points P006P010	**Challenged us to think differently** P006	**Regressive assumptions about education** P017	**Schism** P017	**Flipped classroom** P004- P006 –P009-–P013

P= participants

5.6 Emergent themes (see introduction to Chapter Six relevant to the [thematic analysis]). Six overall thematic categories were derived from 145 indicators (table 6-6): Challenges, technology-enhanced learning, experimentation, student learning and curriculum design, the academic role and divisions. The author used the six phases of thematic analysis proposed by Braun and Clarke (2006): familiarise yourself with the data, generate initial codes, search for themes, review themes, define and name themes, and produce the report.

As indicated in an earlier section, some codes were based on descriptive phrases used by participants such as "MOOCs challenges current model" (see below for colour codes).

Codes that had a similar meaning and referred to the same topic, but were worded slightly differently were grouped together as "major" codes such as : "*current model outmoded*", "*impoverished Higher Education model*", "*profound changes*", "*challenged us to think differently*", "passive lecturer model".

The six following emergent themes that attempted to capture the essence of these six overall thematic categories and major codes were created. There is some overlap between categories as interviewees' responses are not exclusive to one particular category.

- A challenge to the current model of Higher Education ◆
- An increased institutional consciousness on technology-enhanced learning ◆
- An increased scope for experimentation, exploration and innovation ◆
- A refocus on student learning and a rethink of programme design ◆
- A re-conceptualisation of the academic identity ◆

5.6.1 Theme 1 – A challenge to the current model of education

5.6.1a An outmoded model

There was widespread acknowledgement among interviewees from the global North and South and from academia and the corporate sector that the current "traditional" pedagogical model of Higher Education was unsustainable for students.

Participants also indicated that universities needed to be called into question as online alternatives were becoming more prominent and that there was an urgent need to rethink face-to-face interaction to "*be moving away from the passive lecture model, which has been a dominant model in higher education for a very long time*" (P002).

According to one interviewee from the global South, academics ought to seriously re-examine learning and teaching practices in order for students to achieve the intended learning outcomes of their programmes and courses. He stated: "*We need to do far more interactive teaching and learning if we are going to realise the potential of our students*" (P004). A view shared by another participant, a senior academic and Senior administrator at a high ranking Australian university, when he observed that current pedagogical approaches were not taking advantage of more engaging classroom techniques and assessment strategies. He said: "*Higher Education is often delivered in a very traditional way*" (P006).
This coincided with the view of another interviewee, a curriculum developer based in the UK, who mentioned that active class engagement was still not commonplace in HE: "*the way we do higher education at the moment it's still based on a very traditional paradigm, lecture test lecture test, rather than more active forms of learning*" (P008).

While there was a wide agreement among interviewees that MOOCs, as they were currently designed, would not replace tertiary education institutions. MOOCs were "*not going to put universities out of business*" (P002, P006), the main challenge MOOCs currently posed was that they seemed to be challenging and cutting deep into the very essence of what Higher Education was or had become in the global North in the past decades:

- elitist and highly-selective (P002, P017),
- presence-based (P010, P006, P017) and
- increasingly unaffordable for a large portion of the population (P004, P007, P017).

One Australian participant stated for instance that requesting students to attend campus-based classes and achieve a certain compulsory attendance rate to pass a course were totally unnecessary and unrelated to whether he/she had learned something: "*I think they* [universities] *rely too much on people attending on campus, an example would be, it's not unusual in a subject to have an 80 percent attendance*

rate in order to pas and I think that's just based on nothing educational at all" (P010). An opinion echoed by another interviewee (P017) when he said: "*Requiring students to go to a physical campus to learn is unnecessary in many cases given the ever-evolving (and improving) learning enabling capabilities of computer and communication technologies*".

According to participants, universities had

- not critically self-reflected on their educational performance, had been "*complacent*" (P009),
- had for too long "*relied on prestige and on the gravitas of the qualification that they provide*" (P010), had not "*been in the best interest of the student for a long time*" (P010)

And therefore MOOCs were "*a challenge to the incumbent model of education and the practices (e.g., classroom-based education) on which the traditional model is based"* (P017) because they were offering another flexible and often more affordable alternative: "*they are open to everyone, because they are free, I think Higher Education isn't used to that*" (P010).

For another interviewee (P012), the intensity of the tremors caused by the MOOC model might eventually be felt at various institutional levels/ staff echelons, particularly casual frontline teaching staff and tutors, as tech-savvy and well-informed students were starting to compare and contrast learning, content, engagement and the performance of the facilitator in MOOCs and campus-based classes.

Participant P010 noted for example that MOOCs had "*promoted instructors to millions of people around the world and so in a sense, academics are competing against these instructors who are now very high profile*". Institutions might also consider using some of the most promising characteristics of the MOOC model to improve campus teaching. Interviewee P012 stated: "*what will happen is that universities at all levels in all countries will start to think about how their provision is going to change and whether they need to teach everything on campus, what the role of a campus instructor, professor is, and particularly whether they can use MOOCs as a way to enhance the quality of their learning*" (P012).

5.6.1b An ineffective model

There was a view among participants from the global North and the corporate sector that the current system of lecturing and asking students to study on campus was unneeded (P010, P017), old-fashioned, not effective and not producing the expected educational outcomes.

One interviewee, based in Cape Town, corroborated these views and stated that "*the old conventional ways of doing things in higher education are simply patently not working*" (P004). He added "*What is very clear to me, after many years of research is that our current ways of doing things are not working well*" (P004).

A participant (P010) argued that the main delivery mechanism at university was still

the lecture format. Another added that the present educational model was obsolete and not viable. He stated: "*The current location-based (bricks-and-mortar) model, at least in the U. S., is pedagogically outmoded and financially unsustainable*" (P017).

An interviewee from Australia pointed out however that any changes in the educational model should be evidence-based and documented to demonstrate improvement. He argued that there were no magic bullets and the adoption of new technologies in education had to be preceded by thorough longitudinal research and consideration of existing good practices put in place. He said: "*There are good reasons why much of the teaching practice in higher education is carried out in the way it is. Innovation in higher education should be driven by an accumulation of evidence incorporated into existing best practice, not through disruptive revolution*" (P018).
A view shared by another interviewee when he argued for the "*need to do research to understand how well they [MOOCs] are working"* (P002). He added: "*there is a strong movement on campuses to actually look for evidence of what is working and what is not in teaching*" (P002).
Participant P001 echoed this when he described the mastery use of social media platforms by students and the use of LMS and other eLearning tools in/outside of the classroom. He stated: "*I don't buy into a sort of a digital native argument, "students these days are good at Facebook and therefore they are good at technology for higher education. The empirical work doesn't support that assumption*". He added that "*to back all that stuff…we've got to do some stuff around good repositories but also around good quality control*".

6.8.1c A depleted and disconnected model

Based on his professional experience as an eLearning manager in a corporate setting, one interviewee noted that there was a significant disconnection between how students were still assessed in tertiary institutions and the realities of the corporate world. He said: "*to a lesser extent the way that they* [universities] *assess is old-fashion too, particularly if they rely on exams, it doesn't reflect how we work in the real world*" (P010).

According to two Australian interviewees (P006, P010), one senior academic and an eLearning manager at an international company, universities and academics tended to be slow and sometimes reluctant in adopting new ways of engaging students, had often rather conservative views on how curriculum had to be designed and delivered (P006) and this was reflected in the ways *x*MOOCs were currently designed: a large scale online replica of a regular university course.
Present day MOOCs tended to reproduce traditional classroom lecturing and interaction, had not taken into consideration the lessons learned from decades of online learning experimentation, in other words were an "*impoverished*" (P012) online lecture, "*very conservative in the pedagogy*" (P004) because "*universities traditionally are not quick to change"* (P006).

While participants from France, India and the U.S. pointed out MOOCs' promising potential of formative assessment and personalised learning environments (P003,

P015, P017), most agreed that there was still a long way to go before its full engaging potential was adequately exploited in the current MOOC model. *"I think the biggest challenge at the moment is to move away from this impoverished model of MOOCs or delivering lectures online, because we know lecture isn't a particularly successful teaching format, and it's not the best way to learn. Being able to view a video is certainly better than just listening to a lecture, but there is so much more that can be done in terms of formative assessment , in terms of personalised learning"* (P012).

Two interviewees (P007, P010) observed that the corporate sector in their context (The U.S and Australia) was proposing agile alternative, innovative, quickly adaptable and interactive models, in contrast with what the traditional university model currently offered: "*you can really see very innovative developments coming out of the non-university sector*" (P007).

5.6.2 Theme 2 - An increased institutional consciousness on technology-enhanced learning

5.6.2a Learning and Teaching is getting centred attention

There seemed to be a consensus among the interviewees from the North and South that MOOCs had intrigued and refocused institutions and academics' "attention" (P002, P011) on the learning and teaching process, both online and face-to-face and this was likely to continue in the short term. One participant stated: *"The fact that the phenomenon has led to people high up in institutions paying more attention to online and technology-enhanced learning is also quite new*. *While MOOCs themselves might not be sustainable, the spotlight they have shone on the use of technology in the delivery of higher education programs is likely to persist*" (P018).

With thousands of students joining MOOCs and top universities signing agreements with MOOC platforms, Massive Open Online Courses seem to have stimulated an unprecedented volume of (sometimes heated) discussions on the educational pages on national newspapers, TV channels and social media platforms about their pros and cons and their potential transformative role, as "*they offer opportunities in ways that were not previously available*" (P009).

This increased interest and "realisation" might be caused by the potential profitable source of extra revenue and international brand image MOOCs could bring to tertiary institutions. One interviewee described his institutional context and mentioned that his university was showing increased curiosity about his research, following the launch of a very popular in-house-launched platform and a series of popular MOOCs he designed at minimal cost: "*My University senior management didn't really pay attention to what I was doing before and when I went to see my directors and I told them, "I am going to do a MOOC and it's going to cost you nothing" they were slightly puzzled. And now that I am designing and teaching MOOCs which attract hundreds of students, they are extremely interested in my work*" (P003).

He added that the media exposure and publicity on national media created by the launch of his MOOCs had generated, for the university, a significant amount of revenue. He said: *"As a matter of fact, all the buzz we generated at Centrale Lille*

paid off nicely: we had numerous interviews on national TV, we were featured on national newspapers, and for that we received half a million euros in advertising revenues" (P003).

5.6.2b Increased used of online technologies

There also seemed to be an increased appeal on the use of online technologies/eLearning among academics from the global North and South. One interviewee argued that MOOCs had incited academics to engage more frequently with the learning and teaching literature and with educational developers than in the past. He said: "*academics now are having lots of discussions and actually research about student learning. That's pretty new. And now the education, the part of the people who think about education learning, they are getting centred attention. That's new*" (P002).

He thought that the role MOOCs played in this phenomenon was rather important, particularly as an increasing number of academics who previously were not particularly interested in learning and teaching were now reaching out to teaching and learning centres to discuss alternative ways of engaging students in face-to-face and online settings: "*there is a real new attention on teaching and on learning. Already MOOCs are a part of that story, not the whole story but a part of that story*" (P002).

Two participants from the global South pointed out the academic development opportunities the MOOCs could bring to their staff. An Indian participant (P015), currently Vice Chancellor of his university, promoted MOOCs at his institution as eLearning/teaching good practice and role modelling. He explained: "*We actually actively use MOOCs to show our young academics how good MOOCs are taught, we discuss different ways of teaching, the pedagogy used by MIT or Harvard faculty, the engagement strategies used to explain concepts, we have seen a huge interest and it has had a tremendous impact on how our young faculty are learning how to teach online*".

Another participant from the global South echoed P015' views when he indicated that MOOCs could play an interesting role in academic staff development, particularly for academics who graduated from regional universities and with no international experience... He said: "*I would actually hope that the impact will be quite strong on a number of our members of academic staff, many of whom have not had conventional opportunities to get good international education. So it used to the way in a rural university here and you might as well have been a student there before and you have done well, you've got a couple of higher degrees, moved around a little bit in South Africa probably have never been abroad to study. So your horizon is quite narrow, you know, short. So I think that more and more opportunities of this kind to inspire our own academic staff could be a very important part of the impac*t".

One interviewee from the UK, senior academic and MOOC developer, pushed the argument further when he pointed out that offer and demand in Higher Education were seriously unbalanced and MOOCs could help in filling the gap. He said: "*University campuses are not being constructed at a speed that keeps pace with the need for participation in higher education worldwide. We just can't build enough*

campuses and we can't also create enough highly qualified professors and instructors…so we need to look for other ways" (P012).

5.6.2c Alternative ways of engaging students with technology

Participants argued that MOOCs had aroused academics' interest in using online environments (P007, P008, P012, and P015) and explore flipped classroom (P006, P009, P013) strategies.

One interviewee said: "*MOOCs have made people realise that there are different ways of doing university teaching, that's why I think it's disruptive"* (P006). The most important effect was, according to a participant, that MOOCs had drawn special attention to the use of technologies with a very large number of students and the quality of the engagement. He says: "*I think the biggest thing about MOOCs is they've challenged us to think differently, they've challenged us to think what would education look like at scale, it has challenged us to think about what quality would look like at scal*e" (P006).

One participant observed that one of the notable effects of MOOCs had been to awaken postsecondary institutions to reconsider how their academics taught and how their students learned: "*I think it's already having an impact in that it's getting higher education institutions to think much more carefully about the quality of their teaching and learning*" (P012).

According to one participant, postsecondary institutions "*will learn some lessons around how we can better deliver online distance education, I think they will reach more people, will give people an experience of working online and I think that's invaluable*" (P008).

One interviewee (P002) stated that MOOCs would only be transformative if they were "*put in a context of improving students learning*". A view shared by participant P004 who argued for personalisation of the learning experience to cater to the diverse needs of the student population in his country. He said: "I think that if we can look to again appropriate use of other technologies, particularly online stuff to help students to broaden their curriculum, to gain skills that are important to them, and to have a sense of therefore coming back to the question of a greater control over what's in their curriculum".

Another participant finally argued however that inflexibility and conservatism were still quite prominent among academic staff. He said: "*I had to do a session yesterday with new teaching staff and it's very clear that the mode that they were thinking is still very traditionalist about what happens in the classroom rather than what happens outside the classroom*" (P008).

5.6.2d Pedagogy at scale and quality

There was acknowledgement among participants from the North and South that understanding *quality* and the *use of technologies at scale* was critical, an opportunity or a pitfall, either for universities, for student learning or for the long-term sustainability of MOOCs.

One British interviewee stated that MOOCs had provoked some sort of a wake-up call for universities, since MOOCs were now on the Internet, accessible to all, in the public sphere: "*That's a huge shake-up, I think for universities to try to improve the quality of their teaching and learning, because they are exposing them to the public*" (P012). One participant stated that "*MOOCs will force universities to pay attention to the quality of their offerings, which is often necessary* (P009).

One interviewee said that the experience of designing a MOOC was breath-taking and helped him reflect on the actual purpose of online Higher Education for 21st century learners: "*it's just simply scale, if I do MOOCs, I can teach a class to actually millions of people. I think that alone is quite mind-blowing. I think it's exciting, but we are now realising that, you know, with the internet, with the videos, with peer to peer network, with interactive tools, we can actually scale many different dimensions, because education is not just the content*" (P007).

Finally, participant P009 raised the question to whether small classes were better for students, student engagement and academics than larger classes. He said: "*I think one of the myths in universities is that small classes are better and part of that myth has come about because of things like completion rates and students' satisfactions tend to be better when you do have smaller classes*". He argued that teaching small classes was a "*lazy way of teaching because it's easier*" and that MOOCs had challenged academics to "*rethink this whole idea that small is better*", to rethink "*what good education would look like at scale*".
He also mentioned a few heated discussions with academic staff at his institution related to the correlation between class sizes and completion rates. He said: "*my challenge to people on that is to say well actually "no", because then you could afford to be a lazy teacher, you don't have to worry about it, what I think is more challenging is to say take 1000 or 10000 or 5000 students and say, "how are you gonna to change your curriculum?, how are you gonna change your learning activities?, how are you gonna change the assessment tasks?, how are you gonna change the feedback?" to actually engage that many people, and still create good retention, still get good completion and still create good student feedback*".

5.6.2e Limitations, opportunities and impact

For one of the interviewees, MOOCs had a serious important limitation, caused by the very large number of participants in each course. He argued that while it was currently possible to assess all the students in some MOOCs, the major constraint was the difficulty in providing constructive feedback to each individual student, which would help him/her improve. He stated: "*MOOCs can provide content and they [instructors] can participate in the discussions and provide feedback and so forth, as much as they can, but it will always be limited because they could only ever provide personalised feedback for a certain number of people*" (P010).

Another (P012) mentioned that engaging and teaching participants online needed careful pedagogical consideration and planning. He said: "*you really have to think about how you are going to communicate not just knowledge, but also skills to people if you are trying to teach them online*".

Three participants from the North pointed out cost issues related to the launch of a MOOC. One from the South (P004) mentioned "*the lack of resources*" at his institution. One interviewee (P016) based in the UK stated that providing support to each student was very costly and it shouldn't be "*expected*" in a free MOOC format. She said: "*if you don't pay for it who will invest to employ academics to provide support?* "A participant from Australia mentioned that "*you've got two very big costs there: the cost of the training itself and you've got the costs of not being present in your job while you are at the training. MOOCs offer more flexibility to offset that cost, so I think there could be some big opportunities*" (P001).

Participant P003 highlighted the fact that generating revenue was a difficult endeavour for most MOOCs. He said: "*There are lots of questions about MOOCs' revenue model: designing MOOCs is a lot of work, it involves a lot of people and Return on Investment is often minimal*" (P003).

Another participant observed that not all the courses could successfully be "MOOC-ised". He said: "*assessing a MOOC on ancient history is much more challenging than computer programming"* (P001).

Finally, designing a MOOC is a very complicated endeavour as it involved pedagogical but also managerial skills. According to one participant, "*to deliver quality teaching is not easy at all. And it's not just about teaching, it's about marketing, it's about technology, it's about managing a team, it's about managing a project and you need to bring all that together to do a very good teaching session. And this is pretty complex*" (P003).

While few interviewees believed that the impact of MOOCs, as they were currently offered, would challenge or be a "*threat*" to the "*conventional lecture*" (P004) or would have any deep consequences on day-to-day teaching ("*MOOCs themselves won't radically change the way we deliver higher education at the moment*", P008), others, particularly in the North, thought that they were very disruptive.

Participant P003 pointed out for instance that the MOOC model was "*clearly disruptive because it's completely changing the way we teach project management*". Participant P001 stated that the one of the interesting opportunities of the MOOC model was that it "*forced instructors to design situations where students have to work well with each other independently*".

One interviewee argued that MOOCs could "*serve as a replacement to the teaching function that universities provide*" only if they emerged "*as a competency-based, learning-optimised model*" (P017). Participant P009 thought that MOOCs provided "*enormous opportunities*" as they could "*play an auxiliary role or supplementary role in remedial education".* She argued however that the MOOC model would "*become one dimension of the broader open blended and online landscape*". A view shared by Participant P012 when he stated that MOOCs would not be as disruptive as the integration and spread of blended learning practices into university courses. He said:

"*It's enabling some universities to offer courses online and to offer much more flexible study, because I think what's happening with MOOCs now is that there is a transition where they are moving towards blended learning. So the opportunity to be able to study on campus, if you have access to a campus, or to study online or a combination of 2, and that's why some universities, Edinburgh University for example, are moving towards a blending model. And that, I think, is going to be the big disruption, the big opportunity, not just MOOCs, but for blended learning*".

5.6.2f Modularity

Six participants from the North argued that the most significant opportunity MOOCs might bring was the increased "*flexibility*" (P018) they provided, allowing students to actually self-pace, choose their own learning path, "c*hoose how they study, whether they want to just study individual materials, to take courses for free, or as it's starting to happen, take paid for degree courses*" (P012), giving people "*the power and possibility to develop their own learning space*" (P008), the "*customisation*" (P015) of learning providing "*multiple entry and exit points*" (P006), "*democratising education in the sense that people in general have some sort of say in what sort of educational provision they receive*" (P005). According to these interviewees, the MOOC model had given participants increased control over various elements of a course/programme such as the sequence and the content.

One interviewee stated that *choice* was one of the most important aspects. He said: "*I think it is having and will continue to have a profound effect on education. For a number of ways, as I said, one of them is offering access to people around the world, and that's allowing choice*" (P012).

For one corporate participant, universities will gradually evolve to embrace some of the MOOCs' most attractive characteristics, which seem to be a better fit with the needs of the industry and the availability of the participants. "*The higher education providers will change their offering so that it becomes more MOOC-like, so by that I mean, that they'll deliver a lot more of their content online and in a self-paced or semi self-paced kind-of-format"* (P010).

While it was important to provide choices to students and let them decide, one interviewee highlighted the fact however that it was crucial to "*inform them about the consequences of their choice*" (P017) that they might regret later.

Finally another interviewee (P007) argued that the flexibility and agility of the MOOC model were providing an alternative and a solution to university courses and programmes' tedious and lengthy accreditation processes. He remarked that tertiary institutions had often struggled in providing up-to-date technical and further education (TAFE) courses. He said: "*Vocational training is hugely important, and schools can sometimes struggle with that. Things are changing so rapidly, technology is advancing so rapidly, that it can be a real challenge for universities and schools in general to provide enough training"* (P007).

5.6.2g Transition

Three interviewees (two from the UK and one from Brunei) argued that many students were not adequately prepared to tertiary learning and questioned whether MOOCs might play a role in the transition between secondary and higher education (P012, P013, and P016), with potentially new corporate players coming into the market (P010).

For two of the interviewees (one based in an elite HE institution in France, the other working in the corporate sector in Australia), MOOCs would potentially play a large role in lifelong learning (P003, P010), as people would have the opportunity to take courses anytime throughout their career to brush-up, keep up-to-date or learn new skills.

5.6.2h Impact

Two interviewees observed that MOOCs, despite the pedagogical excitement they generated in some academic circles in the global North "*I'm personally very bullish on MOOC and very excited about that*"(P007) and while they might transform how a course or a programme is taught, would in fact have minimal direct impact on entire institutions and teaching.

One participant stated: "*The side effect of creating more focus on technology-mediated learning might have some impact but I think MOOCs themselves will not lead to any drastic changes"* (P018). A view shared by another interviewee who argued that changes, if any, would be negligible in the short-term (P008).

According to one participant, the main effect of the MOOCs phenomenon might be that they put educational design with technology on the agenda of research-focused academics. She stated: "*MOOCs be another tool that will hopefully push a few more people towards thinking more about learning design than about teaching as quickly as you can so that you can get back to research*" (P005).

According to yet another interviewee, academics would pay some attention to its development and focus a "*bit more on the use of technology in their teaching but little beyond that*" (P018). Finally one participant (P014), president of a Russian university argued that MOOCs were "*designed to be universal*" but did not, in their actual form and shape, cater to the different needs of different learners, "*different sectors and groups*". He argued that their customisation (curriculum, learning and teaching activities) would make those courses "*un-massive*". He said: "*They [MOOCs] would have to be divided into separate sections for different audiences and they would probably lose a substantial amount of their attractiveness. In short, to be Massive is not always good*" (P014).

Interviewees form the global North and South argued that MOOCs could actually live up to their democratisation promise by adapting it to better function in smartphones environments (P011), incorporating orientation (P002, P012) and more social learning opportunities (P001, P003, P012) into their design, a structured but adaptive learning environment (P004, P012, P015, P017), as human mediation was "*absolutely critical to getting the students over the threshold of learning to cope in*

higher education" (P004) and it "*takes a certain discipline to be able to stick with higher education*" (P010).

This view was shared by interviewees from the North and South.

According to one American interviewee, two conditions were absolutely essential in order for MOOCs to have a significant impact and be a substitute to a campus-based university experience: they needed to offer a better and more affordable learning experience and offer accredited degrees, recognised by employers. He stated: "*To be truly transformative, they need to 1) improve the quality of learning at low or no cost, and 2) do the job that students want them to do, i.e., provide a credential that will advance their career and/or employment prospects*" (P017). .

5.6.3 Theme 3 – An increased scope for experimentation, exploration and innovation

5.6.3a New institutional spaces for experimentation

Participants from the North and South agreed that MOOCs provided ample opportunities to explore (P001), reflect and experiment with innovative pedagogical practices and different delivery mechanisms (P006) to better engage learners and inspire academic staff (P004, P015).

According to the interviewees, more and more institutions of higher education were exploring open online education (P002, P003,P009, P015, P018) "*are learning about what makes a good educational video, what makes a bad one, what works really well*" (P001), and are "*experimenting with courses at scale*" (P002) and flipped-curriculums (P006, P013) to provide valuable insights and data (P001). Participant P010 argued for instance that the MOOC model would impact on on-campus class interactions. He said: "*people will continue to go on campus for face-to-face sessions but I think the nature of those face-to-face sessions will change*".

The spread of the MOOC pedagogical model might give academics and universities ample opportunities to scrutinise good and poorly-designed MOOCs and reflect on how they own long-lasting practices could change (P003). "*The design in many cases is also fairly rudimentary and enacts a transmission or broadcast approach. Bolting discussion boards to a series of videos is not good pedagogy and we've known that for a long time*" (P018).

According to participant P007 there were different sorts of MOOCs with their own limitations. He said: "*some MOOCs are actually not really MOOCs; they're not really massive in any way. Others are massive, but they are not open*".

Institutions were rethinking the relationship between the educator and the learner (P002, P004, P006), "*rethinking what it is to be an academic and what it means to engage with students*" (P006) and were either adopting and/or adapting (P011) MOOC pedagogical strategies to suit their own contexts.

For one interviewee, MOOCs will not democratise or revolutionise education, they might however be the catalyst that would help shake up and improve Higher Education (P002), by for instance exploring how institutions could move away "*from a fixed teaching period to one where students can move through the programme at their own pace, or groups of students can move through*" (P006) which will have "*research applications for how colleges and universities put together their courses, and their programmes*" (P002).

Participant P001 warned however that with a flat resourcing model "*where you have the same amount of resources, whether you have a hundred students or a hundred thousand students*" some design compromises would have to be made.

5.6.3b MOOCs' potential to replace courses

Interviewees from the North seemed to acknowledge that MOOCs could replace some foundation courses (P003, P010), either generic technical courses (e.g. mathematics, biology, statistics and computer science) (P001) and/or introductory courses/ the first year of a programme (P006) but only if these courses were taught by internationally-renowned scholars (P013, P014) and provide invigilated or authenticated assessments (P006) /credentialing (P009, P017) to demonstrate the achievement of the learning outcomes.

One participant (P012) alluded to the possibility for some universities to be producers of content (benchmarked 101 courses, "*because often that's sort of more standardized content*" (P006)) to "*avoid repeating something that has been taught by an authority*" (P013) and franchising it to other institutions so that they could redirect their focus and energy on better engaging and better assessing their students, *"focus on other things that might be more effective from an educational point of view"* (P010). One participant said: "*it just doesn't make sense for universities around the world to be teaching almost the identical course on statistics for beginners, or introductory java programming, or creative writing. So it makes a lot more sense for those introductory courses to be taught through MOOCs and that for the universities to provide the added value tutorials and formative assessment"* (P012).

A view echoed by another participant when he said: "*potentially these academics they don't have to reinvent the wheel so if they are running a biology lecture, why do they have to do that time and time again when there is someone on the web from Princeton University who has run the best biology lecture that everyone is ever going to run*" (P010).

Two interviewees stated that MOOCs would not be able to play an important role in the humanities (P009), as designing learning and teaching activities and assessing was more complex in some disciplines. According to participant P001 for instance "*assessment for learning in a technical MOOC like a computer programming MOOC is really easily done because you can set people tasks that they can do, and they can check understanding really easily and assessment for certification can be done really easily, you can check if their code compiles, give them some multiple-choice*

questions and I'd say doing that for a MOOC on ancient history is much more challenging" (P001).

Two interviewees questioned the value of some of the courses (edutainment), wondering the worth of access to information versus access to knowledge and learning. One interviewee said: "*Listening to an MIT Nobel Laureate doing a lecture on physics is a fantastic opportunity…but if it just allows you to easily have access to information it has no value, from my point of view, education needs to have substantial, even measurable value*" (P014). "*The flexibility is good as is the opportunity to hear from some of the world's great thinkers. That some of the MOOCs were very slick and entertaining poses questions about the balance between education and entertainment*" (P018).

One participant from the South argued that MOOCs might in fact just be "another form of summer schools or for interest non-formal education" (P009) and that they will become "*one dimension of the broader open blended and online landscape*" (P009) that might help tackle some of the educational challenges in her country. Participant P017 remarked that MOOCs would not be transformative if they were "*simply used as supplements to traditional, campus-based models; e.g., as content delivery systems in blended or flipped classroom models*". Finally participant P012 raised the issue of infrastructures, supply and demand as well as faculty recruitment and training when he said that university campuses were "*not being constructed at a speed that keeps pace with the need for participation in higher education worldwide. We just can't build enough campuses.*

5.6.4 Theme 4 – A refocus on student learning and a rethink of programme design

A majority of the interviewees agreed that the MOOC model was inciting institutions to refocus on and re-examine how students learned and how academics taught. One interviewee stated: "*I think MOOCs are incredibly important in their ability to help focus the attention on student learning*" (P02). "*MOOCs have pushed attention to learning, to student learning, and that's very important*" (P002).

Another interviewee stated that the emergence of the MOOC model had enabled academics to have a "*more intelligent conversation around what it is we actually expect for academic skills*" (P006) and develop "*resources that are going to be used in other contexts, in other courses*" (P008) such as designing "*situations where students have to work well with each other independently*" (P001).

According to one interviewee, an analysis of the data collected by platforms such as edX and Coursera as well by institutions around the world could provide invaluable understandings on how effective they are in engaging students at scale, which could inform more engaging curricula and pedagogy. He said: "*Some learning analytics work is being done on MOOCs that could yield valuable insights because of the fair number of participants they have and the amount of data and the way they designed their systems*" (P001).

Participant P012, a MOOC developer from the UK was very enthusiastic about the potential of the MOOC model when he explained that one of the English language courses on FutureLearn run by the British Council had 120,000 participants from 178 countries around the world. He highlighted the extensive number of interactions that transformed a MOOC into a social learning platform. According to this participant, a MOOC was about "*sharing perspectives*", "*not just listening to a lecturer*". He added that some videos had "*15,000 discussions, so 15,000 learners comment on it*". He stated that some videos had "*over 15,000 contributors. And each person is contributing on average 5 comments, so this is very much a social platform, and I think that's hugely exciting*".

5.6.5 Theme 5 – A re-conceptualisation of the academic identity

Several interviewees from the North pointed out that the role (P006, P008, P017) and identity (P006) of the academic was gradually changing/was being "*re-conceptualised*" (P006) because of the MOOC phenomenon and that MOOCs might prompt academia to up skill (P002, P003, P004, P005, P006, P009, P010, P012, P013, P015) and engage with the learning and teaching literature, a view shared by participants from the South. One participant argued that "*the traditional role of faculty would change"* (P017).

As one interviewee pointed out, "*some lecturers, some academics are going to really enjoy being a learning designer. Someone is going to find it very alien and very difficult*" (P012).

One Australian participant observed: "*I think the biggest challenge we've got is challenging academics or teaching staff to rethink what it is to be an academic and what it means to engage with students because a lot of our academics are obviously viewing engagement as a face-to-face activity, as a physical sort of presence activity and I think what the MOOC again has done is actually challenge us with that*" (P006). An opinion echoed by another participant when he said: "*The academics can't just hide away so I only do research and I'm, you now, I'm not going to teach well, or I'm going to do just turn up with some, you know, badly prepared notes in a lecture. So I think it is going to change the academics, in that they have to think about how they promote their understanding and how they engage with learners, not just learners in a lecture room, but learners online"* (P012).

Another participant added that "*MOOCs have shunned up academics to a large degree. I think, for a long time, academics have been able to get away with being less than optimal*" (P010). According to most participants from the global North, the most notable effect of MOOCs was that they had compelled academics to rethink

- their pedagogical approaches (P004, P005, P008, P012) ("*rethink about how teaching is done*" (P002)) inside and outside their classes,
- how teaching online and face-to-face is done at scale (P007) ("*actually challenged us to rethink this whole idea that small is better in terms of the classes*" (P006)),
- their workload model ("*When you are using MOOCs in a flipped classroom and all the other things, what's your contact time?*" (P006)) and

- the way academics work together (P003, P015, P016), with a re-emergence of team-based approaches. "*Before I worked alone and now I need a team of five to twenty people and this is what's new for me"* (P003). "*We gonna see a much bigger, teamwork approach to design and delivery of programmes in universities*" (P006).

An interviewee observed that MOOCs were an opportunity but also a threat to academics and that the bottom line would be a "*raise in the standards*" (P012). He said: "*teaching is going to be much more public, which is going to be frightening for some bad lecturers, but it is also going to allow other really excellent lecturers, the really excellent professors, instructors, to be able to have a worldwide impact"* (P012).Participant P017 echoed these words when he stated that MOOCs were "*a threat to the current role that faculty play in higher education*".

Three interviewees from the North acknowledged that designing, updating, managing the life cycle of the courses and facilitating a MOOC was a complex, team-effort and resource-intensive task (P002, P003, and P016).

A few interviewees also stated that, as the academic profession was becoming more complex and more specialised, new instructional design/course development roles would potentially enter the Higher Education picture. "*We gonna see specialist roles*" (P006). "*There will be a lot of new types of jobs - some faculty will do only online courses, other will focus more on hands-on learning activities, others will be able to focus more time on research*" (P007). "*These impacts will more likely be in the form of the unbundling of the academic role and a parallel increase in the numbers of learning designers and similar positions within institutions*" (P018). A view shared by another interviewee when he said that universities had "*a non-realistic expectation of what we expect our academics to be able to do; we currently expect them to be able to do everything*" (P006).

5.6.6 Theme 6 – The emergence of a schism: traditionalists versus progressives

Two interviewees from the North seemed to feel that the MOOC phenomenon, as it challenged the "*hegemony of the current education system*" (P017) had, perhaps more than with previously launched initiatives, "*changed the dynamics*" (P007), triggered some sort of a division between academics, those in favour of a more conservative approach to education (the traditionalists) opposed to the advocates for radical changes in Higher Education, those inclined to adopt innovative online teaching practices (the progressives) to solve the inequality of access issue, in a "*conflict between educational tradition and orthodoxy*" (P017).

Three interviewees mentioned some existing and increasing "tensions" (P008) and "power struggles" (P005 and P009) within Higher Education in their contexts. Participant P009 argued for instance that there was a "*massive contestation going on in higher education and the different roles that it plays"* and whether and how technology could play a role.

5.6.6a Two parallel worlds

One French interviewee argued that conservatism was still *de rigueur* in his institutional context. He said: "*Many academics teach and reteach the same course over and over and this is not good enough in this day and age*". A view shared by another interviewee who stated: "*I know how close-minded many academics really are, they believe they've got the answer to education they are teachers, they were taught*" (P005).

One interviewee stated: "*a lot of our academics are obviously viewing engagement as a face-to-face activity, as a physical sort of presence activity and I think what the MOOC again has done is actually challenging us with that*" (P006). One interviewee argued that "*academics do not know anything about Open Education*" (P003), a view echoed by another participant when she said: "*many academics are so remarkably ignorant, quite naïve about what's going on in the broader teaching and learning space*" (P009).

Participant P008 argued that academics had "*to let go of their thinking*", to "*be prepared to work online and recognise that learning happens not only in the classroom but much more broadly*".

5.6. 6b A potential threat

According to participants from the global North and South, the MOOC model was "*likely to put pressure on them* [academics] *to be better lecturers*" (P009), "*keep them on their toes*" (P013), might be *"a threat to the current role that faculty play in higher education*" (P017), while another interviewee foresees that "*traditional" academics might be disrupted*" (P003), "*those who are getting away with being poor teachers*" (P009), if they didn't change their teaching practices.

An opinion echoed by another participant when he said: "*I think a lot of academics are gonna be challenged with that, I think a lot of them are gonna have to rethink what it means to engage with students*" (P006).

Two interviewees (P010 and P012) from Australia and the UK mentioned that as MOOCs were in the public domain, more pressure would be put on academics both on campuses and in online environments to avoid losing face as one interviewee stated "*if I took a couple of MOOCs and I think there are fantastic and I go to my local university and the instructor is terrible then I don't think the instructor can get away with that anymore because suddenly everyone is saying that this guy is terrible*" (P010). An opinion shared by another participant (P012) when he said: "*Now that it's online where hundreds of thousands of people can view and can compare it, they can say, "This MOOC course is rubbish, this one is much better." There is a huge incentive to be able to improve*".

According to a participant from the U.S (P007), students' expectations, influenced by the MOOC model, would extend to not having to go to lectures on campus. He said: "*it's already happening. Students… are wondering, you know, why they have to sit in a course that morning every Tuesday and every Thursday, when everyone can take a MOOC whenever they want it. So that's completely gonna be the expectations of the students that they can take these courses at times whenever they want to. So I think*

their expectation is probably one that's that's very easy to meet. I don't think students will accept the idea of, you know, walking into a lecture hall at a pre-defined time to be lectured at".

Furthermore, competition to attract students and the wider dissemination of a successful and lucrative MOOC model might even potentially oblige the sceptical academics to either design online resources or participate in online/MOOC projects, under strong pressure from their institution and the students, as mentioned by participant P007.
One interviewee stated: "*First, they are going to be asked why aren't you creating a MOOC?, if you got something really good to say, if you are doing some great research or some great teaching on campus, why not create a MOOC and let other people do it? And even if you are not going to create MOOCs, why don't you create better learning resources for your students to be able to learn at home or learn online*?" (P012).

For participant P004 from the global South, MOOC were not, as of yet, threatening the status quo but he argued that students in his context might become more vocal and it might be a good thing. He said: "*we have a little culture here of students making demands on institutions or on the staff being dissatisfied and unable to voice that dissatisfaction compared with the first world we have almost none, because students struggle so much to get into a place in higher education that they cannot be very critical. Whereas if you look at people who are paying increasingly high fees in the first world there, students are becoming more and more critical demanding of better deal. We are far from that still, but I think it may come, and MOOCs may well be one of the ways".*
A relevant example of those changes happening in the global South was provided by participant P015 from India who said: "*we also noticed that our students, particularly the brightest ones, are now watching MOOCs before they come to our classes, and this has changed the interaction in class, students take those MOOCs and expect to discuss concepts in class so our academics have to prepare their classes differently*".

5.7 Summary of the key findings

The following is a summary of the key findings that emerged from the semi-structured interviews.

Main Research Question: To what extent might disruptive technologies/MOOCs democratise higher education?

a) MOOCs seem to have democratised access to content and knowledge to a certain extent (for non-traditional students for instance) but MOOCs, as currently designed, were not considered comparable to a campus-based experience (peer/instructor-interaction, other learning opportunities, advising, networking, prestige, absence of accredited and recognised credentials, etc.) and not suitable to the specific educational needs of the institutions in the global South. Despite the launch of a number of MOOC platforms in various parts of the globe, the fact that the most popular and most prestigious

universities' MOOCs were designed in the North raised the issue in the South of the *McDonaldisation* of knowledge and the reproduction of post-colonial forms of knowledge.

b) According to the interviewees from both the North and South, the critical limitations of most MOOCs as they are currently designed were:

- the quality and scarcity of student-student and student-instructor interactions, which are problematic for non-self-motivated/ non-self-regulated students, particularly from disadvantaged backgrounds, first-time learners and from rural communities, as scaffolding opportunities are limited.
- the cultural barriers and the high level of the content mostly taught in English, which was problematic for students whose primary home /school language is not English and those who had not mastered fundamental skills (as critical literacies are essential to evaluate large quantities of complex data), as it is often the case in many developing countries. This also limited their ability to participate in often mandatory online written and oral discussions with peers.
- The infrastructure issues, as MOOCs were accessible only to those with high-speed Internet /Wi-Fi (for downloading material and viewing videos), either on their desktop or mobile devices, which raised the issue of cost for many in developed and developing countries.

c) The model student for most MOOCs, as they are currently offered, was someone who already had a tertiary and possibly a professional experience, a technology-savvy, committed and intrinsically motivated student that was able to cope with the exigent demands of the MOOC, work and family commitments.

These raised the issue of the role MOOCs play in the democratisation of Higher Education for those who need it the most and the failed promise of upward mobility for disadvantaged populations in the global North and South, an issues mostly ignored in the literature.

d) MOOCs have the potential to provide affordable skills-training/continuing professional development (CPD) opportunities to professionals (lifelong learning).

e) MOOCs have the potential to replace or be a complement, under certain conditions (competency-based, learning-optimised models, authenticated assessment, credentialing, and orientation), some short developmental professional courses, 101 courses/foundations studies courses and possibly first-year standardised programmes. These benchmarked courses could be outsourced and shared between institutions, allowing them to focus instead on experimenting with alternative delivery models to better engage their students. They might also serve as transition between a secondary education and a tertiary one, providing remediation to those unprepared to cope with the demands of a postsecondary education.

Sub-question: What impact will MOOCs have on faculty, teaching and universities?

a) MOOCs are challenging the current old-fashioned, lecture-based, presence-based, time-based, ineffective, disconnected and unsustainable model of Higher Education in the global North and have stimulated a pedagogical debate on more engaging delivery means and on the quality of engagement with students at scale, both online and campus-based. This was likely to put pressure on many academics to up skill, improve their teaching methods, but not in the short-term.
b) MOOCs had stimulated an increased interest in technology-enhanced learning approaches in both the North and South, such as blended learning and alternative teaching methods both online and face-to-face, such as the flipped classroom.
c) The diffusion of the MOOC phenomenon had provided learning and reflection opportunities and had helped create institutional spaces for collaboration, experimentation and exploration at some institutions in the North and South, gradually bridging the gap between academics and instructional designers/ educational developers (para-academics).
d) A surprising finding was that the dissemination of the MOOC model seems to have also generated, at some institutions, a split among academics between the supporters of a more traditional location-based, teacher-based delivery approach and those defending the need for change, choice, flexibility and alternative delivery mechanisms, the champions of technology in improving the learning experience.
e) The propagation of the MOOC model seems to have changed the dynamics within institutions. This might encourage a re-conceptualisation of the academic identity and the disaggregation of the academic role, with the emergence of new, more specialised roles, in the North and South, with the development of local platforms.

5.8 Summary

This section has presented the findings related to the MRQ and sub-question of this thesis. According to participants, Massive Open Online Courses are challenging the current (economic/business/pedagogical) models and delivery mechanisms of traditional Higher Education and these might have an effect on the academic role and identity. MOOCs have aroused institutions and academics' interest in and exploration of technology-enhanced learning. MOOCs have also impelled institutions and academics to refocus on student learning and improve teaching and the design of courses and programmes and this might have polarised the educational conservatives and the advocates of reform.

CHAPTER SIX: DISCUSSION

"*It must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this luke warmness arising partly from fear of their adversaries, who have the laws in their favour; and partly from the incredulity of mankind, who do not truly believe in anything new until they have had the actual experience of it*."

Niccolò Machiavelli, *The Prince and The Discourses*, p.*21, Chapter VI*

6.1 Introduction

This section interprets, discusses and elaborates on the findings related to the Main Research Question, their practical relevance and implications as well as the limitations of this thesis. Research for this thesis was conducted through semi-structured/guided conversation Skype/email interviews with eighteen participants from nine countries. Each interview consisted of twenty three questions. Interviews for this thesis were conducted between September 2014 and December 2014. Notwithstanding the relatively limited sample, this work offers valuable insights into MOOCs in various educational contexts.

The purpose of this study was to investigate MOOCs' potential to democratise access to Higher Education (MRQ) and to gauge their impact on Higher Education institutions, teaching and academics (sub-question). The main research question (MRQ) and the sub-question are intended to be answered by the twelve emergent themes that were identified during the interviews, summarised in Table 6-1. In many respects this appears to be the case with certain caveats. To generate the themes, the researcher used a constant cross comparison method (Merriam, 2009) (Chapter on Data Analysis Procedures).

Table 6-1: Summary of the five overall thematic categories and six emergent themes

Research Question	**overall thematic categories**	**Themes**
MRQ: To what extent might disruptive technologies/MOOCs democratise access to higher education?	○ Infrastructural issues ○ Social issues ○ Political issues, ○ Design issues ○ Pedagogical issues	○ Access to information is widened but barriers still exist ○ Access versus success and social mobility ○ Power relationships and geopolitics of knowledge ○ Specific courses might be substituted ○ Design, human mediation and scaffolding are critical ○ Self-directed, self-regulated, postgraduate students are the ideal audience

Sub-question: What impact will MOOCs have on faculty, teaching and universities?	▫ Challenges ▫ Technology-enhanced learning ▫ Experimentation ▫ Student learning and curriculum design ▫ The academic role ▫ Divisions.	▫ A challenge to the current model of Higher Education ▫ An increased institutional consciousness on technology-enhanced learning ▫ An increased scope for experimentation, exploration and innovation ▫ A refocus on student learning and a rethink of programme design ▫ A re-conceptualisation of the academic identity ▫ The emergence of a schism: traditionalists versus progressives

6.2 Part 1: To what extent might disruptive technologies/MOOCs democratise access to Higher Education?

Table 6-2 is quite revealing in several ways: The barriers to MOOC access and use by participants from disadvantaged backgrounds can be characterised as two main types: tangible and intangible. In terms of tangible barriers, infrastructural issues are the most significant as they limit the access and effectiveness of MOOCs in developed and developing countries. A lack of access has a consequential impact on success. Intangible barriers of great complexity such as, design, pedagogical and political issues are also impacting on the implementation and use of MOOCs in the global North and South. It can thus be suggested that the current MOOC model is not effective.

Table 6-2: Tangible and intangible barriers

Tangible barriers	
e.g. Access to and cost of technology	Despite advances in mobile networks local servers, and more affordable mobile devices in India or the African continent, there is often inadequate or insufficient technology infrastructure such as unreliable high bandwidth Internet access. The situation is gradually improving but still limits many from accessing educational content.
Intangible barriers	
e.g. Lack of fundamental skills	In developed and developing countries, students from disadvantaged backgrounds have insufficient basics skills to successfully locate, identify and navigate relevant sources of information. They also have difficulty contextualising, comprehending, and communicating

	with others. This affects their retention in the MOOC space and reduces their chance to successfully complete a MOOC. Lack of confidence and familiarity with the MOOCs and flipped classroom environments.
e.g. Cultural barriers	▪ Developing countries as recipients of western pedagogical content. ▪ Decontextualized information produced in the North which limits accessibility and reusability; ▪ Global North-generated MOOC content is complex, often irrelevant and inappropriate for users' contexts in the Global South; ▪ Pedagogical relevance. Local cultural values and norms are absent if MOOCs are not produced in collaboration with local stakeholders; ▪ Local education perceived as subpar might be substituted. ▪ Cross-cultural issues and misunderstandings which affects communication in online forums or discussions with peers and instructors;
e.g. Language barriers	"English-language content tends to be based on Western learning theory; this limits the relevance and accessibility of OER materials in non-English, non-Western settings" (Albright, 2005, p.12). ▪ Issues with translations of difficult North-produced content. Issues with often untrained translators working in isolation without input from academics. Issues with local academics who might not have complete mastery of the language and be familiar with Western cultural slang, norms and values. A participant from South Africa

	highlighted the case of academics from regional universities with no international experience. ▪ Absence of language support particularly in discussion forums and collaborative activities in culturally-diverse groups impacts on social relations. Lack of communities of support and staff confidence and competence with those environments
e.g. Political Barriers	Broader pedagogical ramifications appear when MOOCs are adopted globally: Availability of free courses produced by prestigious universities in the North directly competes with ▪ underfunded local courses in developing countries ▪ expensive and limited access to textbooks ▪ underpaid academic staff with limited staff development opportunities

6.2.1 MOOCs have improved access

As there has been almost no detailed investigation of the impact of MOOCs in both the Global North and South, to date there has been little agreement in the literature on the potential of MOOCs to improve access to education in various contexts. Research on the subject has been mostly restricted to limited comparisons of international learners' engagement in a MOOC and for this reason, there is an inconsistency with the argument that MOOCs improved access to HE to those who most needed it.

First, findings from this study suggest that MOOCs seem to have democratised access to content and knowledge to a certain degree but they are not considered suitable, in their current form and design, to the needs of the underrepresented in Higher Education, in developed and developing countries. Participants from the global North and South in this study described for instance their specific educational/economic/social contexts and issues and confirmed in the sub-theme "Promises un-kept" that first-generation novice learners, students from disadvantaged backgrounds, students in rural/regional communities and those who had not mastered the fundamental skills to cope with tertiary learning were at a strong disadvantage in the MOOC format. Unwin (2005) suggested that open content would potentially reach its potential when developing countries would not only be consumers of learning but also producers of "relevant and locally-produced content" and resources (Unwin, 2005, p.113). He argued that whilst the importance of local content development was high on the agenda of international meetings for

ICT development, the picture on the ground was rather different" "there is very little multimedia content being developed by and for African people, let alone in local African languages" (Unwin, 2005, p.120).

While the MOOC model seems to be helping in increasing access to learning experiences and content to some students as indicated by Schmid et al (2015, and helps in addressing political issues of injustice and resource scarcity in developing countries it is still unsuccessful in providing accessibility to a large number of educationally undeserved students, in the global North and South for reasons related to infrastructural. In developing countries, universities are generally closer to cities, and internet or broadband access. Breslow (2013) indicated for instance that there was greater participation in urban areas than more remote areas and that there were nearly no participants from certain parts of the African continent. Internet connectivity is expanding at great rates but is still lagging behind in most developing countries and while countries may have some success in building computer infrastructures, connecting these devices to reliable and steady Internet may still be a critical issue. Wider internet access has led to an explosion in the local and international production and consumption of content and information around the world. However, the intensity of use has been lower in poorer countries, according to a World Bank report (2016, p.4), often due to costs. The World Bank (2016) report also indicated that "worldwide, some 4 billion people do not have any internet access, nearly 2 billion do not use a mobile phone, and almost half a billion live outside areas with a mobile signal" (p.4). This situation is not limited to developing countries only. The report indicated that more than 120 million people were still offline in North America.

Therefore, before MOOCs could help people in developing and developed countries, the infrastructural issues had to be solved. In a different context, according to Howard A. Rosenblum, CEO of the National Association of the Deaf (NAD), 48 million Americans who are deaf or hard of hearing are also denied access to MOOCs "because not all the videos have captions" (Rosemblum, 2015, para.7). The NAD has filed a lawsuit against Harvard and MIT, asking them to provide equal access to their programmes and services.

Much of the literature on Open Educational Resources has focused on issues of access to content and knowledge, or in the case of MOOCs massive-access to the best professors and the best, most trusted educational content on the planet. Rhetoric from MOOC developers presented earlier has indicated that the original main goal was to provide and disseminate quality and reliable resources to millions of people without much concern or discussions around how the design of these educational resources would help improve success. So far, in the MOOC sphere, the evidence that access and success were associated with social mobility was weak and inconclusive.

6.2.2 MOOCs are not yet helping improve success

Most studies in the field have only focused on the issues of access to Higher Education. All the studies reviewed so far suffer from the fact that access to and success in the MOOC format are dissociated. Findings of this study are contrary to

previous studies which have suggested that access to MOOCs would help improve success in Higher Education for participants from disadvantaged contexts.
The findings of this study seem to suggest that MOOCs, despite being "*an incredibly important phenomenon*" (participant P002), are neither equivalent nor a replacement to a campus-based experience and are not going to help those underrepresented in Higher Education succeed, in both the North and the South, particularly if they can't be adapted. An Acumen course in partnership with Ideo.org (offered on the NovoEd platform) completion certificate recently stated (in capital letters, reproduced here) for instance: "PLEASE NOTE: SOME ONLINE COURSES MAY DRAW ON MATERIAL FROM COURSES TAUGHT ON CAMPUS BUT THEY ARE NOT EQUIVALENT TO ON-CAMPUS COURSES". Armando Fox, faculty advisor for Berkeley's MOOCLab stated for instance that "when somebody is a Berkeley graduate, it's not just that they took all these courses and got good grades; it's that they've been in this culture for three to four years…. The students who are in my MOOC, smart though they may be, haven't had that experience" (Bergmann, 2015, para.28). A recent study by Cole and Timmerman (2015) confirms these findings when they stated that a large number of students felt that the information available through MOOCs was "not of the same quality" as the information they received "in a formally structured, traditional college course" (p.197). The Berkeley example highlights one of the issues faced by students in developing countries related to unfamiliarity with western universities' *culture*.
According to Jaggers (2014), there isn't enough data, analysis and evidence to date showing that MOOCs are, if compared with a residential college experience, improving access, learning and success among traditionally marginalised student populations in developed countries. The examples from the theme that emerged from the interviews' data "Access versus success and social mobility" suggest however that the democratisation of access to content online does not necessarily mean more learning, success and equality of opportunity outside of the access for the students who took MOOCs, particularly if there were from low-income backgrounds in developed countries and /or from the global South. As Unwin (2005, p.121) pointed out, "it is exceedingly difficult for users in Africa to identify what is most appropriate for their needs", particularly in the case of a programme "in which the sole or principal form of communication is through technology" or when "technology-mediated communication is ancillary to the classroom" (Moore 2007, p.91).

The "An outdated model", "MOOCs potential to replace courses" and "Specific courses might be substituted" sub-themes of this study coincide with and add a global South perspectives to other studies (Lucas, 2013; Kim, 2014; Pope, 2014; Popenici; 2014; Koller, 2015; Kolowich, 2015) as they confirm that MOOCs, despite their potential to replace introductory courses at postsecondary institutions, reduce the skills' gap, contribute to bridge the college readiness gap (as explained by the participants in the "Transition" sub-theme) and play an interesting role in lifelong learning, will not, even if pedagogically remodelled (and without taking other crucial and interrelated factors into consideration, as presented in Figure 7-1, below), displace an on-campus university experience in countries in the global North or South.

Technology is often described in the literature as an enabler, as empowering, as a facilitator, a supporter, as an enhancer (Knox, 2013). Knox (2013, p.23) argued that technologies of open education were often implied to have an "independent and abstract pedagogical value". Critical theorists such as Baudrillard (1983) and Lyotard (1984) considered the pivotal role technology had in promoting social change. This research sheds new light on this by arguing that technology has indeed a pivotal role but only if adapted and contextualised to participants' needs.

6.2.3 MOOCs are not yet helping improve social mobility

Third, the findings of this thesis support research by Carver and Harrison (2013) and Bowen and Tobin (2015) that the MOOC model might neither be the answer to the social mobility issue in the global North and global South, which, in the U.S. for instance, has not been resolved by a more traditional on-campus model (Gaddis, 2014). The literature review has indicated that traditional students from low socioeconomic backgrounds in developed countries often struggle to graduate and find it difficult to find jobs, even with a degree. According to Dynarski (2015, para.1) for instance "a child born into a poor family [in the U.S.] has only a nine percent chance of getting a college degree". This low percentage in a developed country such as the U.S. raises the crucial question to whether an online access to knowledge and content without the regular, systematic and personalised academic support a campus-based experience might in some cases provide, as described by a participant in the "Every cloud has a silver lining" sub-theme, could be an effective substitute to an already very challenging face-to-face university experience for a non-traditional student from a rural background, in a developing country, as described by the participants from South Africa. Kop and Hill (2008) argued that not all learners have sufficient autonomy to exercise the control needed in connectivist settings. Education in developing countries poses a lot of challenges. Critical theorists such as Foucault or Horkheimer analysed how people were marginalised through the practices of school and were enslaved by their circumstances. Despite a rhetoric of free access to content, and while MOOCs allow "groups who had previously been excluded by their race, class, gender, sexuality or geographical place" (Steinberg and Kincheloe (2010, p.141) to access knowledge, it can be argued in the context of this thesis that MOOCs are not freeing everyone "from the circumstances that enslave them" (Horkeimer, 1982) and are still marginalising the underprivileged in both the global North and South.

Participants from the global South described for instance in "The ideal MOOC student" and "Specific courses might be substituted" sub-themes, the existing lack of infrastructures in their country, the low quality of their primary and secondary educational contexts and the high attrition rates at university as major hurdles that prevented many students from succeeding or completing a degree. In Theme 3 "Access versus success and social mobility" two participants argued that half of every intake at university in their country would likely drop out for reasons ranging from difficulties to cope with tertiary education learning to financial issues. Taken together, these results suggest that there is an association between access to MOOCs, success in the MOOC format and social mobility.

We may therefore argue that MOOCs, as they are currently proposed are not socially-empowering people (McLaren, 1994) and exacerbate socioeconomic disparities.

6.2.4 MOOCs might be amplifying divides

A much debated question often ignored in the literature is the extent to which MOOCs might be exacerbating divides. Some findings of this thesis correlate with research carried out by Harrison (2013), Liyanagunawardena et al (2013), Czerniewicz *et al.* (2014), Hollands and Tirthali (2014), Nath *et al.* (2014) and Best (2015). According to their research findings, MOOCs have helped legitimise the value of online learning, have expanded access to content and knowledge to thousands of students around the world who otherwise would not have had access to such material. However, they posed significant challenges to learners from developing and developed countries and might in fact further aggravate existing educational divides, as the education world might increasingly be separated into tiers: those who had access to quality education and MOOCs and those who didn't or couldn't. This contradicts the original ideological underpinnings behind the launch of Open educational Resources as a means of addressing issues of injustice, inequality and resource scarcity in low-income countries.

Reich (2015, para.7) has for instance indicated that in China, resolving equity was mainly about resolving access: "The east has access, the west doesn't; the cities have access, and the rural villages don't". The Literature Review and the findings of this thesis have indicated that a combination of factors, such as poverty (or low income levels), geographical location and ethnicity put people at a significant disadvantage to get an education, even at primary level. Interview data of this study and the detailed examples provided by participants in Theme 2 "Self-directed, self-regulated postgraduate students are the ideal audience" and the two sub-themes "The ideal MOOC student" and "Specific courses might be substituted" have also showed that the unavailability of high speed Internet and computers/free broadband/Wi-Fi, expensive smartphones, cultural barriers and the high level of the academic content taught in English are also significant obstacles for students from developed and developing countries. Technology in the case of MOOCs has therefore the potential to constrain learning activities.

It is interesting to note that a new definition of MOOCs has recently appeared in the literature (Jensen and Schuwer, 2015) developed by the European HOME project together with the ECO project (ECO: Elearning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning) and OpenupEd:

> "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" (OpenupEd, 2015, p.1)

Digital literacy has been described by Carpenter (2009, p.140) as a "blurring of academic and cultural knowledge". He further argued that "students read and construe meaning from cultural products in complex, nuanced ways, employing a

wealth of strategies gained from years of immersion in media-rich environments" (Carpenter, 2009, p.139) . In the MOOC sphere, there seems to be an over-emphasis on availability of content at the expense of contextualisation of content to different audiences from diverse cultural and educational backgrounds.

Section 7.2.2 above has indicated that participants from the global North and South thought that MOOCs were not equivalent /not a replacement to a university experience, particularly to those from disadvantaged contexts, despite what universities and mass media had advertised. Those whose primary home /school language was not English (such as in the case of some minorities in the U.S. or in rural communities in South Africa or India) and those who had not mastered the essential fundamental literacies to understand/evaluate/interact with and reflect on large quantities of complex data posted online (course content and discussion board posts for instance, provided they had computer access to it) as was the case for example in remote aboriginal communities in Australia, who were also at a serious disadvantage or were left behind. These issues limit MOOC participants' ability to access, download, view material/videos, comprehend (Yang *et al*, 2015) and participate in often mandatory online written and oral discussions, confirming an UNESCO report (2005) that argued that those who didn't have the fundamental skills to benefit from "a mass of indistinct data" would be left behind (UNESCO report, 2005), would not be able to "exploit these networks in completing learning tasks" (Anderson and Dron, 2010, para.18) and this seems to be the case with the MOOCs, as they are currently designed.

Social presence in connectivist pedagogy is fostered through the contributions, insights and comments of participants in the course. Online communication (synchronous and asynchronous) and contributions to discussion forums in an unfamiliar language and cultural background increases the likelihood for a sense of alienation, loss and misunderstandings since it is difficult to gauge or express emotions or non-verbal elements. A number of studies and surveys that investigated the learning experience of international students in various countries found that cultural references and differences had a strong impact on students' communication and relation with instructor and peers, as well as motivation with the course. These studies describe gradual demotivation, disengagement, confusion, feelings of alienation and isolation, as well as cultural dissonance. Freire (1969) argued that students who did not have opportunities to participate in deep democratic dialogues were disempowered and disengaged in knowledge construction.

Customisation or the personalisation of the learning experience is associated with features such as autonomy, learner choice and self-regulation. MOOCs currently allowed participants to have control over the pace, place and time they learn thus meeting their different learning styles and approaches. Once registered in a MOOC, participants had no choice however over content. The notion of adapting, repurposing and remixing content is often argued as a way to ensure relevance to differing cultural contexts and pedagogical practices. However, while a majority of the interviewees of this study mentioned the increased "*flexibility*" MOOCs provide, allowing students to actually choose and customise their own learning path as one of the most interesting feature of the MOOC format (something that seemed quite difficult only a few years ago), Morris and Stommel (2014) contested the flexibility

MOOCs offered by saying that the limited peer-to-peer interactions and the lack of involvement/ participative decision-making power (i.e. students are not involved in the design of the content or the assessment of the MOOC) not embedded in the MOOC model, were actually disempowering students from taking control of their own learning space (Holley and Oliver, 2010), as once enrolled in a MOOC they were locked in, without any chance to be involved in the design or assessment of the course until its completion. They stated that "within most MOOCs there are few options to make changes, to meddle, or to get our student fingers dirty" (Morris and Stommel, 2014, para.12), and this might be one of their strongest shortcomings, impacting on participation, motivation and retention. Anderson and Dron (2010, para.25) asserted that in a connectivist pedagogy, "learners and teacher collaborate to create the content of study, and in the process re-create that content for future use by others". Pre-designed and pre-recorded content may in fact result in relatively high transactional student-teacher distance (Moore, 2007).

What this thesis argues is that MOOCs in their current form and design do not socially empower those who most need it in developed and developing countries, they still stratify people by creating a meritocratic system, as mostly those quintessential MOOC students described below (with the educational/cultural /heritage capital) will participate, persist and complete high-level MOOCs. MOOCs therefore still help perpetuating (and increasing) educational divides as the best students get even better after taking MOOCs while many, from underprivileged backgrounds, seem to be still denied these opportunities. They remain excluded and distanced, even more *globalised* (Hallak, 2000), they face increased hurdles to catch up with the knowledge economy. These findings are contrary to previous studies which have suggested that MOOCs were an equalising force.

6.2.5 MOOCs are not suitable to everyone

Very high dropout rates in most undergraduate-level MOOCs are often mentioned in the literature. For instance, among 525,000 students who enrolled at 11 University of Melbourne MOOCs, only 11,600 students completed the course (Hare, 2015). Hill (2013) explained the phenomenon by categorising MOOC users into four categories: lurkers, drops-in, passive participants and active participants. As mentioned in the literature review of this thesis, MOOC users are not conventional students as their age and educational attainment is higher than traditional college students and they have various goals and motivations that might explain the reasons why they drop out. Others like Glance (2014) have argued that since the entry was "frictionless", students knew that there would be no consequences and they would likely drop out without any second thoughts. One sub-theme "The ideal MOOC student" and Theme 2 "Self-directed, self-regulated, postgraduate students are the ideal audience" while confirming previous research that the ideal MOOC participant did not fit the typical student mould, gave a slightly different perspective by suggesting that there might not in fact be an ideal student for MOOCs, as they are currently offered. Interviewees, confirming current literature on MOOC participation, argued that those who had most chances of completing a MOOC, already had a tertiary and possibly a professional experience, were digitally literate, were committed and intrinsically motivated and were able to cope with the exigent demands of the MOOC, work and family commitments, as indicated by Kizilcec and Halawa (2015).

Research by Crawford et al (2014) and Platt and Eastwood (2015) suggested that students from low socio-economic backgrounds who had lower average achievement at each stage of their education (primary and secondary) were unlikely to succeed at Higher Education if they did not have access to practical information, orientation at pivotal points in their study life, and faculty/peer support. The findings of this study suggest that these were also among the most serious flaws in the MOOCs, as they are currently offered and for this reason the current MOOC model is not the solution for these populations. Bourdieu (1977) claimed that the education systems "legitimated" class inequalities and argued that those who had access to better educational experiences had increased chances to succeed at school. This situation seems to be perpetuated in the MOOC format. Recent studies have linked technological change to a rise inequality in developing countries. Those with the skills to complete a MOOC will have additional skills that will allow them to switch to better-paid occupations and will make them more productive. In contrast, those who without the right abilities to leverage technology and MOOCs be limited to lower-skilled job opportunities.

Participants in this study supported this argument by arguing in the sub-themes "pedagogy at scale and quality", "human interaction" and "limitations, opportunities and impact" that MOOCs could be confusing (Yang et al, 2015), were not suitable to everyone, particularly those without the aptitude to study high-level content online in English, or those not used to the unorthodox flipped classroom format, in countries such as China, where the lecture and rote-learning were still the norm, as confirmed by Li (2015). Data from the interviews suggested that students from disadvantaged educational backgrounds would face tremendous challenges in the MOOC format, without substantial peer interaction/scaffolding and adequate and continuous pedagogical support confirming Rogers and Wang (2008, pp.527-536)'s statement: "Culture itself cannot be objectified as just another factors, it should be programmed into designing phases at distance learning course, moreover culture is so much part of knowledge that it must be emphasize not only at the analysis phase but all the phases of design process". The role culture and language play in sense making cannot be underestimated. Trucano noted that the challenge for policymakers in developing countries is that most MOOCs emanated from urban environments in developed countries, and as a result the 'solutions' are imported and 'made to fit'. D'Antoni (2007) suggested cultural translation as a critical feature of Open Educational Resources (OER) to enable the adoption of these resources in foreign educational settings. However, as most MOOCs are still copyrighted under licences that forbid the repurposing of material, it is still difficult to directly translate or adapt these courses cross-culturally. McLuhan's *the medium is the message* slogan reminds us that there are explicit effects embedded within a given medium and there is a strong argument that MOOCs must are not culturally sensitive. As Bakhtin (1981) put it: Language is not a neutral medium that passes freely and easily into the private property of the speaker's intentions; it is populated—overpopulated —with the intentions of others. Expropriating it, forcing it to submit to one's own intentions and accents, is a difficult and complicated process (p. 294). Like most technologies transferred from the Global North to the Global South, MOOCs are often criticised as strategic expansion of western-produced knowledge and culturally exclusive. "The issues [with MOOCs] go beyond catering to diverse

learning requirements and should also expand to creating online spaces that cater for culturally diverse learners" (Marrone *et al*, p.1). In other words, attention to cultural differences and nuances is extremely important when introducing the technology into new contexts such as in developing countries. If not culturally inclusive, MOOCs disseminated in the developing countries' complex contexts risk developing a renewed neocolonising effect. MOOCs today are a taught in in few languages but majoritarily in English, a reality which seems to exclude a large number of students in developing countries from participating. Students not have the language mastery to successfully engage in a MOOC course. Colloquialisms and inaccurate translations do little to mitigate confusion or comprehension of content.

Theme 4 "Design, human mediation and scaffolding are critical" of this study indicated that while both online and face-to-face environments might be beneficial in terms of learning outcomes' achievement for highly-motivated, technology well–prepared and self-regulated learners, the limited scaffolding, often difficult content and assessment, scarce but crucial social interaction/learning opportunities and insufficient instructor's presence in current MOOCs were impacting on disadvantaged students' persistence and success in the courses. In other words, while it was possible that MOOCs could help the 50 percent of the South African dropouts (mentioned above) have access to content and knowledge from top universities, it was very unlikely that MOOCs could be the solution to their academic problems that compelled them to drop their on-campus courses in the first place. MOOCs would hardly be an option for the 175 million young people living in low and lower middle income countries who, according to the Teaching and Learning Report: Achieving equality for all (2014), were unable even to read all or part of a sentence. It would also be very difficult for the 40 percent of the EU population who have insufficient digital skills, as indicated by the European Commission (2014).

Theme 4 has also indicated that providing support to each and every student was an expensive endeavour, confirming Laurillard (2013)'s statement when she said that the effective support of students was "a labour intensive process" and "extremely costly in staff time".

In Theme 6 - *Power relationships and the geopolitics of knowledge*, participants from the Global South raised the issue of the McDonaldisation of knowledge and the reproduction of post-colonial forms of knowledge. This commercialisation of knowledge can be linked to what Lyotard (1984) described as a struggle for control of information or Gramsci (1971)'s power of ideas that contribute to inequalities and control of power. According to Albach (2002, p.4), "the new neo-colonialism works through the knowledge providers who are selling a variety of products on the world markets"…for one motive: profit. These "off the shelf" often technological products are "designed for students in the industrialised countries" for commercial gain purposes and are not relevant to developing countries: As consumers of knowledge and content designed in the West, "those who are less powerful in the Global South lose "their intellectual and cultural autonomy" creating a new form of ideological hegemony. Noble (1998) shared these views when he asserted that education was "about making money". Poster (1997) argued that the Internet "instantiate[d] new forms of interaction" and "new kinds of relations of power between participants" (p. 206). Grosfogel (2013) questioned the possibility that the canon of thought in all the disciplines of the Social Sciences and Humanities in the Westernised University was

based on the knowledge produced by a few men from five countries in Western Europe (Italy, France, England, Germany and the USA). "How is it possible that men from these five countries achieved such an epistemic privilege to the point that their knowledge today is considered superior over the knowledge of the rest of the world? How did they come to monopolise the authority of knowledge in the world? Why is it that what we know today as social, historical, philosophical, or Critical Theory is based on the socio-historical experience and world views of men from these five countries?" (p. 74). This resonates strongly with the *Ivy League education for the masses* message that was prominent at the launch of MOOCs.

Participants in this study argued that they had started to experiment with MOOCs and were trialling locally-produced MOOCs (such as the recently launched *What is a mind* course at the University of Cape Town – http://www.uct.ac.za/dailynews/?id=9141) but the majority of the MOOCs students had access to were still produced in the West/North, infused with the (cultural) values, norms, beliefs, and characteristics of the designers.

Another interesting additional finding of this thesis related to the potential contribution MOOCs could have in substituting standardised course content seems to be consistent with that presented by Hoxby (2014) related to their potential in nonselective postsecondary education (NSPE). Hoxby (2014) argued that more than half of the students in NSPE institutions were non-traditional, most NSPE courses adopted multiple-choice assessments (70 percent), many graded by fellow students (36 percent), and instructors did not need to be *cutting-edge researchers*. While she argued that student drop outs were extensive, she did not seem to indicate however the shortcomings mentioned above and below (and make the link between those and the large number of drop outs) that would have to be resolved before MOOCs could efficiently be used as replacement to some NSPE courses, not only to improve access but also increase retention and success. More than fifteen years ago, Hillesheim (1998) had already investigated the barriers to success for students and faculty in distance learning courses and indicated that one of the primary reasons why students dropped out of distance learning courses was a lack of engagement. She also advocated continuous faculty development.

The findings of this thesis are consistent with previous literature on the topic of online learning and scaffolding (Downing *et al*, 2010; Ley *et al*, 2013; Gutiérrez-Rojas, 2014) and they seem to demonstrate that ideal profiles described above and in most of the MOOC literature did not actually matter, a result that has not previously been described in previous studies: if the MOOC is not designed in such a way that it provides navigational signposts and ample opportunities for the student to engage with peers and instructor, it doesn't really matter if he/she is a lurker, a drop-in or a passive participant, from a developed or a developing country, highly educated, with or without job experience or even motivated: there are very high chances that he/she will drop out very early and not complete a MOOC. This might be one of the most valid explanations to the low persistence rates and high dropout numbers. If participants from lower-income backgrounds were not getting the online support

they needed to keep up in a MOOC, it raises the question: Are MOOCs actually an equalising force?

6.3 Summary

Kim (2015, para.1) in a recent article argued that "mobile learning and competency based credentialing is the future of higher education in South Asia, East Asia, and Africa". In the context of China for instance, a recent article by Reich (2015) echoed this view by stating that educational demand radically outstripped supply and that explained the rise of the MOOCs. It might however well be a solution for some students, those with affordable access to high-speed mobile Internet, but the findings of this study show that MOOCs, as they are currently pedagogically offered pose insurmountable challenges to those with no experience as being an online student, those academically unprepared, those without enough school/work experience to cope with the rigors of postsecondary education learning designed in the West, those with low levels of English, those without a smartphone with broadband/Wi-Fi access, those who need interaction and continuous feedback. Yang *et al.*(2015, p.122) in a recent study on MOOCs and confusion indicated that "the distant nature and the size of MOOCs introduce limitations on opportunities for students to interact with others as effectively as in traditional classroom learning or intelligent tutor situations. Lacking immediate feedback (Cole and Timmerman, 2015), interactive communication, or timely support increases the likelihood of members leaving such communities, especially when members get confused in the learning process" (Yang *et al*, 2015, p.122).

Romiszowski (2004) in a meta-analysis of articles related to the factors resulting in the failure of e-learning systems in Higher Education institutions had indicated that the most cited barriers towards a successful implementation were the non-consideration of geographical diversity, learner diversity, social, political influence, educational cultural background differences. Jensen and Schuwer (2015) had for example indicated that EU MOOC activities were mainly concentrated in Western Europe and were serving a limited number of language communities (Jensen and Schuwer, 2015). In his essay on Teachers as Intellectuals, Giroux (1988, pp.124-128) argued that "teachers should be actively involved in producing curricula materials suited to the cultural and social contexts in which they teach" and this does not seem to be happening very often in the current MOOC model.

Reich (2015) stated for instance that as demand for education grew faster than the established education sector could keep up, MOOCs were becoming very popular in China. Alsop (2014, para.16) indicated however that since MOOCs were not translated or localised, the "majority of China's 600+ million internet users who did not speak English had not been able to participate in MOOCs". The burgeoning of local platforms in the local language such as Veduca in Brazil [http://www3.veduca.com.br/] or Rwaq [http://www.rwaq.org/] in Saudi Arabia is a recent positive development that might help increase participation and the development of local informal learning communities (Cook and Smith, 2004), which might help to sort those issues out. The development of local learning hubs (Coughlan, 2014) and local MOOC meet-ups brings up, however, the crucial issue of staff development opportunities for local instructors, to effectively navigate often unfamiliar and complex online environments designed in the West and interact in

the local language with local students in an expert way. An interesting *augmented learning* study group development is LearningCafé in Sydney [http://www.learningcafe.com.au/blog/professional-development-for-ld-learning-to-teach-online-mooc-augmented-by-learningcafe/]. LearningCafé provides additional material and contextualised information to *Learning to Teach Online* course participants from industry (corporate learning professionals). According to the website, "the Augmented MOOC Study Group or MOOC Plus will comprise of L&D professionals and practitioners from various organisations who in addition to completing the LTTO MOOC on Coursera will also participate supplementary virtual learning sessions/discussions to add context for corporate L&D professionals and share better practices".

Wells (2013) and Valenza (2012) had argued that the Internet had given students worldwide access to world class content and academics "eliminating the barriers of geography and privilege" (Valenza, 2012; Wells, 2013). The idea of "bettering yourself" was, according to Stevenson (2010, p.345), "linked with individual becoming educated to access a previously inaccessible high culture".

Ivan Illich wrote in Deschooling Society (1971, Chapter 6), "A good educational system should have three purposes: it should provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally, furnish all who want to present an issue to the public with the opportunity to make their challenge known." Bucy (2000) showed that the Internet was increasing inequalities as disadvantaged populations without access were not participating in the wider political and democratic debate (Bucy, 2000).
According to the findings of this thesis general initial assumptions made by MOOC platforms about MOOC participants and insufficient research on the heterogeneity of learning environments and contexts might have influenced MOOC developers' perceptions of the participant's learning backgrounds and needs when they designed the MOOC model. In consequence, taking into consideration local educational contexts, solving complex local infrastructure/access issues, better collaboration between all stakeholders and a complete rethink of the pedagogical model to adapt to the learners' needs is necessary before MOOCs can reach their full potential to democratise Higher Education in developed and developing countries.

6.4 Part 2: What impact will MOOCs have on faculty, teaching?

This section interprets, discusses and elaborates on the findings related to the sub-question.

Table 6-3: Summary of the themes

Sub-question: What impact will MOOCs have on faculty, teaching and universities?	▫ Challenges ▫ Technology-enhanced learning ▫ Experimentation ▫ Student learning and curriculum design ▫ The academic role ▫ Divisions.	▫ A challenge to the current model of Higher Education ▫ An increased institutional consciousness on technology-enhanced learning ▫ An increased scope for experimentation, exploration and innovation ▫ A refocus on student learning and a rethink of programme design ▫ A re-conceptualisation of the academic identity ▫ The emergence of a schism: traditionalists versus progressives

6.4.1 MOOCs' disruptive effects on universities

MOOCs might be offering access to the disadvantaged from developed and developing countries and non-consumers from developed countries, those who otherwise wouldn't have the skills, time or financial means to have access to world-class professors and additional "recognised" credentials (Schmid et al, 2015), but they are not causing (as of yet) serious destructive effects that would qualify them as a *disruptive innovation,* as they mainly provide access to courses and content to some, and not a complete university experience (class experience and valuable social networks).

One of the Australian interviewees of this thesis argued for example that Australian society still had some "reasonably conservative views" about what made a good university graduate. He added: "*And some of those do come down to a bunch of things that are developing well in a face-to-face setting*". One interviewee argued that there were two *conditio sine qua non* in order for MOOCs to be a substitute to a so-called traditional university experience: they had to offer a better and more affordable learning experience and accredited degrees, recognised by employers.

The more affordable (US$6000) computer science master's programme in a MOOC-style format offered in 2014 by Georgia Tech (U.S.), run in parallel with its campus-based qualification in partnership with Udacity and AT&T, seems to be heading in this direction, a low-cost high quality product being another characteristic of a disruptive innovation. It is however too early at this point to draw any conclusions as to whether this MOOC-master's will one day totally replace its more costly on-campus degree and as to whether employers will recognise it as equally valuable when they interview graduates. While the University of Illinois (U.S) launched of a MOOC-based iMBA degree with eight specialisations [https://www.coursera.org/course/imba], the University of the People (UoPeople)

an online non-profit recently-accredited university by the Distance Education Accrediting Commission (DEAC) has also announced the launch in 2015 of two possibly accredited MBA programmes in entrepreneurship and management using a MOOC format, with no tuition fees (Chan, 2015). While a company might not hesitate to employ a Georgia Tech (MOOC) graduate in computer science (as it makes sense that the course was offered online), a critical question remains however as to whether an employer would recruit an MBA graduate from UoPeople over another from a more established university with wider alumni networks, a subject that remains to be explored.

Todd and Siemens (2015) provided a preliminary answer by stating that the learning students experience in business-oriented MOOCs, mostly currently offered by top U.S. universities, "does not promote the same types of engagement and collaboration that businesses need" (Todd and Siemens, 2015, para.6), once again confirming that the main flaw lies in the absence of context and inadequate pedagogical format.

The recent partnerships between MOOC platforms (edX and Coursera), universities (University of California San Diego, The Wharton School, University of Pennsylvania, University of Maryland and Vanderbilt University, Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University, Berklee College of Music) and high-tech firms (Instagram, Snapdeal & Shazam, Google, SwiftKey, iHeartMedia, Qualcomm, Splunk) to jointly design and offer specialisations courses on Interaction Design, Mobile Cloud Computing or data Science (with final Capstone Projects) are considered however potentially very disruptive by many commentators, as these partnerships allow customisation and quick iterations to meet constantly changing industry's standards for skills and knowledge.

They are also

- affordable,
- short term,
- modular,
- time flexible,
- readily applicable and
- taught by industry experts.

According to Alexander Halavais, associate professor in the School of Social and Behavioral Sciences at Arizona State University, universities lacked "interoperability". He argued that universities were like "old-fashioned Macs losing out to the openness of Windows and other platforms that made it easier to 'plug-and-play" and that the integration of 'nano-,' 'micro-,' and 'meso-' certificate programmes would give an edge to their degree programmes (Waters, 2015, para.18).

Participants' interview data summarised in the sub-theme "new institutional spaces for experimentation" of this thesis has shown that the expansion of the MOOC format has given universities and the corporate world ample opportunities to scrutinise good and poorly-designed MOOCs, reflect on how they could adapt it to their own contexts or change their long-lasting learning and teaching / staff

development practices. In the themes “An increased institutional consciousness on technology-enhanced learning” and “New institutional spaces for experimentation” particularly in the sub-theme ‘Learning and Teaching is getting centred attention” participants mentioned that MOOCs had started to arouse universities’ interest and curiosity about technology-enhanced pedagogy in face-to-face and online settings, particularly blended learning approaches. In a recent article on Times Higher for instance, Sarah Speight, professor of higher education and academic director of online learning at the University of Nottingham indicated that her institution had used its MOOC courses to “experiment, try out different formats [and] different models” (Parr, 2015, para.12).
Sally Kornbluth, Provost at Duke University indicated that MOOCs had “revitalised the notion of pedagogic innovation, in a way that’s spilled out of the online space and into the regular classroom” (Anders, 2015, para.6).

In consequence, in light of the literature (Kalman, 2014; Krause and Lowe, 2014; Mazoue, 2014, Terwiesch and Ulrich, 2014) and of the characteristics that define a disruptive innovation, Massive Open Online Courses do seem to affect HE institutions business and delivery models to a certain extent (as they have the potential to reach various untapped audiences, replace accredited university and business schools’ courses, a prerogative previously held only by Higher Education institutions as shown in the sub-theme “MOOCs’ potential to replace courses”, or potentially disrupt the existing credit-hour systems) but they do not tick all the boxes of what truly defines a disruptive innovation (innovative, superior in performance (quality and value), low cost, offers a service or product to non-consumers) and they do not radically and structurally disrupt (in their current form) the entire Higher Education market. In the words of Aaron Silvers (Docebo, 2015, p.10), “MOOCs aren’t disrupting academia so much as are other things - and I don’t know that MOOCs are really disrupting much of anything else”.

MOOCs should not therefore be considered as a disruptive **innovation** but rather a disruptive **technology** and should be labelled as such in the academic literature.

The findings of this research, particularly in the sub-theme “modularity”, seem to suggest that the flexibility and choices offered by the MOOC model is starting to challenge the one-size-fits-all rigid campus-based, time-based, programme-based format (still offered on many campuses around the world), not suitable to an ever-increasing non-traditional audience, described in the sub-themes “an outdated model”, “an ineffective model” and “a depleted and disconnected model”. The findings of this thesis described in the theme “A refocus on student learning and a rethink of programme design” “An increased scope for experimentation, exploration and innovation” and particularly the sub-theme “alternative ways of engaging students with technology”, show that the MOOC model has ignited new discussions in universities on competency-based programmes and more flexible delivery mechanisms (Waters, 2015): a more personalised, self-paced adaptive learning experience with various entry and exit pathways to cater to new and shifting non-consumer student populations, defined by Weise (2014, para.2) as “people who are over served by traditional forms of higher education, underprepared for the

workforce, and seeking lifelong learning pathways" (Weise, 2014). An example of a lifelong learning pathway is the Skillshare platform that uses project-based learning to teach ready-to-use skills.
https://www.skillshare.com/classes?via=dropdown

The findings of this thesis, particularly the sub-theme "Increased use of online technologies" also show that successful MOOCs seem to have restarted the conversation throughout educational circles between the supporters of online education and the defenders of a more conservative approach to higher education on interactive blending learning approaches and about how to synchronously and asynchronously engage and assess a very large number of students with sequenced content and videos, online and on-campus, challenging the commonly held belief that small classes are actually better for learning, even in online settings (Bettinger *et al*, 2014; Francis, 2015; Jaschik, 2015). This poses however the issue of a top-down or technocratic approach to curriculum, assessment and content whereby "all students can learn from the same materials, classroom instructional techniques and modes of evaluation" (Giroux, 1988, pp.124-128). This emphasis on an identical mass education raises also raises the issue of what Lyotard (1984) labelled as performativity, that will "supply the system with players capable of acceptably fulfilling their roles at the pragmatic posts required by its institutions" (Lyotard, 1984, pp.57-59).

6.4.2 MOOCs foster institutional collaboration

This thesis replicates the findings of other studies that found that MOOCs are kick-starting/encouraging collaboration, exploration and exchange of ideas/expertise between academics and para-academics. As students are increasingly demanding, well-informed, selective and social media active, they tend to compare and comment on the classes they take at their institution with those offered on public MOOC platforms, taught by star professors at often more prestigious universities, and this might raise expectations, among students and university management. Participants in this study have highlighted the difficulty to design a quality MOOC and the findings of this study show that there is a re-emergence of team-based approaches to curriculum design within institutions. While MOOCs seem to have encouraged discussions on how to better engage students at scale within many institutions, the theme "power relationship and geopolitics of knowledge" of this thesis has shown that spaces for collaboration and exchange of expertise between institutions from the global North and those from the global South need to be created to discuss how MOOCs could be contextualised to help tackle their often complex respective educational issues. Cochran-Smith (1994) claimed that collaborative resonance or *teaching against the grain* is produced when novice teachers (in this case novice in the MOOC environment) systematically participate in thoughtful inquiry, are self-critical, research their own practices, critique *the cultures of schooling and teaching*, work with experienced professionals, interpret and articulate *their own expertise* to link theory and practice (Cochran-Smith, 1994).

6.4.3 MOOCs may add pressure on academics

The findings of the current study do not support previous research that indicated that MOOCs were, in most instances, encouraging collegial collaboration within institutions. The theme "A re-conceptualisation of the academic identity" shows that designing (and re-designing) an engaging and interactive Massive Open Online Course is quite a sophisticated exercise that often demands a team-based approach and the MOOC phenomenon seems to have put some pressure on academics to re-engage with the Learning and Teaching literature to upgrade their instructional design and management skills, reflect on and improve the quality of their teaching, both face-to-face and online, as exemplified by one participant when he said: "*what it is we actually expect for academic skills*". An academic is considered a discoverer and disseminator of knowledge and scientific research, but he/she must also perform (i.e.; successfully apply to competitive and prestigious research grants, publish in world-class journals, launch new courses, attract students, take up administrative roles, etc.). As a producer of human capital (graduates), the professor is a commodity that needs to continuously perform as he/she adds economic value to the institution.

The "human interaction" sub-theme has shown that the role of a MOOC facilitator is primordial and should be to enhance the online learner experience, develop the learners' expectations and their sense of belonging in the course. While some academics might find this inspiring/stimulating or burdensome, adding even more load to their current role (Trucano, 2015), it might specifically pose tremendous challenges to the most vulnerable "far less securely employed foot soldiers of higher education who are actually responsible for the bulk of MOOC teaching" (Bulfin et al, 2014, p.302) but who may have not designed the course, particularly if student attrition numbers and teacher evaluation results in a MOOC are considered for re-appointment purposes in the future. This is an interesting question that needs to be further explored in the literature. The 'Schumpeterian' recruitment and performance-driven policies in Higher Education that increasingly favour short-term/part-time contracts as well as Lyotard (1984, pp.57-59)'s concept of *performativity* where "accountability is measured by outputs" or outcomes is highly relevant here. These changes in the role of the academic brings about another important theme related to what Giroux (1988) called the transformative intellectual role of the teacher. In *Teachers as Intellectuals: Toward a critical pedagogy of learning* Giroux (1988, p. 122) argued that teachers were reduced "to the status of specialised technicians within the school bureaucracy, whose function then becomes one of managing and implementing curricular programmes rather than developing or critically appropriating curricula to fit specific pedagogical concerns." A view shared by Noble (1998, p.362) when he stated that technology was deployed "to reduce their autonomy, independence, and control over their work" in order to discipline, de–skill, and displace labour. As such, teachers were not able to assume their rightful "transformative intellectual" role which is to engage and involve students as co-creators, co-producers and co-constructors of knowledge (Giroux, 1988, p.xxxvi).

In the "A potential threat" sub-theme, participants from the North argued that traditional academics would be challenged by the changes brought by a potentially lucrative expansion of the MOOC model, as they might be compelled by their

institutions, to either design a MOOC or design online learning resources in parallel or as an alternative to their face-to-face course, to produce a maximum number of certified students within an allotted time (Giroux, 1988). Zakaria (2015, p.129) argued that MOOCs "will force teachers to do better, since they will now be measured against the world's best." This might potentially create reticence and uncertainty within the academic community or possibly a schism: those defending the need for change in HE, those interested in offering more engaging courses, more choice, flexibility and alternative delivery mechanisms to students against the educational conservatives, the defenders of the traditional modes of delivery, those most inclined to focus on their research and competitive grants' outputs, particularly in tertiary institutions not prepared to accept radical changes or not supportive of it. Deem (1998, p.53) described the roles of "hard" and "soft" forms of management in tertiary institutions. . A 'soft' approach only involved "recognition of inefficiency and ineffectiveness. In contrast, a 'hard' approach had rewards and punishments in place for those "unlikely to change". This has significance in terms of power relations and how university management understands the role of educational technology to serve the aspirations of policy.

Another source of frustration for academics and another explanation for the disconnection between those designing the courses and those actually facilitating it is when the "succession plan" is not implemented, "the separation of conception from execution" (Giroux, 1988, p.123), in other words when those involved in creating a MOOC work closely together with the instructor and when the latter is eventually not selected to teach the course, replaced by an "either unqualified or underqualified" facilitator (Kolowich, 2015). Noble (1998) described this phenomenon as "Automation — the distribution of digitised course material online, without the participation of professors who develop such material" (Noble, 1998, para.1). He argued that once the material was put online, less skilled and cheaper workers were hired to "deliver the technologically pre-packaged course"(para.22).

Wiley (In Albright, 2005, p.4) suggested that Open resources should instead be considered as an building opportunity, that "instead of thinking about Open Educational Resources as being the educational opportunity we are trying to share with people (the end of our work), we should think about them as the basic resources necessary for doing our job (a means to the end of our work)".

In the global South however, the idea of MOOCs being a threat to academics was not a serious concern, according to one participant based in South Africa, as local expertise was paramount and necessary. He qualified the threat as "*a myth in our circumstances*". He said: "*we need local people who could interact with local students in an expert way, in all kinds of ways, not simply through knowledge transmission, but through the kind of interaction I've been talking about, whether that's face to face or online tutorial systems, chat rooms, etc.*" Laha (2015, para.1) indicated that Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) faced a serious shortage of "good faculty members" and that MOOCs could help palliate the issue but in conjunction with class time for experiential learning and discussions. According to Ashok Banerjee, professor, finance and control at IIM Calcutta, the use of technology in the classroom to address faculty shortage is essential: "Not only do new IIMs face a faculty crunch

during the first few years of their operation, even old IIMs have the problem as there are specialisations for which it is extremely difficult to get good quality faculty. Only use of technology can solve the problem" (Laha, 2015, para.12).

6.4.4 The role of the academic is progressively changing

Finally and contrary to expectations, the findings of this study, particularly in the theme "A re-conceptualisation of the academic identity", also suggest that the role (s) and identity of the academic following the launch of the MOOC model, is currently being rethought, and could soon be redefined in some institutions. An academic is often required to perform multiple challenging and concurrent roles (e.g. administration, research) and one of them is increasingly, according to the participants of this thesis, closely related to his supposed day-to-day duties: "*engage with learners, not just learners in a lecture room, but learners online".* The potential addition of roles (to their current duties) such as MOOC designer and facilitator in the near future might not be sustainable and compatible in the long term with academics' existing stressful research and community-involvement commitments. While redesigning their new entry and exit pathways for students, universities might have to redefine academic roles, rethink and reconsider their academic staff career pathways and workload and the balance between teaching (in various environments) and research. Sally Kornbluth at Duke University indicated for instance that "one of the things we haven't grappled with is how online teaching factors into things like promotions and tenure. Right now it doesn't have a formal role; it's still just an add-on" (Anders, 2015, para.7). The theme "A reconceptualization of the academic identity" has shown that more educational technology-specialised roles are likely to appear in universities while others such as instructional technologist, digital learning designer and MOOC-platform developer will become more prominent, confirming MOOCs disruptive collateral effects described in the literature review and research by Brown (2014), Kim (2014) and Brandenberger (2015).

6.5 Implications

> *In the coming decade, higher education seems likely to split into two distinctly different sectors: (1) two hundred or so institutions that deliver high quality, face-to-face teaching for those slated to become social elites; (2) several thousand semi-campus, semi-cyberspace, hybrid organizations – colleges, universities and business firms – ready to pump instruction and credentials to a flexible global workforce. (Winner 1998, p. 9)*

If the MOOC model becomes more widely accepted and adopted by institutions, there will be implications. Goldin and Katz (2009) argued that an accelerated technological change created winners and losers, as many often had difficulties to keep up it might pose serious issues to academics and institutions during academic annual appraisals or institutional audits, particularly if the adoption of the MOOC format to engage students online was considered the norm in the coming years. Noble (1998, para.24) described how untenured faculty at York University had been "required to put their courses on video, CD–ROM or the Internet or lose their job". He asserted that their contract was extended "to teach their own now automated

course at a fraction of their former compensation". He argued that the new technology in education "robs faculty of their knowledge and skills, their control over their working lives, the product of their labour, and, ultimately, their means of livelihood" (para.23). A view shared by Laurillard (2013) when she said that academics were facing an "unprecedented challenge to the traditions and values of their profession". While academics at many institutions have witnessed the launch and implementation of countless eLearning strategies supposed to make their teaching life easier, the rapid development and success of the MOOC format among students seems to have taken institutions and academics by surprise. Laurillard (2007) argued that academics were not utilising the technology available to them to its full potential. One of the main reasons might be the fact that academics don't really know how and/or how it could actually help them in their day-to-day teaching. Another reason might be that nobody is really telling them how to *pedagogically* use the tools. Yes another reason could be that dedicating so much time to something that might quickly be "out-of-fashion" or risky if unsuccessful (teaching feedback questionnaires, performance reviews) deters academic staff from using it.

The findings of this thesis have shown that despite rapid developments in the online learning space, many academics are still oblivious of/indifferent about educational technology pedagogical potential, particularly related to teaching methods and student engagement: "*academics do not know anything about Open Education*" and "*many academics are so remarkably ignorant, quite naïve about what's going on in the broader teaching and learning space*". Some like Alvin H. Crawford, CEO of Knowledge Delivery Systems believe MOOCs could be very effective for teachers' professional development. According to Crawford, "being able to actually see teaching practices modelled—as opposed to just being lectured to on the concepts—is a game changer in professional development" (Newton, 2015, para.14). Others, according to Noble (1998, p.356) are "left out of the loop and kept in the dark about the new Web requirement until the last moment".

Bowen and Tobin (2015) argued that the decision-making framework for matters related to technology-enhanced learning needed to be broader as it should not be left solely to faculty members (Bowen and Tobin, 2015) in other words, the voice of all actors or stakeholders should be heard. This collaboration between various stakeholders is considered by Freire (1969) as crucial to creating a community of practice that would empower individuals and transform potentially oppressive situations. Noble (1998, p.356) stated however that changes were often "initiated and implemented from the top down, either without any student and faculty involvement in the decision–making or despite it".

Sodha (2015) in a recent article for the Guardian *It's time to reinvent what universities can be* argued that what HE really needed was a significant restructuring, a system transformation and she seems to have hit the nail on the head when she said: "it's pointless to focus on technology at the expense of changes that need to happen in the system in order to take advantage of it" (Sohda, 2015, para.8). Research by Kim and Bonk (2006) indicated that faculty training and support was a crucial component of quality online education to ensure a smooth transition and implementation. There seems to be a focus in many HE institutions however on project deliverables, revenue generation, numbers and trial/quick implementation of new technological initiatives rather than people gradual growth and academic skill

development, a view shared by Greenagel (2002, p.4) when he argued that institutions and academics' attention should be focused on measuring effectiveness, "e.g., under what conditions does e-learning work?" instead of rushing to jump on the bandwagon to see *if* it works. McLuhan (1964) reminded us that "these media, being extensions of ourselves, also depend upon us for their interplay and their evolution. The fact that they do interact and spawn new progeny... need baffle us no longer if we trouble to scrutinize their action. We can, if we choose, think things out before we put them out" (p. 57). Other studies (Hill *et al*, 2003) have highlighted the misalignment between the notions of good practice using constructivist, self-directed learning models and the experiences and expectations of students and other stakeholders.

Giroux (1988, p.123) stated that teacher training programmes often focused too heavily on "how to", "what works", taught "methodologies that appear to deny the very need for critical thinking" by not fostering an environment where students could "raise questions about the principles underlying different classroom methods, research techniques and theories of education".
Richard Hil, the author of the new book on Australia's higher education [*Selling Students Short*] argued that the marketization of the student experience trivialised what universities were supposed to be focusing on: teaching, research, scholarship and professional service (Hil, 2015). McGraw (2001) had indicated that to ensure the success of an e-learning strategy, two important factors had to be taken into consideration: it had to motivate people and enable skill development, not foster further automation or the deskilling of faculty labour (Noble, 1998). The findings of this thesis indicated that while the MOOC model had ignited enthusiasm excitement, collaboration and experimentation in numerous institutions, had incited academics and para-academics to sit together to discuss learning and teaching issues, it had also created tensions and resistance to change as it could potentially affect the role and workload of the academic, particularly related to what Giroux (1988) calls the "proletarianisation of the teacher work" (p.103). According to one participant of this study, MOOCs can be used positively "as *a lever to invest more resources and more attention on the educators*". A study by Schoepp (2005) indicated that teachers felt that they were not being guided, supported, or rewarded in the integration of technology into their teaching practices.

With an increasing interest in blended learning approaches from students, academics and institutions and new interactive technologies entering the education space such as gamification (Knowledge@Wharton, 2015), virtual worlds (Falconer, 2013), M-learning (Cook *et al*, 2010), Google Glass (Pappas, 2014), Oculus Rift or Microsoft HoloLens, Learning and Teaching centres around the world might have to profoundly review, re-examine, reflect and reassess academic staff development needs for 21st century teaching and learning (capacity-building). They might also have to reassess their own staff recruitment/development practices and expertise to be able to offer the most relevant pedagogical advises, services and workshops (apart from "show and tell" workshops on the new tool on the block, or as Participant P009 of this study said: "*I don't think our staff need to go off to any of those training sessions, to train on which button to push, I think what they need to*

do is to know first of all what are the possibilities and then to know how to incorporate those possibilities into the engaging activities that they want to give the students") needed by academics and frontline teaching staff to improve learning and better engage their students. One of the main findings of a 2009 study from the Centre of Public Education indicates that "most professional development today is ineffective. It neither changes teacher practice nor improves student learning" (Gulamhussein, 2009, p.3).

In consequence, new safe spaces within institutions (Falconer, 2006) and a better synergy between academics, academic departments, the libraries and learning and teaching centres will have to be developed or created for more interdisciplinary discussions on learning and teaching (on-campus and online) and a more engaging collaboration between those stakeholders to take place (Cook et al, 2007; Hayes, 2015), to foster social capital and avoid exacerbating the existing power struggles within universities. While Romiszowski (2004) stated that sustainability was paramount for an e-learning project to survive and Levin, CEO of Coursera argued in a recent interview with Poets&Quants (Byrne, 2015, para.14) that "if properly managed and done strategically, online learning can be a net revenue enhancement", Laurillard (2013) strongly pointed out that the technology, the organisational structure and the business models had to be "subservient" to the academic mission of every tertiary institution which was to educate students, not on generating revenue.

The results in this chapter indicate that MOOCs have tremendous potential to democratise Higher Education. This study has raised important questions however about the nature of its current "universal' design format, which seems to be its biggest flaw. The next chapter, therefore, moves on to present a more effective MOOC model, informed by participant's concerns.

CHAPTER SEVEN: A NEW AND MORE EFFECTIVE MOOC MODEL?

7.1 Introduction

The justification for offering free access to courses when MOOCs were launched was based on the concept that providing equitable access to those resources would give tremendous opportunities to those who could not attend university for financial reasons.

The findings of this study have indicated that the scarcity of facilitation opportunities in the MOOC format, as it was currently proposed, was insufficient and inadequate for learners from underprivileged backgrounds who lacked basic skills. Interviewees from the global South had for instance repeatedly highlighted the limited peer-to-peer and peer-to-instructor interactions and the need for more scaffolding, continuous constructive feedback and more contextualisation that would help their diverse learners, often from rural or from challenging educational backgrounds achieve better learning outcomes. Freire (1969) had for instance highlighted the importance of the student voice whereby contributions were to go both ways to avoid resistance (McLaren, 1994). The findings of this study have a number of important implications for future practice. Data in this study has shown that there are real design barriers that prevent people from using MOOCs for learning**.** MOOCs need scaffolded approaches and more supportive structures that help promote and enable autonomous learning. As mentioned in an earlier paragraph, Critical Theory investigates how knowledge is constructed in public spaces and the extent to which inequality and an imbalance of power between the "losers' and 'winners" exists in these spaces, including the Internet, and in the case of this study in the MOOC format. The unequal access to opportunities for personal and professional development is most felt by minority groups in developed countries and a majority of the populations in developing countries. The author of this study investigated the root causes of the problem and developed solutions in order to allow participants from disadvantaged backgrounds from the Global North and Global South to gain equal access to Higher Education through MOOCs, and career opportunities, which in turn will give them a voice that will help promote active citizenship. As Kincheloe and McLaren, 2000, p.284) put it: "understanding domination in the context of concurrent struggles among different classes… and sectors of capital, critical researchers of ideology explore the ways such competition engages different visions, interests and agendas in a variety of social locales – venues previously thought to be outside the domain of ideological struggle ". Participants' perspectives and concerns informed the development of each of the four conceptual models (Figures 7-2. 7-3, 7-4 and 7-5). MOOCs that integrate community and supporting strategies can enable sustained active participation.

7.2 MOOC design

The review of the research literature on MOOCs and the findings of this thesis have indicated that there is a clear dichotomy between what the platforms and MOOC developers propose, their rhetoric and the realities on the ground, in both developed and developing countries, confirming that what's ideal and possible on paper and in theory is often hard to implement in complex educational and institutional contexts. Some of the issues emerging from this finding relate specifically to MOOC design. One design size does not often fit all and in this case, it sure doesn't. The concept of *praxis* in critical theory, the connection between theory and action or practice is relevant here as there seems to be a lack of critical reflection on past eLearning initiatives implementation and/or early MOOCs to transform it into a really engaging and empowering tool. The findings have also indicated that institutional stakeholders' perspectives were often at the opposite sides of the spectrum, misaligned, or as Welle-Strand and Thune (2003, p.191) concluded in a pilot study investigating the views of a HE institution and a corporation in Norway there was a lack of "holistic thinking and planning" and an absence of concern "about a pedagogical framework to implement new technologies". They also concluded their study by stating that policy makers viewed technology investment "as totally sufficient in and of itself", which would "automatically" guarantee effective learning. The findings of this study have shown that this is unfortunately not the case.

Giroux (1983) argued that critical theory gave educators the opportunity through its lens to explore their beliefs, reflect and recognise inequalities and injustices in their context, transforming schools into learning spaces of empowerment and possibility and making themselves agents of changes or as Giroux put it *transformative intellectuals*.

DeRouin *et al*. (2005, p.934) argued that research on eLearning should be more learner focused than technology focused and this is also what this study argues. They also indicated that practitioners often had "to rely on fragmented advice from researchers who did not have the research results to inform designers on how to use various e-learning options to create an e-learning programme that effectively and efficiently promotes positive learning outcomes".

According to critical theory, transformation occurs when educators ask questions relevant to their own experience and context. One participant (P001) of this study highlighted the conscious design choices made by MOOC developers which impacted on MOOCs' interactivity and collaborativeness. He said: "*I think they promote collaboration in learning when they're done in certain ways and they hinder it when they're done in other ways so I think there are instructional design choices that MOOC developers make that turn them in one way or another".*

According to Warburton and Mor (2005), a design pattern describes a "recurring problem, the characteristics of the context in which it occurs, and a possible method of solution". Warburton and Mor (2005) described how patterns are context-related and organised into interrelated coherent systems. Mor (2010, p.88) in his PhD thesis defined the following process (reproduced here):

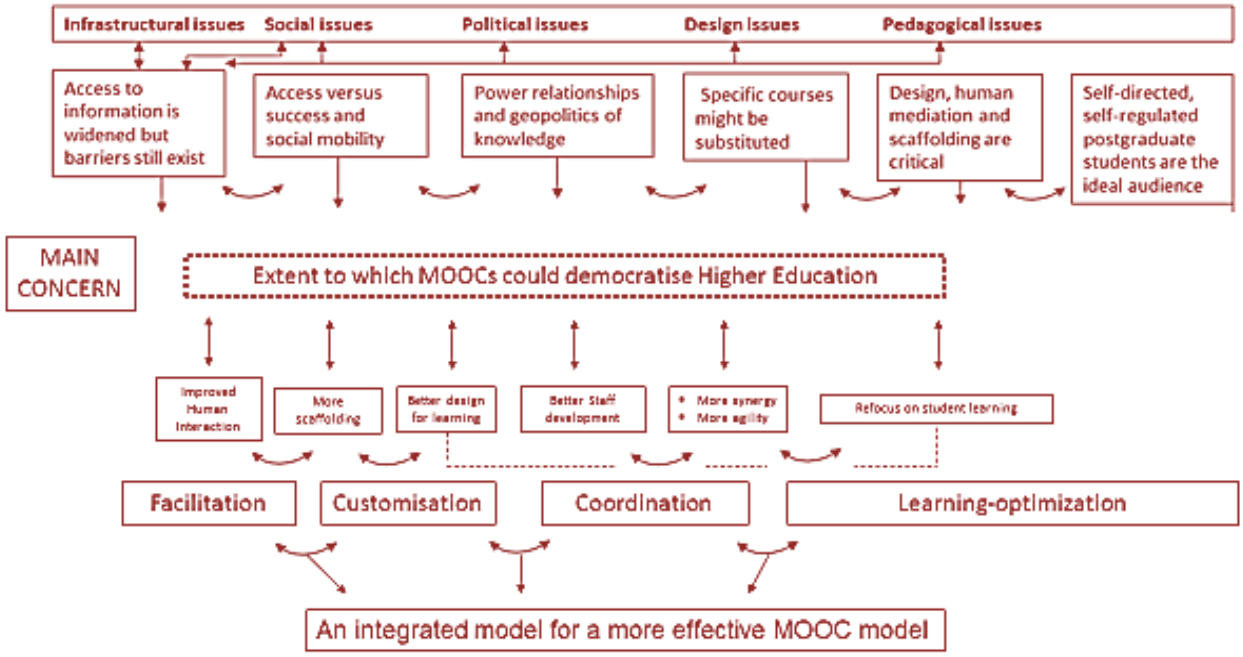
- A prominent design feature is identified in a design narrative, by linking it to a pedagogically effective outcome, or to the resolution of a critical problem.
- The design feature is captured using a core template of Problem, Context, and Solution. The source design narrative is noted.
- Other narratives are searched for additional support.
- The problem is expressed as a configuration of forces.
- The initial context of the pattern is defined by the situational characteristics common to all supporting narratives.
- The solution is articulated in the most specific detail that was still consistent with all supporting cases.

Mor (2010, p.62) also summarises the core of design pattern with the following: "for Problem P, under Circumstances C, Solution S has been known to work."

The literature review identified limited research conducted in the area, and a lack of framework or model that explained or aided understanding of the phenomenon of interest.
The findings of this thesis provided a clearer picture of the shortcomings of the current MOOC model (Problem P), as identified by participants from the global North and South (Circumstances C), and helped identified the critical factors (Solution S) that would influence its success or failure.

The process for developing the model is outlined in Figure 7-1.
The four conceptual models were combined in a new substantive model, developed by the author of this thesis (Figure 7-6). This model fills an identified significant gap in the MOOC research literature. To this date and to the best of the author's knowledge, there is no other such model in the published literature.

Figure 7-1: Process



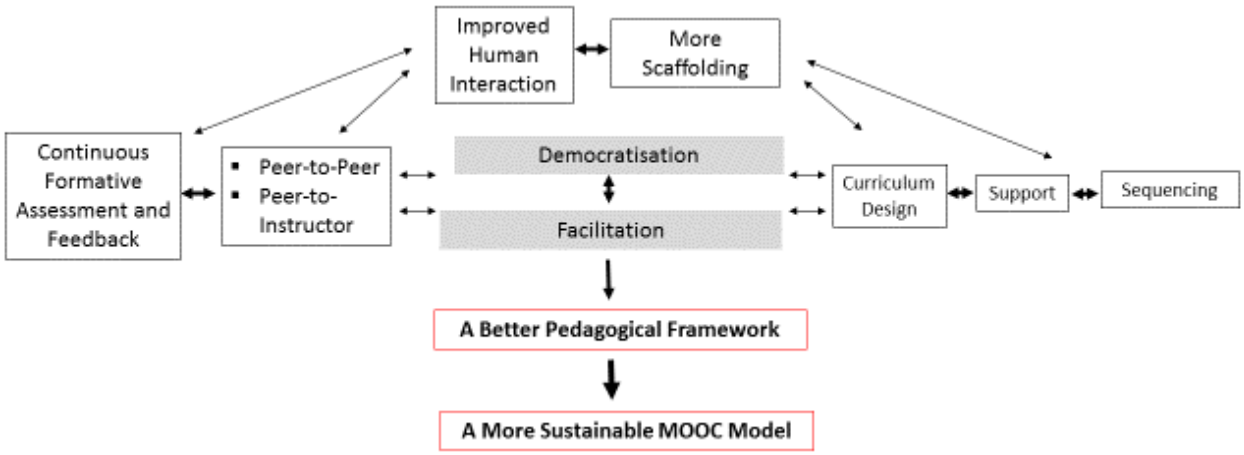
In this model, six interconnected elements need to be taken into consideration to ensure a more effective MOOC model (see above/below).

1. Improved human interaction
2. More scaffolding
3. Better design for Learning
4. Refocus on student learning
5. Better staff development
6. More synergy | More agility

Connectivism holds that learning is based on connections and networks at social levels. These networks are fostered by socialisation, diversity, and the creation and availability of spaces that reinforce such connections and networks. Human interaction goes hand-in-hand with a better infrastructural design (e.g. sequencing) and more scaffolding to optimise learning. A number of studies presented in the literature review suggested that instructors' connection, encouragement, and guidance were crucial to help students in online environments. MOOC activities according to the participants in this study are designed to be resolved individually, and often follow a traditional common structure. Little peer interaction is required to complete the tasks. As such, MOOC platforms are consistently failing to consider many of the basic principles of connectivism or peer learning in their MOOC design. It is proposed therefore that MOOCs incorporate stronger interpersonal connections (peer-to-peer and peer-to-instructor), support and feedback than most currently do.

The relationships between the concepts relating to Improved Human Interaction and More Scaffolding are shown in Figure 7-2

Figure 7-2: Relationships between the concepts relating to Improved Human Interaction and More Scaffolding

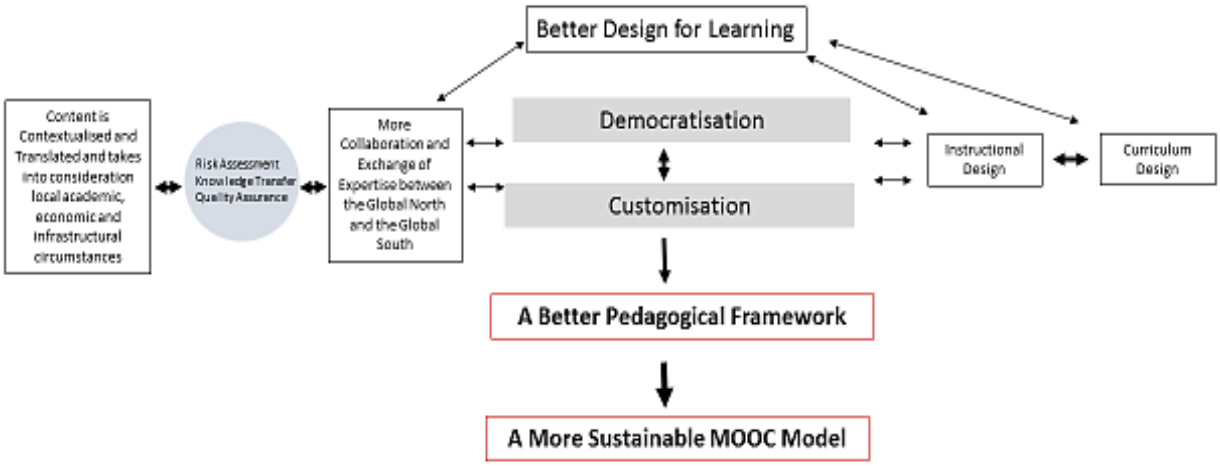


There was agreement from the participants (North and South) that the frequency of interaction, on-going formative assessment and constructive feedback opportunities had to be increased to promote engagement, diagnose achievement of learning outcomes, devise interventions at key strategic points (support systems such as academic advising and early alert systems), and personalise learning, based on competencies/skills achieved, which could be credentialised. All interviewees

acknowledged that increased opportunities for interaction and a rethink of the pedagogical model had to be key goals of MOOC design. According to Deepak B. Phatak, professor at the department of computer science and engineering at IIT Bombay, the use of MOOCs as supplement to face-to-face teaching had "significantly" increased the level of student engagement with the courses (Laha, 2015). Socialising, learning from and discussing with people from different backgrounds are one of the important democratic values that could be facilitated by MOOCs.

The relationships between the concepts relating to Better Design for Learning are shown in Figure 7-3

Figure 7-3: Relationships between the concepts relating to Better Design for Learning



According to Giroux (1988, p.193), not only the background of students was "strategically ignored within the logic and accountability of management pedagogy theory" but also the "introduction of lock-step, time-on-task pedagogies operate from the theoretically erroneous assumption that all students can learn from the same materials, classroom instructions techniques and modes of evaluation". A meta-study/meta-analysis by Siemens and Dawson (2015) of the role technology plays in Higher Education (Siemens and Dawson, 2015) pointed out for instance the importance of understanding stakeholder needs, of developing academic support and highlighted the "essential" role course design, instructional design and instructional interventions planning played in fostering student learning. The meta-study also indicated that the "level of coordination between involved parties" was a crucial factor, as lack of collaboration and coordination between the decision-making, design and delivery phases might inflame tensions. Another recent report (Brown et al, 2015) on research on the Next Generation Digital Learning Environments (NGDLEs) recommended (in its preliminary conclusions) infrastructures to "support personalisation", "adaptive learning" and a new architecture for "analytics engines". Gartner, the world's leading information technology research and advisory company has indicated (February 2015) that Adaptive learning was one of the top 10 strategic technologies impacting education in 2015
[http://www.gartner.com/newsroom/id/2994417].

Approaches such as Rogers' (1998) diffusion of innovations work very well with ideas of scale and massification but do not seem to take diversity, local social forces, contextual sensitivities/needs and cultural implications into consideration, particularly when these refer to a homogenised MOOC offered worldwide. Pantazis (2002, p.21) argued that the power of e-learning came "from the opportunity to leverage technology and information to alter the basic tenets of learning by eliminating the one-size fits all approach to instruction and customizing content to meet individual needs and learning styles". Most MOOCs offered on the same platforms seem to have similar content on cross-wise paths and learning behaviours (Chiappe-Laverde *et al*, 2015).

A revealing example of how an in-house-designed (real-time) predictive/learning analytics system could be put in place in a country from the global South to identify students' acquisition of skills/achievement of intended learning outcomes and/or in need of a slower pace or additional support was provided by a participant from India (P015). This example also indicates that a "digital ecosystem", which allows academics and the institution to observe and track students' learning path is possible but close collaboration between academic/curriculum developers and instructional designers is of prime importance. He said: "*we have developed an adaptive and customisable online system, we track how our students answer the questions, and if a student gets it wrong, a different video segment pops-up to review the material and help him or her to better understand it, and that's the second important factor: data. We constantly collect and analyse data to help design learning and teaching activities as well as assessment tasks"*.

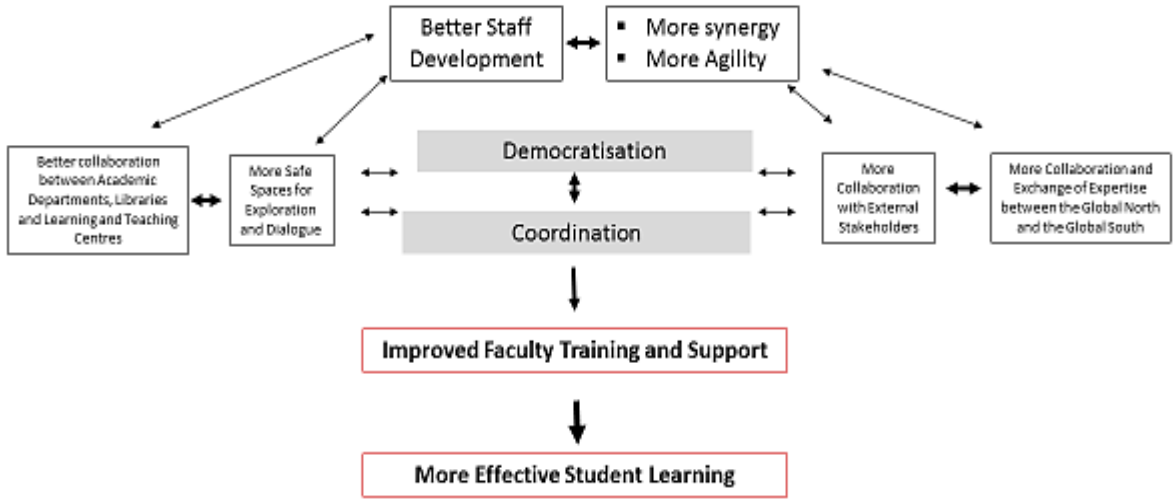
In short, an improved facilitation model, the customisation of the student learning path/experience with continuous diagnostic approaches to identify and underpin interventions would constitute the three main pillars of a better, more optimised and more engaging pedagogical framework.

Research on policy networks has shown conflicts and various interests and how power is exercised in tertiary education. It has also indicated that networks do not necessarily lead to improving access and democratisation. Educational policy is, according to Padure (2009, p.84) a "complex and multi-dimensional process, which involves a number of stakeholders, various competing interests and powers, interferes with policies in other fields and occurs in highly complex social environments".

In this model, a system of "power-sharing", more commitment from and a better coordination and better collaboration between the various institutional stakeholders in charge of learning, teaching and academic staff development is advocated. This model also suggests the establishment of safe spaces for experimentation and dialogue to promote upskilling, where (internal and) external stakeholders (i.e. employers and alumni) could be brought in to discuss issues, potential disconnects and the specific changing needs of their industry. These discussions would help move away from debates around MOOCs as being a market-oriented answer to the rising cost of university.

The relationships between the concepts relating to Better Staff Development and Moore Synergy | More Agility are shown in Figure 7-4:

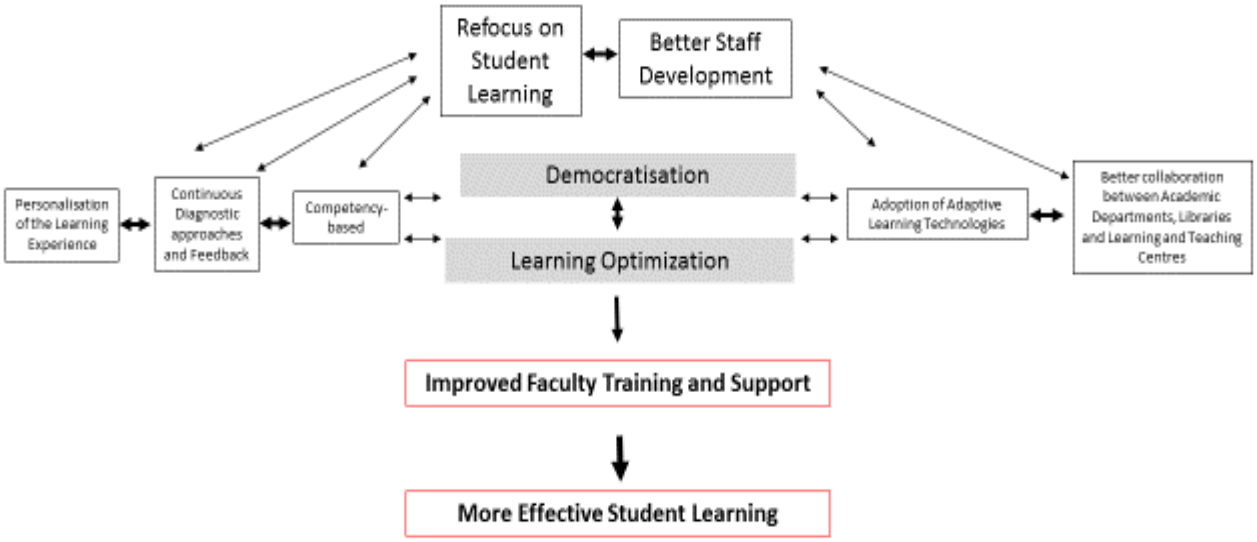
Figure 7-4: Relationships between the concepts relating to Better Staff Development and More Synergy | More Agility



As the professional development of academic staff sits at the heart of any successful technology and education programme, this model also recommends additional training (and retraining/Continuing Professional Development (CPD)) and academic/instructional support for academics and learning and teaching centres' personnel (those without "ground" expertise in MOOC or flipped classroom formats would not necessarily be able to provide examples of good practice or expert advice on how the MOOC model could be adapted by an academic for instance) to share expertise and resources that would encourage capacity building (Robin and McNeil, 2015).

The relationships between the concepts relating to the Refocus on Student Learning and Better Staff Development are shown in Figure 7—5:

Figure 7-5: Relationships between the concepts relating to the Refocus on Student Learning and Better Staff Development



A House of Lords (UK) report on UK's Digital Future published on 17 February 2015 [http://www.publications.parliament.uk/pa/ld201415/ldselect/lddigital/111/111.pdf] recommended for instance more active and "immediate" employer engagement and input to "enhance the education and training agenda" (p.68). The literature review of this thesis highlighted the mismatch between what the education systems were delivering and the needs of employers, as if they were living in separate worlds. It also indicated that there is growing collaboration between MOOC platforms, universities and firms' corporate universities to develop professional courses for their own employees and potential new hires. Tenaris, an Italian manufacturer and supplier of tubes and related services for the world's energy industry has for instance announced the expansion of its MOOC offerings with the edX platform on its Twitter page (11 August 2015). Two introductory courses were launched in 2015: Introduction to Oil Country Tubular Goods (OCTG) and Introduction to Running Pipe in Oil and Gas Wells.

There also seems to be a misalignment and a lack of eLearning initiative integration within many institutions. According to the participants of this study, HE institutions were often slow to change and academics/academic departments often reacted reluctantly to top-down initiatives/processes, creating tensions, discontent and resistance among academic and teaching staff members. Hil (2015) highlighted conflicts with management imperatives and stated for instance that academics were increasingly expected to drop their critical thinking skills to follow decisions that came from the management. This model proposes a more horizontal, more aligned (and seamless) approach with a better synergy between all parties involved, more integration and more agility to make and implement (evidence-based) changes (to issues identified by the optimised model mentioned above for instance) and by systematic macro and meso (at institutional level) quality assurance (Hayes, 2015; Ossiannilsson *et al*, 2015; Walls *et al*, 2015) and risk assessment processes (i.e. Gartner's Six Levels of E-Learning Maturity or the Australian standards AS4360 or HB231) that would also inform the changes to be implemented at all levels (design and the facilitation of courses or programmes that would enhance their quality for instance). A combination of rigid design and poor feedback can be problematic for complex and context-sensitive projects. Workable solutions often require experimentation with all stakeholders in mind.

Who better knows the local issues than those having to deal with them on a daily basis?

The findings of this study have indicated that some of the issues in the global South do also affect some disadvantaged communities in the global North, a link rarely established in the current MOOC research literature. Based on the findings of this study, there are for instance striking similarities between the educational challenges faced by rural and aboriginal communities in Australia and remote townships' communities in South Africa or India.

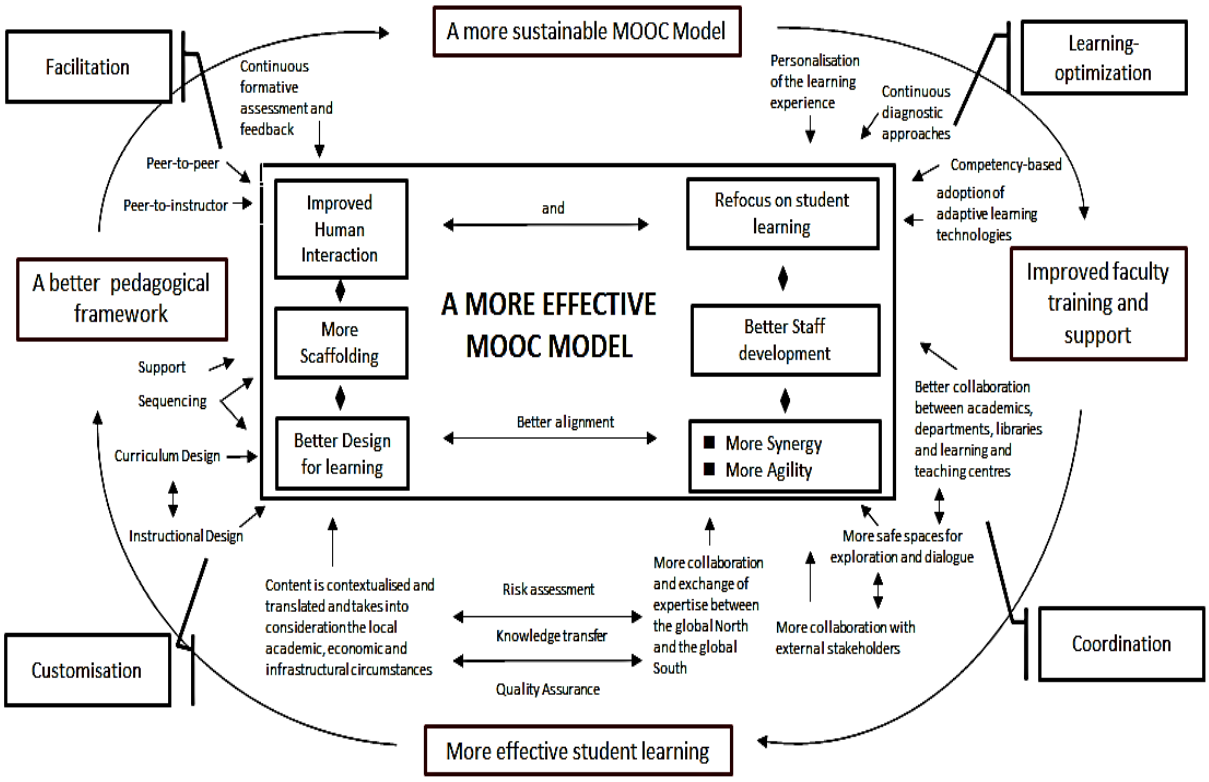
This model therefore recommends closer ties and closer collaboration between academic developers from the North and the South to design courses better contextualised, better tailored and better adapted to each other's needs that would foster beneficial knowledge transfer and benchmarking opportunities. The World

Bank report (2016, p.308) advocated an approach that "concentrates on inclusion—bringing in feedback and ideas at the design stage so as to combine global technical expertise with profound local insights and knowledge".
In a recent interview for California Magazine (University of California, Berkeley Alumni magazine) Armando Fox, faculty advisor for Berkeley's MOOCLab stated that the most "promising effect of MOOC technology" was "advancement in automated grading" (Bergmann, 2015, para.18), as it frees instructors from the task of hand-grading them . While this might work just fine in Berkeley's classrooms with Berkeley students and help improve how courses are taught on campus on online, it would probably not cater to the needs of many of the students in underprivileged areas in the global North and the global South. Giroux (1988, p.47) described what he calls *management pedagogies*. He asserted that there was an increased call in education for standardised testing and "teacher-proof packages" with predetermined assessment which reduced the role of the educator to "carrying out predetermined content and instructional procedures" in order to "control" them. Lyotard (1984) argued that professors would soon be replaced by computerised data network systems (1984, p.53). Noble (1998, p.7) asserted that teachers' activity was "being restructured, via the technology, in order to reduce their autonomy, independence, and control over their work and to place workplace knowledge and control as much as possible into the hands of the administration".
Participant P005 of this thesis argued that "the people running them [MOOCs] haven't defined a purpose for them" and the findings of this thesis seem to indicate that the perspectives, concerns, purposes and interests of the global North are often disconnected from the complex educational needs of the global South.

Figure 7-6 shows how the MOOC model could be more effective and more pedagogically sustainable. It shows the combination of the four conceptual models presented above and interrelated relationships between the elements. It proposes a set of critical success factors that might help institutional and platform providers make conscious (design and implementation) changes effectively and possibly help the MOOC model fulfil its promises.

The preliminary model proposed by the author of this thesis, following a comparative analysis of the emerging themes (and as a result of the network shown in figure 7-1), might be of particular relevance to and might further be customised by researchers, MOOC/academic developers, learning and teaching centres, course designers, universities' Chief Information Officers, Companies' Chief Learning Officers, policy makers and academics to adapt it to their own changing context. Research by Siemens and Dawson (2015) and Ossiannilsson *et al*. (2015) help confirm the *prima facie* validity of this [Model for a more effective MOOC model] and its potential relevance not only for MOOC design research but also for blended and online learning. This new model seems also to fit "the real world, works in predictions and explanations, is relevant to the people concerned and is readily modifiable' (Glaser, 1978).

Figure 7-6: An integrated model for a more effective MOOC model



Anderson (2008, p.389) argued that all teaching and learning systems "should be built… from the needs of the intended students and the intended learning outcomes" set for the course or the programme.

This proposed model shifts the focus from the MOOC as a tool, from MOOCs as an institutional branding strategy, from MOOCs as a potential generator of revenue, from research on enrolment and drop-out figures (and from quantitative measurement of academic achievement which is not often indicative of outcomes' achievement (Ross and Morrison, 2014)) to improved student learning, persistence, retention, student engagement, to an increased reflection on pedagogy and academic staff development and proposes a more aligned, more coordinated, more optimised and more customised approach. It attempts to reimagine the whole model, including its foundation principles. The purpose of education, according to critical theorists such as Freire, is to provide students with the critical skills needed to reflect on the world in order that they may change it

As mentioned above, the model proposed here has not been tested "on the ground" and is still at its preliminary theoretical stages. It will be further refined in subsequent peer-reviewed publications.

Preliminary feedback from a blog posted by the author on LinkedIn on June 12, 2015 to test its validity

[https://www.linkedin.com/pulse/new-more-effective-mooc-model-david-santandreu-calonge] is presented in Table 7-1. Table 7-1 summarises readers' feedback, gender, posting date, the participants' current role

(academic/administrative) as well as where they are currently based. As of 27 August 2015, 897 people had read the post. The post had 19 [Likes] and 6 comments on LinkedIn (Note: Comment from Reader 2 was a direct response to the first reader). On Twitter, 7 readers [favourited] the Tweet, there were 7 mini comments and 6 readers decided to [follow]. The author also received two LinkedIn in-mails and one email. In order to ensure confidentiality and privacy, each individual was given a number (i.e. Reader 001, etc.).

Table 7-1: Readers of the LinkedIn post [*A new and more effective MOOC Model?*]
https://www.linkedin.com/pulse/new-more-effective-mooc-model-david-santandreu-calonge?trk=prof-post

Readers	**Feedback**	**Gender**	**Date**	**Academic /Administrative Role**	**Medium**	**Country**
Reader 001	*This is interesting read. It discusses coordination, pedagogy, learning etc. as inherent components. While designing MOOC technology platform plays an important role. Since this model is yet to be ground tested, what would you suggest about delivery mechanisms?*	M	13/06/2015	Director	in	India
Reader 002	*Do you know Gráinne Conole work? Some good principles too.*	F	13/06/2015	Senior Administrator eLearning	in	France
Reader 003	*MOOCs are a good change from the reality of teach to the test or else. However, are MOOCs "open" to learning? As long as grades drive education, "open learning" will stay informal and maybe that's not such a bad idea*	F	16/06/2015	Education Technology consultant	in	Canada
Reader 004	*Well done David!! A great first cut with just the right amount of detail. This will be a very useful model for anyone working in this field. The assumption in using MOOCS is that the people taking on these courses know*	M	17/06/2015	Learning and Teaching Consultant	in	New Zealand

	how to learn which is highly unlikely as they are told what to learn throughout their education history rather than how to learn - nice to see that included in the 'better pedagogical framework" space?					
Reader 005	*I will pass this on the rest of the Team.*	M	22/06/2015	Programme Leader, Australian Department of Education		Australia
Reader 006	*Thanks for this thoughtful post David; I really appreciate the way that you have premised the entire model on "improved student learning, persistence, retention, student engagement, to an increased reflection on pedagogy and academic staff development ", also the way that you have integrated the literature into your thinking, given, as you point out, the amount of excellent foundational work which exists. Your model put me in mind of Laurillard's conversational framework, I wonder how it might align? Thanks also for acknowledging that many of these educational concerns exist in developed country contexts given that educational development in a massified globalised world is a concern for us all. Thanks very much for this*	F	23/06/2015	Director, Learning and Teaching		South Africa

	contribution.					
Reader 007	*#NEWMoocModel Great share! "learning in an online or blended context is not simply "repackaging" a course or posting course notes online with some video-captured content."*	M	23/06/2015	Learning technology Consultant, Banking Services		South Africa
Reader 008	*Interesting*	F	16/06/2015	Academic		Australia
Reader 009	*That's a tad too structured for my tastes. Thanks for the link :)*	M	16/06/2015	Researcher		Canada
Reader 010	*Thank you for alerting me. Very interesting.*	F	16/06/2015	University professor and author		U.S
Reader 011	*Nice model. Need to study it regarding scalability... ;-)). Do you know the sMOOC model of ECO Project*	M	18/06/2015	Programme Manager		The Netherlands
Reader 012	*Very interesting indeed. I totally share this approach. Thanks!*	M	18/06/2015	Open Collaborative Learning Program Manager		France
Reader 013	*Very interesting and very current*	M	18/06/2015	University Professor. eLearning and eWorking platform developer		France
Reader 014	*Will check it out to see if the ideas can be implemented cheaply.*	M	20/06/2015	Online Distance Learning Developer		Ireland
Reader 015	*Thanks for sharing. Very Interesting!*	M	24/06/2015	Co-founder and CEO of a MOOC platform		Australia
Reader 016	*Thanks for sharing this. Excellent graph*	F	17/08/2015	Corporate Instructional Designer and author		U.S
Reader 017	*Just reading your post and find it very interesting.* *If you feel we should also publish the*	M	13/06/2015	Director		Germany

	announcement at the University Directory worldwide					
Reader 018	*Wow! Nice work.*	M	15/06/2015	eLearning Manager	 InMail	Australia
Reader 019	*I have perused it with interest and will reflect on it as I continue as a student in my sixth MOOC from FutureLearn.*	M	16/06/2015	University professor and author		UK
Total number of readers who posted a comment: 19		**13M 6F**	**Comments from 13/06/2015 to 17/08/2015**		**7 LinkedIn 9 Twitter 2 In-mail 1 email**	**11 countries**

Mor (2010) identified three challenges in design pattern approaches:

- Validity,
- Resonance,
- Cumulativity and innovation.

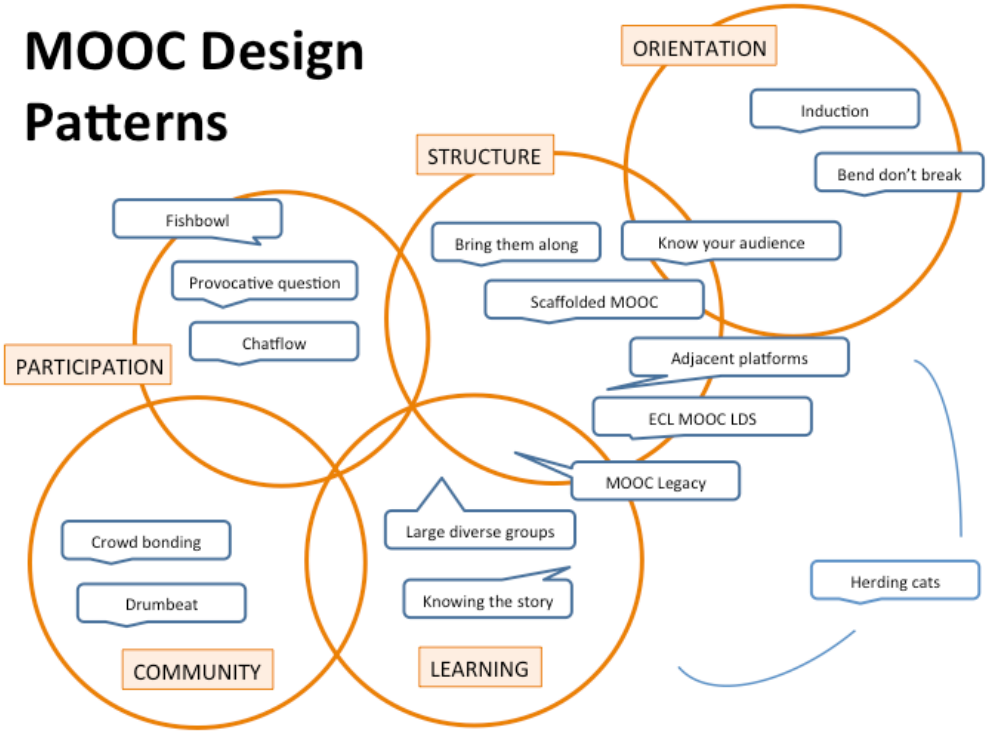
In terms of *validity,* Mor (2010, p.191) advocated a "clear audit trail linking them to data as well as references to relevant theoretical warrants". The model developed above by the author of this thesis, as indicated earlier, was informed by a thorough review of the literature, by the detailed concrete experiences of the participants in their local contexts and by the findings of this study, as presented in figure 7-1.

Resonance refers to the impact design patterns have on people, communities and local context. Mor (2010, p.64) warned the designer of being too "abstract" or too "trivial" and recommended "widespread" patterns as they are more practical, more generalizable and useful, less 'esoteric" or 'marginal". For instance, the six interconnected elements proposed in figure 7-6 are primordial and should be an integral part of a more effective MOOC model. The "weight" of the four overarching elements [Learning optimization] [Coordination] [Customisation] and [Facilitation] can however be adjusted, further refined and/or customised to reflect local and institutional realities, budget, technical expertise, etc. Finally, the issue of cumulativity and innovation described by Mor (2010) relates to feed forward, how past research, experiences and knowledge informed the development of the new design. The design of the model followed a path of extensive and rigorous research, enquiry, interpretation, practitioner experience, understanding of local contexts and analysis. Mor (2010) argued that the radical changes proposed by new designs often provoked, enquiries, questions, discussions and novel perspectives and this was one of the main purposes of the new model for a more effective MOOC model proposed by the author of this thesis, as demonstrated by the feedback received on LinkedIn and Twitter (see Table 7-1 above).

According to the MOOC Design Pattern Project

http://www.moocdesign.cde.london.ac.uk/, a project running at the University of Surrey (UK) that explored, defined and articulated design principles and patterns that would underpin the development and delivery of MOOCs, "a design pattern describes a recurring problem, or design challenge, the characteristics of the context in which it occurs, and a possible method of solution" (Mor, 2013, p.520). Five academic experts were invited to join the MOOC Design Pattern Project's core group lead by Professor Stephen Warburton and Yishay Mor. The first two participatory patterns workshops resulted in the drafting of a map of MOOC design patterns (reproduced in Figure 7-7).

Figure 7-7: MOOC Design Patterns (MOOC Design Project)



Source: Warburton, S. and Mor, Y. (2015). MOOC Design Patterns Project (http://moocdesign.cde.london.ac.uk/) Creative Commons licencing (BY-NC-SA).

The author of this thesis argues that critical shortcomings in the way MOOCs are currently offered (instructional design, cultural/absence of localised content and support in various languages, infrastructure, limited social interaction and structure, difficult content, insufficient personal feedback, etc. jeopardised the extent to which MOOCs could have, from their initial launch, kept their promises. The integrated and adaptive model presented in Figure 7-6 shows how the MOOC model could be more effective and more pedagogically sustainable. Keeping in mind Mor (2010)'s three challenges in design pattern approaches mentioned above, the author of this thesis also developed improved adaptive meta-design principles (Figure 7-8) informed by the literature review, the findings of this thesis and by the MOOC Design Project's MOOC Design Patterns as shown in Figure 7-7.

The author is certain that the MOOC format will continue to evolve (already is) and despite a number of hard-to-pronounce offspring (COOCs, SPOCs etc.), the core

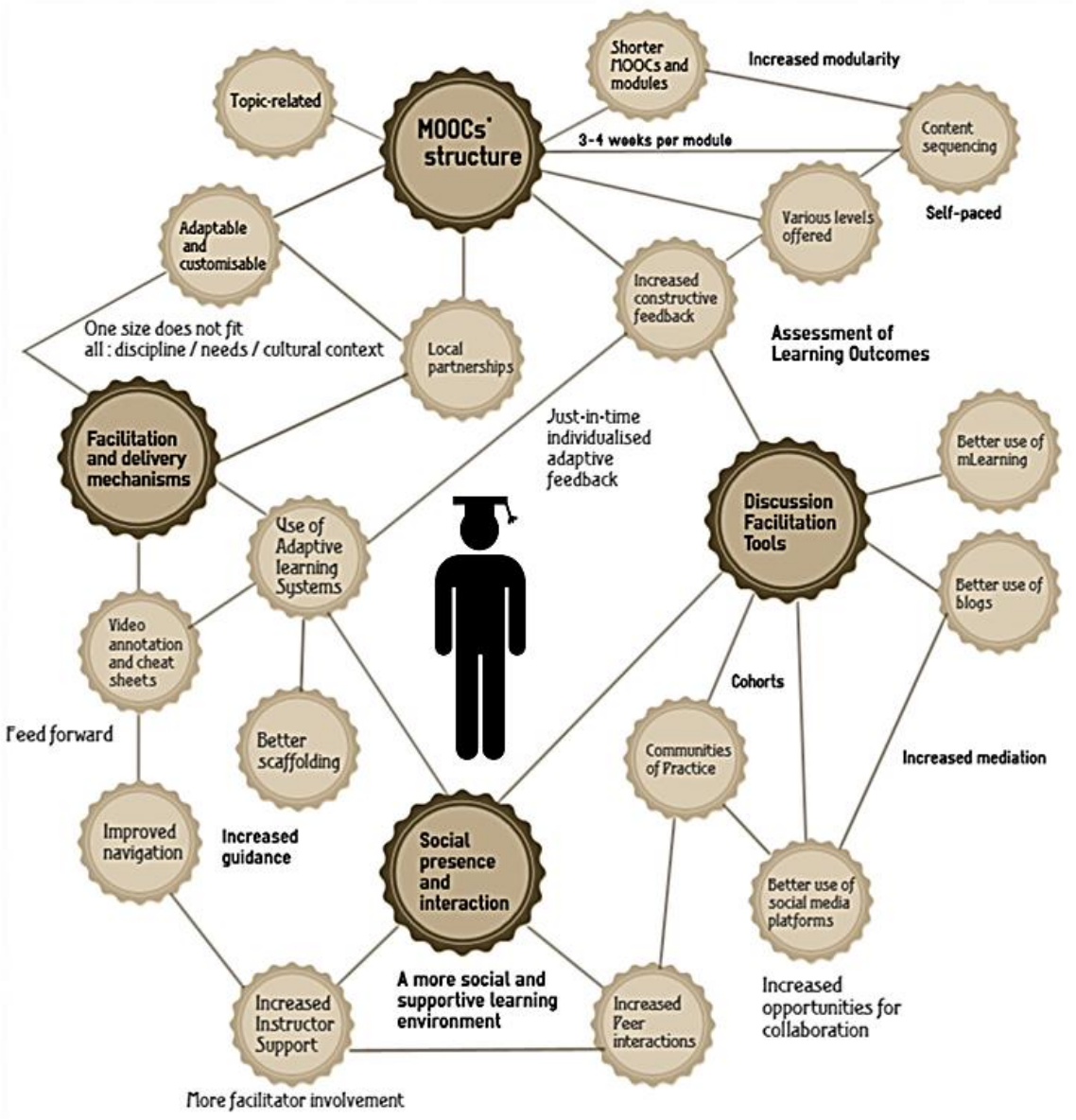
MOOC model's structure will still exist, will be more adaptable, will use a freemium model (as there already exists tensions between the 'ethical push' to promote open access to knowledge and the need for university managers to "maximise income from their key assets", Albright, 2005, p.6) and will be distinct from a regular online course offered on a LMS for example. Noble (1998, p.2) argued that universities were "not simply undergoing a technological transformation. Beneath that change, and camouflaged by it, lies another: the commercialization of higher education". MOOC modules will be shorter, will cater to different audiences, will allow for video annotation to make them more active and collaborative for learning, will be more open, à-la-carte customisable (Sunar et al, 2015) and with accredited and recognised offerings from different providers (with digital badges using platforms such as Credly [https://credly.com/])and they will be self-paced, with various levels. Sally Kornbluth, Duke's Provost indicated that for instance faculty at Duke were experimenting with various formats, offering "15-minute modules, or three-week pop-up courses" (Anders, 2015).

Facilitation and delivery mechanisms will also evolve and make extensive use of adaptive learning systems to enhance navigation/advising, guidance, just-in-time individualised delivery and feedback and mediation opportunities. An interesting orientation initiative using MOOCs is the *What's Uni like?* MOOC [http://www.whats-uni-like.edu.au/auth/login/?returnUrl=%2F] launched at Charles Sturt University (Australia) designed for students from the ages of 14 to 22 from low socioeconomic backgrounds who are thinking of going to university. It helps students explore aspects of the transition to university. A study by Yang et al (2015) exploring the effects of confusion in MOOC's discussion forums has indicated that support, timely feedback and tailored interventions will facilitate learning and student engagement in MOOCs. Another study by Cole and Timmerman (2015, p.197) has indicated similar findings as it found that a large number of students felt that "feedback from MOOC instructors should be more prompt than from instructors in their current college courses".

Discussion facilitation tools will better integrate apps (Alario-Hoyos et al, 2015) such as Periscope [https://www.periscope.tv/], digital portfolio (i.e. Portfolium [https://portfolium.com/], immersive/game-based learning (de Freitas et al, 2015), mobile social media platform's content and capabilities as also advocated by Cook (2010), Keramida (2015) and Pelet *et al*. (2015), which in turn will promote scaffolding, improve community support, social presence, interaction, and collaboration within Communities of Practice (or in the case of social media platforms micro-communities), in short facilitate a *fluid learning* environment (Fang, 2014), seamless learning across platforms and learning spaces. These are absolutely crucial to ensure the success of the MOOC model, continuous student engagement (Wimpenny, 2014; de Freitas *et al*, 2015) and achievement (for students) of the intended learning outcomes. An exciting example of the use of mobile devices in class is the Info 3.0 class at the University of Maryland at College Park. The course uses the Nearpod App [https://www.nearpod.com/] to constantly interact with students. Another fascinating example is the adoption of IBM Watson's computerised support services for students at Deakin University (Australia)

[http://ibmwatson.deakin.edu.au/].

Figure 7-8: Schema of meta-design principles for an improved MOOC design



The meta-design principles for an improved MOOC design will be further refined in subsequent peer-reviewed publications.

Kelly (2014) argued that MOOCs "are a tool, not a solution" (Kelly, 2014, p.3), an argument also mentioned on a few occasions by the participants of this study. One American participant said for instance: "*those of us working on MOOCs hope to utilise MOOCs as a tool, as a lever to meet goals we have around quality*". MOOCs, as a disruptive technology, are indeed only a tool, and the implementation of eLearning tools in education in the past decades has only been effective following a comprehensive and holistic understanding of social, educational, institutional and/or economical local contexts. They mostly have been effective because they had a solid pedagogical framework that underpinned their implementation. ResearchKit is for instance an Apple software platform that helps turn the iPhone into a medical

diagnostic tool. In the case of a severe illness, would you rather trust your iPhone or the years of experience and expertise of your family doctor to identify and diagnose its symptoms, based on various factors?

The disappointments of the current MOOC format are proof that these "environmental" issues were not sufficiently considered. The incessant search for revenue and a viable and sustainable business model and an emphasis on providing irrefutable evidence of sustained massive enrolments (that would prove that MOOCs are indeed democratisation Higher Education), seem to have distracted MOOC platforms and MOOC developers from objectively re-visiting online learning history (particularly its pitfalls) and focus on the interesting opportunities for real democratisation of knowledge and learning a well-thought, well-designed and pedagogically-sound MOOC format could have offered since its inception.

The findings from this study make several contributions to the current literature.

7.3 Thesis contributions and implications

Firstly, this thesis makes a significant contribution to knowledge and addresses a significant gap in the literature by proposing an integrated and adaptive model with critical success factors that would influence the MOOC model's effectiveness (Figure 7-6), which, to the best of the author's knowledge, is unique in the published literature. The purpose of this model is to attempt to address the limitations and weaknesses of the current MOOC model and help all stakeholders understand the crucial elements that influence its effectiveness in terms of student learning.

This thesis makes four other major contributions to the literature:

This study is one of the few lengthy scholarly works in the UK (and in most of the research literature) that investigated the MOOC model in a range of developed and developing countries. It addressed the main research question related to MOOCs' potential to democratise access to postsecondary institutions, through a Critical Theory prism. This contrasts with a large number of studies in the literature which mainly focus on demographic differences, participants' experiences, perceptions of learning and patterns of engagement in some MOOCs, in other words Big Data on learners, why do participants join a MOOC, why do they persist and why do they drop out, from the participants' perspective.

The third contribution stems from the first contribution. This thesis indicated that a significant shift in perspective is required to address the shortcomings of the current MOOC model. The main focus of the academic debate should be on improving MOOCs' curriculum/instructional design quality, on collaborating to rethink/redesign the current unsuitable and inefficient pedagogical MOOC format, its uses and necessary adaptations across various contexts, rather than on focusing on the technology, its mechanisms and its potential revenue model (s).

Fourth, this thesis investigated issues often neglected in the current literature such as the level of impact (s) MOOCs would have on universities, teaching and particularly academics, in various educational contexts, in developed and developing

countries. As indicated in the literature review, very few peer-reviewed scholarly studies to date have examined MOOCs' impact on academics. To the author's knowledge, there are no studies that explore this topic across various countries.

Finally, this study has helped clarify the debate related to whether MOOCs are a disruptive innovation or rather a disruptive technology, an issue that has not been widely discussed in the literature.

The following examines the contributions of this thesis to new knowledge in more detail.

7.3.1 Theoretical contributions

This study addressed a gap in the literature that was described in the introduction and literature review chapters. This study resulted in understanding the democratising effect of MOOCs in various educational contexts by giving a voice to participants from the global North and South. Published literature on MOOCs has mainly focused so far on describing and analysing case studies on participants in a specific context, either in a developing country or in a developed country but little was explored on the most pressing issues impacting access and success in the MOOC format. There is also scant literature on the impact MOOCs have on the academic role in various countries. This thesis identified five major issues that influence the democratisation effect of MOOCs in developed and developing countries: Infrastructural issues, social issues, political issues, design, and pedagogical issues. Within these categories, this study identified the main additional barriers participants face when accessing MOOCs: Cost of technology, cultural and language issues, lack of fundamental skills, choice and support. These barriers contribute significantly to amplifying divides. By proposing an integrated and adaptive model with crucial factors that would influence the MOOC model's effectiveness in various educational contexts, a theoretical contribution to knowledge is made. This study also found that MOOCs were a challenge to the current education models, the MOOC model had stimulated and restarted discussions and exploration in learning and teaching, MOOCs had generated a schism between traditionalist and conservatives and the role of the academic was progressively changing with the wider adoption of the MOOC format by universities.

7.3.2 Practical contributions

The main practical contributions of this study and particularly the new integrated and adaptive model for a more effective MOOC model proposed in Figure 7-2 are to the field of technology-enhanced learning, disruptive innovations/technologies in Education and Massive Open Online Courses (MOOCs). This thesis contributes to the literature examining MOOCs' potential to democratise access to Higher Education and their impact (s) on universities, teaching and academics. This thesis contributes to the field of technology-enhanced learning and MOOCs by addressing the current pedagogical limitations of the MOOC format which seem to be the most critical impediment that prevent MOOCs, as they are currently designed, from genuinely democratising Higher Education to those who most need it in developed and developing countries. This thesis contributes to the field of disruptive

innovations/technologies in Education / MOOCs by addressing the disruptive impact (s) the democratisation of the MOOC format might have on institutions, teaching and academics.

This study is of particular relevance to researchers, MOOC/academic developers, learning and teaching centres, course designers, universities' CIOs (Chief Information Officers), Companies' CLOs (Chief Learning Officers), policy makers and academics as it shows that

- Providing online access to high-level MOOCs' content without continuous academic support and peer engagement in academically (and to students from) disadvantaged contexts, in developed and developing countries, is not sufficient and not effective. There is a need in the MOOC format for more scaffolding opportunities, more personalisation of the learning experience, more translation and contextualisation, a wider adoption of adaptive learning technologies, continuous diagnostic approaches to track students' performance as well as more and continuous formative assessment and feedback. The author of this thesis proposed an improved model for a more effective MOOC model (Figure 7-6) and meta-design principles (Figure 7- 8) to inform future research in this area.

- More discussion and closer collaboration is needed between all institutional stakeholders to inform decision-making (collective action/collective innovation decisions (Rogers, 2010) and redesign and/or rethink online blended courses, MOOCs and pedagogical formats suitable to various contexts. More safe spaces for exploration and dialogue have to be created within institutions (and with corporations, Ed Tech investors and MOOC providers) to bridge the gap (and foster social capital) between the two parallel worlds described in one of the sub-themes of this thesis and foster creative solutions to 21st century Higher Education learning and teaching challenges.
- More discussion and collaboration between universities and external stakeholders (such as employers and government bodies) is necessary to provide more agile university entry and exit formats and (accredited) courses better aligned to the needs of the industry, to cater to a constantly shifting student population, changing student expectations and employers' needs.
- More collaboration and exchange of expertise between the global North and the global South is essential to jointly design mutually beneficial (and cost-saving) blended courses/MOOCs adapted to the needs, context and level of the learners, in developed and developing countries, taking into consideration the local academic, economic and infrastructural circumstances.
- If the MOOC model is more widely adopted by universities, Higher Education institutions will need to carefully rethink and reconsider their academic/teaching staff development needs, their career pathways, the balance between teaching (face-to-face and online) and research and redefine academic "workload", to avoid exacerbating existing tensions within universities.
- As new educational technologies and mobile devices are increasingly entering the classroom, Learning and Teaching centres around the world might have to

profoundly review, re-examine, reflect and reassess (their own and) academic staff pedagogical development needs for 21st century teaching and learning.

7.3.3 Methodological contributions

The literature review has shown that there are emergent but insufficient scholarly studies using critical theory and Grounded Theory approaches to date that examine the opportunities MOOCs bring to widen access to Higher Education to those currently underrepresented in higher education, in developed and developing countries. There is even less academic literature on the impact the MOOC model might have on Higher Education institutions and academics, as most scholarly literature on the MOOC topic focuses on students.

A study by Bozkut *et al*. (2016) of fifty one theses and dissertations related to MOOCs and published between 2008 and 2015, indicated for instance that whilst one thesis had employed a Critical Theory approach, no thesis to date had used Grounded Theory.

By asking the question [***Have disrupted innovations arrived at the gates of Academia***?], the author of this thesis did not start with a theory to prove, disprove or extend (Fernández, 2004). Grounded Theory provided the author with an approach that allowed data to come from participants' voices.

7.4 Limitations

There were a few limitations to this study. This first limitation is related to the relative small number of participants that had the relevant expertise and availability to answer the questions during the period of this study. Other potential interviewees were identified in the earlier stages but as they were in senior management and were based at different geographic zones with large time differences, it was not possible to find an appropriate time for the interviews to take place. As the main research question of this thesis examines the democratisation of higher education, more interviewees from the global South could have added an extra perspective to this study.

The sample is not representative of the HE sector as a whole; there are for instance extraneous variables that could have affected the results and impinge upon results generalisation. As the study was not using a quantitative research design, the author did not add independent variables such as gender that were thought to be beyond the scope of this study. Most research on MOOCs so far has focused on quantifiable measures and the author wanted to focus on participants' voice and concerns. As for the sub-question related to the impact MOOCs would have on universities, teaching and academics, one could argue for instance that the sample, which includes an eLearning manager at a corporation and universities' senior administrators, does not represent faculty or institutional views. Patton (2002) argued that "there are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what's at stake, what will be useful, and what will have credibility, and what can be done with available time and resources" (Patton, 2002, p.244).

As the scope is rather extensive, the issue context-specific and very complex, there is a need however for more case studies in various developed and developing countries to allow further assessment of local dimensions of MOOCs' impact on institutions, learning, teaching, students and academics.
Another limitation was the absence of direct face-to-face interaction, except for the three participants interviewed during a conference in Brunei Darussalam. Skype was used for most of the interviews and despite a few technical difficulties/glitches (sound/image), probably due to a variance in internet speed, Skype allowed online "face-to-face" discussions and interaction, particularly relevant in the context of this thesis.

Finally, another limitation relates to the new integrated and adaptive new model for a more effective MOOC model proposed in 7-6. As indicated earlier, the model proposed has not been tested "on the ground", is still at its preliminary theoretical stages and might lack validation. Positive feedback and comments received on LinkedIn, Twitter and by email (presented in table 7-1) seem to confirm however its usefulness, generalisability in various educational contexts and *prima facie* validity.

This chapter discussed the findings of the main research question and the sub-question. Next chapter will provide general conclusions to this thesis and concludes with recommendations for future research.

CHAPTER EIGHT: CONCLUSIONS AND FUTURE WORK

8.1 Introduction

This section summarise the work conducted and concludes the thesis with directions for future research. The main empirical findings are summarised in Tables 8.1 and 8.2. This study shows that despite the widely-announced hopes and promises, MOOCs are not having the anticipated democratising impact, particularly for participants who are most in need of access. This study also shows that the MOOC model has the potential to impact on universities, teaching and academics but not radically in the near future and not at the same pace everywhere: The findings of this study indicated that the magnitude of the impact brought by the MOOCs will be of various degrees and will be felt at different institutional/academic echelons depending on the distance from the MOOC design epicentre (s), which is currently located in the global North. This thesis makes five major contributions to the literature, as mentioned in 7.3. The major contribution of this thesis is to address a significant gap in the literature by proposing an integrated and adaptive model with critical success factors that would influence the MOOC model's effectiveness (Figure 7-6), which, to the best of the author's knowledge, is distinctive in the published peer-reviewed literature. The author also developed improved adaptive meta-design principles (Figure 7-8) to inform future research on the topic. Thesis contributions and implications are presented in details in 7.3.

8.1a Purpose of this study

The study was set out to explore the extent to which disruptive technologies, particularly Massive Open Online Courses (MOOCs) could democratise access to Higher Education. The study has also sought to investigate the extent to which MOOCs would have an impact on universities, teaching and academic staff. The methodology used in this thesis and the sampling of participants was purposive as it aimed to provide detailed insights and capture as many opinions from as many different educational contexts as possible, from the global North and South. As there is emergent but limited published general theoretical literature investigating Massive Open Online Courses (MOOCs)' potential to unlock the gates to accessibility and their impact on HE institutions and academics, through the lens of critical theory, the study sought to answer two of these questions (main research question (MRQ) and sub-question):

MRQ: To what extent might disruptive innovations democratise Higher Education?

Sub-question: **What impact will MOOCs have on faculty, teaching and universities?**

The following conclusions can be drawn from the present study:

Table 8-1: Key findings from the interviews relevant to the Main Research Question (MRQ): To what extent might disruptive innovations democratise access to Higher Education?

Democratisation of access	MOOCs seem to have democratised access to content and knowledge to a certain extent but are not considered comparable to an on-campus experience and not appropriate, as they are currently designed, to the needs of the underprivileged students in developed and developing countries.
Limitations	The fundamental limitations of most MOOCs are the insufficient social interaction/feedback/scaffolding opportunities they currently provide; cultural barriers which have not been addressed and the high level of the content taught in English; Design and infrastructural issues, as MOOCs are accessible only to those with high-speed Internet/Wi-Fi and smartphones.
MOOC participants	The model participant for most MOOCs is a well-educated, with possibly a work experience, mature, highly motivated, self-directed, technology well-prepared student.
MOOCs and skills	MOOCs have the potential to provide affordable skills-training/updating opportunities to professionals (lifelong learning) but only if designed in close partnership with the corporate world.
MOOCs and courses	MOOCs have the potential to replace some short developmental professional courses, foundation courses and possibly first-year standardised programmes but they will need to be credentialised.

8.2 MOOCs and the democratisation of Higher Education

The findings of this study are consistent and confirm research done by Liyanagunawardena et al (2013), Czerniewicz et al (2014), Hollands and Tirthali (2014), the Campaign for the Future of Higher Education (CFHE) [http://futureofhighered.org/promises-online-higher-education-access-2/], Daniel (1999), Carver and Harrison (2013) and Acemoglu *et al*. (2014) as they indicate that MOOCs could play a powerful role in expanding opportunity. MOOCs allow for example students to connect / collaborate with other students from the other side of the planet to exchange ideas and views (connectivist learning), choose and take ownership of their learning path, which is not always possible in traditional delivery models, and most importantly have access to high-level content offered by world-class universities. It is somewhat surprising that little research noted the role MOOC design played to hold on to MOOCs promises, particularly to students from disadvantaged backgrounds in the global North and global South. MOOC platforms and developers need to methodically review and objectively rethink their pedagogical model and work more closely with institutions' stakeholders and local partners to gauge local contexts' educational issues and needs as proposed in *A new and more effective MOOC model?* The announcement by Kyung Hee Cyber University (South Korea) of the plan to launch a Collaborative MOOC 2.0 with local partners in

Cambodia and Africa and the sharing of local experiences to improve the system seems to be heading in that direction (Sharma, 2014). Furthermore, the announcement in 2015 by CourseTalk[http://www.coursetalk.com/advancingmoocs] to partner with the U.S. Agency for International Development to launch a series of MOOCs in developing countries and study usage of MOOCs in Colombia, the Philippines and South Africa is also an interesting development, with potential crucial research findings.

8.2.1 A still imperfect model

A few critical shortcomings in the way MOOCs were currently offered (instructional design, cultural/absence of localised content and support in various languages, infrastructure, limited social interaction, advising and structure, time constraints, difficult content, insufficient personal feedback, business model, etc. that would restrict co-creation of knowledge) seemed however to have jeopardised the extent to which they could have, from their initial launch, democratised access to their targeted audience, the underserved in Higher Education, in developed and developing countries. Neither the widespread distribution of content/knowledge the current MOOCs format promises seemed to increase success in higher education and improve equal opportunities/social mobility issues, particularly for the disadvantaged, both in the global North and global South. The author of this thesis proposes meta-design principles for an improved MOOC design (Figure 7-6) that might help mitigate the weaknesses of the current model.

Rogers and Wang (2009, p.527) argued that "with the increasing global outreach of online programs and courses, there is a great need to design and deliver online learning that can be engaging to a culturally diverse audience". Underprivileged students in developed countries and those from the global South who have not had access to good pre-tertiary educational experiences and northern/western cultural capital/heritage are at a distinct disadvantage in the MOOC format, particularly if student-student and student-instructor interactions are kept to a minimum, as it is the case with the way most MOOCs are currently offered. A need was identified and new improved model (Figure 7-6) was proposed.

8.2.2 MOOCs role in remedial education and in helping solve the skills' gap

The findings of this study seem to be consistent with previous research by Wartell (2012), Filvà *et al.* (2014) and Kelly (2014) suggesting that MOOCs could play a role in remedial education, but only as a supplement to a more formal and face-to-face educational experience, a view shared by Schmid *et al.* (2015), particularly for the specific needs of the audiences from the North and South described above. While the findings also align with work done by Kelly (2014) and Savino (2014) indicating that MOOCs could also help tackle the skills' gap, this study argues against Hashmi (2014)' assumptions which stated that a wider expansion of the MOOC model, as it could help workers and graduates improve their skills, would "worsen the problems of graduate unemployment and underemployment… if they are not enough jobs" (Hashmi, 2014, p.13). Hashmi also argued that "it is a reasonable assumption that the rapid growth of MOOCs will lead to an increase in the supply of university graduates" and that "MOOCs may lower the average quality of graduates" (p.8).

The literature review of this thesis examined studies on graduates' career readiness and employability. These studies consistently indicated that graduates lacked essential transferable skills or that their skills were misaligned with the needs of the economy. In a recent survey of employers by McKinsey for instance (Kaka *et al*, 2014) 53 percent of employers in India said that the lack of skills was the leading reason for entry-level vacancies. While the literature review has indicated that the employment landscape was constantly shifting, Carnevale *et al*. (2010) and Lakshmi (2013) stated that many sectors in the global North and South would be short of millions of college graduates by the end of this decade (three million in the U.S. by 2018 and around 160 million in India by 2022). As the literature review has indicated, the top two countries of origin of MOOC participants are the U.S. and India, which, with China, are among the countries producing the most jobs to support the development of their economies. The U.S. has for instance generated 2.65 million new jobs in 2014, mostly white-collar (Bartash, 2014). Arum and Roksa (2014) have suggested that this is exactly the sort of jobs U.S. College graduates did not have the necessary generic competencies (critical thinking, analytic reasoning, problem solving and writing, highly sought-after by employers) to be able to get. As MOOCs are increasingly partnering with start-ups, tech-firms and companies, as indicated in this thesis, one could argue that the *informed* MOOCs they would develop as a result of their close partnership would be better aligned with the changing needs of employers and the industry and could potentially help more graduates find a job and help employees up skill and/or be promoted. The literature review and the findings of this study have also suggested based on numerous studies, that the attrition rates in MOOCs were massive and that most MOOCs' participants were not conventional students and already had work experience and a degree. While, according to the literature review, a large majority enrolled in MOOCs because they are free, for fun and to improve skills, few took a MOOC to acquire knowledge towards a degree, indicating that what Hashmi predicts is unlikely to occur. The launch of HarvardX for Alumni [http://alumni.harvard.edu/x] is indicative of an evolution in the strategy of MOOCs providers to target universities' graduates and foster lifelong learning (such as microdegrees) and long-lasting connections, rather than [only] credentials, as confirmed by Georges Siemens (in Smith, 2015).

If one of the main purposes of universities to launch MOOCs is to help graduates improve higher level skills and find employment, MOOC platforms and developers will have to strategically rethink and enhance their existing cooperation with the private sector to design/redesign adaptable/better quality MOOCs, taught by industry experts, aligned with industry demands and standards and with increased social interactions that would reflect the realities of a corporate environment. While some direct cooperation and experimentation between platforms, universities and tech firms is happening as mentioned earlier, there is still work to be done to create online (in the MOOC format) the sorts of social interactions often found in corporate settings, as indicated by Todd and Siemens (2015) and by the findings of this study. Recent partnerships between the industry, universities and MOOC platforms to jointly design and teach COOCs – Corporate Open Online Courses under a "Global Skills Initiative", as indicated in the literature review, seem to be a positive

development in “synergy”. Udacity’s Android Developer nanodegree is such an example of customisable employer-credentialed multiple-course programmes. [https://www.udacity.com/course/android-developer-nanodegree--nd801]
An interesting hybrid example of the modified MOOC model is the eMovie learning “Le Luxe, c’est vous” launched in May 2015 by the Luxury Attitude Academy, a member of the INSEEC (Business Schools) group in France, in French, English and Mandarin. It is composed of 12 modules and 11 episodes, designed (as a role-playing web series, blending fiction and pedagogy) with and certified by the hotel/luxury goods industry [https://academy.luxury-attitude.com/]. There is a need for more longitudinal studies to explore these issues and investigate whether participants achieve the intended learning outcomes. Another exciting example is Galvanize [http://www.galvanize.com/], an education provider (seven campuses) which mission is to bring under one roof an “eclectic mix of entrepreneurs, skilled programmers, expert data scientists, ambitious students and men and women motivated to make an impact” (Galvanize website).

The findings of this study also contradict Govindarajan and Desai’s assumption that “all a student needs is a computing device and internet access” (Govindarajan and Desai, 2013) to get a core education and Sugata Mitra’s minimally invasive education (Mitra launched for instance the Granny Cloud, i.e. retired teachers interacting with children via Skype, when the experiment was not showing any positive results, except maybe in Uruguay (Mitra and Quiroga, 2012)), what Mazoue (2013) calls “unaided discovery” (Mazoue, 2013, para.24). While the author of this study acknowledges that there are many ways to efficiently study and they are various independent learning styles/patterns, evidence from various studies point to the fact that infrequent feedback, sporadic academic support and a paucity of interactions in online environments (and MOOCs, as indicated by this thesis), that would provide scaffolding for students from disadvantaged backgrounds, either in developed or developing countries, is likely to result at best in surface learning and at worst in a withdrawal from the course. Despite the positive preliminary findings by Colvin et al (2014) who found that MOOCs produced significant and “roughly equal learning for all” (p.17), the literature review and the findings of this thesis have indicated that novice learners in the global North and South from low-income families and/or remote communities and with low levels of academic preparation remain at a distinct disadvantage with respect to staying enrolled and attaining degrees, particularly in online courses, if there is intermittent social presence, lack of peer/instructor presence/support and constructive feedback and rare course navigation help, as it is the case with the current poor instructional design quality of most MOOCs, particularly when they need to navigate “never-ending oceans of information” (Romiszowski, 2004, p.8). A decade before the launch of the first MOOC, while Romiszowski (2004) had indicated that the “scale effect” had a significant effect on what may or not work when the scale was notably larger, Greenagel (2002) had already pointed out the issues and decisive factors “at the heart of the problem” that would hinder an e-learning experience: “1) available technology is driving the instructional strategy, 2) developers don't know anything about how people learn, and 3) a desire to produce courses at the lowest unit cost leads to cutting corners and/or to repurposing of material that wasn't very good to

begin with" (para.15). The findings of this study suggest that many of the lessons taught by decades of e-learning experimentation have not been learned, reflected upon and that learning in an online or blended context is not simply "repackaging" a course or posting course notes online with some video-captured content.
SpoonFeedMe [https://spoonfeedme.com.au/] is an interesting Australian example using video tutorials, notes and cheat sheets to improve learning. According to the website, it helps university students improve their grades by earning online from peers ("created by your peers who speak your language").

The findings also indicated the need for better institutional collaboration and synergy and a significant review and better alignment and integration of institutional academic advising, academic support, assessment and eLearning policies, as proposed in figures 7.2/7-3, which would enable MOOCs and other technology-enhanced initiatives to be useful to those at risk of being left behind.

8.3 MOOCs and their impact on universities, teaching and academics

Table 8-2: Key findings from the interviews relevant to the sub-question: What impact will MOOCs have on faculty, teaching and universities?

A challenge to the current models	MOOCs challenge the so-called traditional, lecture/presence/time-based model of Higher Education.
The MOOC model stimulates discussions and exploration	▫ MOOCs have stimulated a pedagogical debate on more engaging delivery means at scale, both online and campus-based. ▫ MOOCs have triggered an increased interest in technology-enhanced learning approaches at various institutions. ▫ The MOOC phenomenon has provided learning and reflection opportunities and has helped create, at some universities, institutional spaces for collaboration, experimentation and exploration.
Traditionalists versus conservatives	The MOOC model seems to have generated a schism among academics between the supporters of a more traditional delivery approach and those defending the need for change.
The academic role is changing	The MOOC model seems to have changed the dynamics within institutions, which might encourage a re-conceptualisation of the academic identity and the disaggregation of the academic role

Although the findings of this thesis confirm that it is undeniable that the MOOC phenomenon has brought increased attention to the importance of learning, teaching and assessment (particularly at scale) in Higher Education, has encouraged (and often excited) academics and institutions from the global North and South to work/research together, enquire, discuss, observe, examine and trial new ways of interactively engage and assess students in various learning environments, it is improbable, according to the participants of this study, that there will be widespread

systematic change to the teaching profession in the short term. This finding is contrary to previous studies which have suggested that MOOCs would revolutionise teaching at university level. Despite having pointed out the "much-needed shift in its base pedagogical practices that the academy must attend to" (Morris, 2014), the MOOC format might help inspire changes but an increase proliferation of the MOOC model might potentially create rifts between traditionalists and reformers (and increased tensions between institutional management and academics). There is a growing body of research that explores MOOCs' potential for academic professional learning and development (Lodge and Lewis, 2015). As pointed out by participants however, existing "power struggles" within universities and pressure on academics might be amplified by a profit-making MOOC format, the non-recognition by the management of the time spent in developing online courses during promotion exercises and by a top-down management's insistence on adopting it.

Laurillard (2013, p.4) stated that Higher Education does not change easily, "traditions, values, infrastructure all create the conditions for a natural inertia". A potential positive academic "buy-in" turning point could be the full opening of MOOCs' content to educators (to re-empower them) and students (to really be emancipatory). Atenas (2015) and Jensen and Schuwer (2015) argued for instance that MOOCs' content needed to be openly licensed to all participants and to academics/academic developers, (conforming to the guidelines of Open Educational Resources), to be truly democratic and customisable: "they must be accessible, modifiable, and adaptable" (Atenas, 2015, p.5), which doesn't seem to currently be the case, and this is an important issue for countries in the global South for instance, as indicated by the findings of this study. Bacow et al (2012) stated in *Barriers to adoption of online learning systems in U.S. higher education* that faculty were particularly unwilling to teach courses that they did not "own", as it was "often seen as a burden by faculty" (Bacow *et al*, 2012, p.22). Academics also wanted to be able to customise/remix the course content "in how, what, and when relevant material is presented to their students" (Bacow *et al*, 2012, p.22). Sarah Speight, from the University of Nottingham stated for instance that the investment in MOOCs by universities would be more efficient "by ensuring that [they] can be repurposed" (Parr, 2015, para.13), by reusing content for other courses and programmes. MOOC platforms have let us to understand in the past four years that they are revenue focused. Boga and McGreal (2014, p.8) stated that "commercial MOOC platforms copyright-protect their materials, which means that developing countries might lose the ability to adapt, localise or translate content to their own context". MOOCs offer at this point no freedom to reuse, remix, redistribute, and revise and thus no ownership model.

This significantly questions MOOCs' educational model as an Open Educational Resource.

The conditions and context under which OERs are created, the languages employed and the teaching methodologies used result in content that is grounded in the culture and educational norms and values of the developers, often based in the Global North. Contextualising pedagogical material is a question of both language and culture but also norms and values. A partnership announcement by EdCast and

Cerego during TransformingEDU 2015 [http://transformingedu.com/] in Las Vegas that will allow universities, academics, companies, and organisations to tailor learning experiences, customise and brand their MOOC environments and the announcement by FutureLearn to launch an "Open Step Pages" pilot, allowing the access (to students and academics) of content and some units without prior registration (Parr, 2015) are interesting developments that might help further democratise the MOOC model among faculty and universities, to fulfil its expected potential and keep its promises.

8.4 Recommendations for future research

This section provides a list of potential avenues for future research.

As mentioned in 7.4 (Chapter 7) Limitations section, future research would benefit from the use of a larger sample of interviewees from developing countries. With an increasing number of refugees and displaced people in the Middle East and Africa (Libya/Syria/Nigeria, Myanmar, etc.) there is for instance remarkably little scholarly research (apart from Moser-Mercer, 2014) on how online learning and MOOCs in particular could be utilised in fragile and difficult contexts (Afghanistan, Syria, Kurdistan, Timor Leste or Nauru for instance). University of the People, a tuition-free online university has for instance a Refugee and Asylum-seeker admissions policy to help refugees access Higher Education through its online courses

[http://uopeople.edu/files/Pdf/refugee_admissions_policy.pdf]

An interesting development which could potentially ignite research ideas is IdeasBox, a toolkit with media and educational content (25 tablets, 50 e-readers, Satellite Internet connexion, televisions, 4 computers, MOOCs and books) developed by Libraries without Borders for refugee camps

[https://www.youtube.com/watch?v=ml7nZCNa2GQ]. It would also be very interesting to investigate the democratising impact of MOOCs (as supplement/replacement) in isolated places such as Easter Island, Comoros or Pacific Islands Nations where most university-age students need to leave to have access to Higher Education.

Longitudinally investigating whether MOOCs are, if compared with a residential college experience, improving learning and success among traditionally marginalised student populations in developed countries would also be a very interesting research topic, as there is a lack of empirical research to support their effectiveness. Alison [https://alison.com/] has for instance launched in 2015 an online course for *skills to get back into work* for prisoners aimed at addressing recidivism. Another fascinating avenue for research would be to examine how an improved, interactive scaffolded MOOC design in collaboration with local partners would be able to support the development of fundamental literacies for those without any access to basic education, in remote rural communities in India, South America, Africa or aboriginal communities in the Australian Outback.

Research by Bailey and Dynarski (2011) suggested that inequality in educational attainment has risen more sharply among women than among men in recent years.

Christensen and Alcorn (2014) research on MOOCs has also found that only 36.5 percent of MOOC participants are female. Kizilcec and Halawa (2015) have indicated that women exhibited less performance and persistence in a MOOC than men. A captivating topic would be to examine whether the reasons that prevent female students from succeeding in face-to-face education in developed and developing countries are the same reasons that are stopping them from participating in MOOCs, despite the flexibility they provide, or if social norms and challenging economic realities in some countries play a role.

MOOCs have been launched to target secondary students in the U.S. (Hill, 2014) and China (Kuxuexi: http://www.kuxuexi.com/) and are used for workplace learning (Duport, 2014; Galer, 2014; Chattopadhyay, 2015); an interesting avenue of research would be to investigate whether and how specifically-designed MOOCs could provide a partial solution to the needs of those who departed from mainstream secondary education, in Australian Flexischools for instance. Similarly, as student demand far exceeds supply of places in many developed countries (the example of the "1.2m young, smart, energetic, motivated kids who could not get into the universities" in Nigeria for instance, (Atueyi, 2015, para.5), it would be interesting to examine whether MOOCs is/could be a widely used temporary alternative to those eligible but denied a place at university and whether it would help them succeed.

A very interesting avenue for future research would be to examine whether Learnersourcing, collaboratively summarising MOOC videos and adding labels (annotating) to help yourself and other students better engage with the learning experience (Weir *et al*, 2015) could be deployed in a MOOC environment and whether it would actually help students learn better, particularly the millions of students suffering from hearing impairments.

Finally with the development and spread of local MOOCs in China and overseas (for instance to the Chinese diaspora around the world) and generous financial help given to countries to develop ICT infrastructures and libraries (as in the recent case of Ghana), it would be interesting to investigate whether the dissemination of ideologically laden knowledge (Giroux, 2003; McLaren, 2003, Apple 2004) and [western] bias, often cited in Western/North-produced MOOCs, is also present in Eastern-designed / Sinicized (Reich, 2015) MOOCs and online material, creating a new form of Chinese intellectual neo-colonialism.

8.5 Conclusion

Higher Education was known until recently to be wary of disruptive technologies to resolve its critical and long-lasting issues and reluctance to quickly adopt new online models, as one of the solutions to its challenges. The emergence of the MOOC model has brought new hopes in many academics circles and its development, proliferation and adoption in many parts of the world has been rather surprisingly swift. Notwithstanding what is often reported in the media about the wide democratisation effects of Massive Open Online Courses however, MOOCs in their current design, form and shape have only offered some solution to the existing and enduring issue of access to and success in Higher Education in developed and developing countries. Furthermore, despite the fears that MOOCs would destroy

faculty in the short term, MOOCs seem to have, so far, moderately affected the academic role. They have however helped bridge the gap between academics and para-academics, have re-centred the focus on learning, and have provided significant and valuable learning opportunities to institutions and academics on how to better engage students at scale, synchronously and asynchronously. The popularity of the MOOC model has also incited institutions to consider the possibilities to offer programmes with more flexible entry and exit points, to cater to changing student demographics and employers' needs.

In short, instead of a creative destruction, Higher Education, because of the MOOC model, seems to be witnessing a creative, reflective and constructive construction.

Carr (2012) argued that "for better or worse, the Net's disruptive forces have arrived at the gates of academia" (Carr, 2012, para.32).

The incessant pounding at the gates by the most potentially disruptive gate crashers such as Massive Open Online Courses has, without a doubt, captured the attention of institutions and academics, and the most promising opportunities for the democratisation of Higher Education, student learning and for teaching at postsecondary institutions that a redesigned and evolved MOOC pedagogical format could provide might still be lying ahead in the Slope of Enlightenment.

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APPENDIX A: Interview protocol form, interview questions and probes

Interview Protocol Form

Institution: _____

Interviewee (Title and Name): _____

_____

To what extent might disruptive technologies democratise access to higher education?

Introductory Protocol

To facilitate note-taking, I would like to audio tape our conversations today. Please sign the informed consent form. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel uncomfortable, and (3) I do not intend to inflict any harm. Thank you for your agreeing to participate.

I have planned this interview to last no longer than one hour. During this time, I have several questions that I would like to cover. If time begins to run short, it may be necessary to interrupt you in order to push ahead and complete this line of questioning.

Introduction

You have been selected because you have been identified as someone who has a great deal to share about disruptive technologies in Education and particularly Massive Open Online Courses (MOOCs) and their potential to democratise access to Higher Education. The context of this study is the U.S; you might however discuss the situation/context in your country / institution.

A. **Interviewee Background**

How long have you been …

_____ in your present position?

_____ at this institution?

Background information on interviewee:

What is your highest degree? _____

What is your field of study? _____

1. Briefly describe your role as it relates to teaching, administration, research, technology and student learning (if appropriate).

B. **Disruptive technologies**

1. What are your views on disruptive innovations in education?

Probes: Do you think Higher Ed needs disruption?

2. What are your views on (Massive Open Online Courses) /MOOCs?

Probes: Do you consider MOOCs as a *disruptive* technology in education?

What's new about them?

3. Do you think MOOCs are the new model of education?

Probes: Do you think MOOCs have a place in higher education? If so why? If not, why? Have you taught/registered for/completed a MOOC? If yes, how was your experience? What challenges did you encounter? What are, according to you, the benefits of MOOCs?

4. Do you think MOOCs can replace traditional 'bricks and mortar' higher education?

Probe: Do you think MOOCs are an alternative to universities?

5. What do you think are the biggest challenges of the MOOC format?

Probe: What are the limits of MOOCs?

6. Do you consider that there are other technology-mediated learning approaches that are going to be more disruptive than MOOCs?

C. **Democratisation of education**

1. To what extent, do you think, might disruptive technologies democratise higher education?

Probes: according to Stephen Downes, "There is enough knowledge for everyone and there is enough access for everyone, but we have not taken it to heart to make that access and distribute that content to those who need it." What are your views on this?

Which disruptive technology (ies) might, according to you, widen access to higher education?

Can MOOCs increase access to education? Do you think MOOCs have a 'remedial' potential? Can MOOCs revolutionise corporate learning & development? Can MOOCs solve the 'skills gap'?

2. What are your views on giving students the opportunity to select study programmes themselves, rather than being selected by institutions?

3. Do you think MOOCs promote collaboration and interaction in learning or do MOOCs hinder it?

4. What worries you about MOOCs?

Probe: Do you think MOOCs are hegemonist?

5. Do you think MOOCs will help reduce inequalities?

Probe: Do you think MOOCs will create more inequality and divide the education planets into two, those who have access and those who don't?

D. **Impact**

1. What impact do you think MOOCs will have on higher education and its delivery?

Probe: Do you think MOOCs are transformative?

2. What impact do you think MOOCs will have on academics? On students?

Probes: Widespread online-only Higher Ed will be disastrous for students – and most professors (Rees, 2013a). What are your views on this?

Do you think students' expectations in higher education changed / will change because of MOOCs?

3. Do you think MOOCs will de-skill and de-professionalise academia?

4. What is, according to your analysis, the future of MOOCs?

Probe: Where are MOOCs headed?

APPENDIX B: Participant information sheet

Name of department: Department of Education of the Faculty of Arts, Creative Industries and Education at the University of the West of England (UWE)

Title of the study: Have disruptive innovations arrived at the gates of academia?

You are being invited to take part in a research study on the impact of disruptive innovations in Higher Education. Before you decide it is important for you to understand why the research is being done, why you have been invited to take part in the study and what it will involve. Please take time to read the following information carefully. Feel free to ask me anytime if there is anything that is not clear or if you would like more information and take time to decide whether or not you wish to take part. Thank you!

Introduction

My name is David Santandreu and I am a doctoral student in the Department of Education of the Faculty of Arts, Creative Industries and Education at the University of the West of England (UWE), studying under the direction of Professor John Cook and Professor Liz Falconer. I am conducting research on the impact of disruptive innovations in Higher Education and more specifically on the impact of Massive Open Online Courses (MOOCs).

What is the purpose of this investigation?

The aim of my research is to answer the following research question:

To what extent might disruptive technologies democratise access to higher education?

Guiding Questions were also generated to refine the study:

- Are Higher Ed economic and business models fit for purpose?

- Is disruptive innovation needed in Higher Ed?

- Can disruptive technologies flip the Higher Education planet and render the current traditional/business model (s) obsolete?

- Can MOOCs be a catalyst for broader change in the industry and potentially undermine the ultra-dominant role that campus-based institutions have as exclusive providers of knowledge and credentials

- What risks/threats do disruptive technologies such as MOOCs pose to universities?

- What impact will MOOCs have on faculty, teaching and universities?

- Can MOOCs increase access to education in developing countries?

Do you have to take part?

If you agree to take part in this study, you will be asked to:

a) Complete a demographic questionnaire

b) Participate in two individual interviews with the researcher (SKYPE) which may last 1.5 hours or more.

These interviews will be recorded and everything including identities and/or names mentioned will be kept confidential.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

What will you do in the project?

If you decide to take part, you will be asked to complete a [demographic] e-survey and you will be interviewed, on two occasions, over the next few months to discuss your views on and experience with MOOCs. Each interview will be conducted on SKYPE (or over the phone) and should approximately take 1.5 hours. Everything you tell me will remain absolutely confidential and will only be used for my doctoral dissertation, conferences and referred publications.

Why have you been invited to take part?

You have been invited to take part in this study because of your international background in academia/administration and your interest/ involvement with disruptive innovations in Higher Education and particularly MOOCs, either as observer, commentator, designer, critic or participant.

What are the potential risks to you in taking part?

No risks, stress or discomforts whatsoever are expected from your participation in this study. Participation in this study is entirely voluntary. You do not have to answer any questions you do not want to answer. If at any time you do not want to continue with the interview, you can withdraw without giving a reason.

What happens to the information in the project?

No information provided by you and/ or about you will be shared without your written consent. Data or information (including names) provided by you can only be shared with my Director of studies Professor John Cook and my Supervisor Professor Liz Falconer, during the course of the study and data analysis. After this study is completed, the data and recordings will be kept at a secure location. Excerpts from the interviews may be included in my dissertation or other later publications/presentations (peer-refereed/conferences). However, under no circumstances will your name or identifying characteristics appear in these writings/presentations without your prior authorisation.

What happens next?

If you agree to take part in this study, you will be asked to sign a consent form (attached herewith). You understand that by signing this informed consent form, you do not give up any legal rights.

If unfortunately you do not wish to be involved in this study, thank you very much for your attention.

I will answer any questions about the study and can be reached by mobile device (Hong Kong) at (+852) 91204143, email dsantandreu@yahoo.com and/ or Skype: dsantandreu1

For any queries concerning this study you may wish to contact my Director of Studies: Professor John Cook, Department of Education / John2.Cook@uwe.ac.uk

If you have any questions/concerns, during or after the investigation, or wish to contact an independent person to whom any questions may be directed or further information may be sought from, please contact:

University of the West of England (UWE) - Research Ethics Coordinator – Lesley Brock at the following email address: lesley.brock@sgscol.ac.uk.

APPENDIX C: Informed Consent Letter

My name is David Santandreu and I am a doctoral student in the Department of Education of the Faculty of Arts, Creative Industries and Education at the University of the West of England (UWE), studying under the direction of Professor John Cook and Professor Liz Falconer. I am conducting research on the impact of disruptive innovations in Higher Education and more specifically on the impact of Massive Open Online Courses (MOOCs).

The aim of my research is to answer the following research question:

To what extent might disruptive technologies democratise access to higher education?

Guiding questions were also generated to refine the study.

I am writing to ask whether you would consent to work with me on this project. I would like to send you an e-survey and interview you, on two occasions, over the next few months to discuss your views on and experience with MOOCs. Each interview will be conducted on SKYPE, will be audio-recorded and should approximately take 1.5 hours. Everything you tell me will remain absolutely confidential and will only be used for my doctoral dissertation, conferences and referred publications. If you do consent, please fill-in the following form:

I _____ agree to participate in the research titled "Have disruptive innovations arrived at the gates of academia?" conducted by David Santandreu from the Department of Education of the Faculty of Arts, Creative Industries and Education at the University of the West of England (UWE), under the direction of Professor John Cook and Professor Liz Falconer. I understand that this participation is entirely voluntary. I can stop taking part at any time, without giving any reason and without any penalty. I have the right to ask that all information about me be returned to me and deleted from the research records, up to the point of writing up of results. I clearly understand that there are no direct benefits associated with my participation in this study.

The aim of this research is to answer the following research question:

To what extent might disruptive technologies democratise access to higher education?

Guiding questions were also generated and might be used in the /interview (s).

If I consent to take part in this study, I will be asked to:

a) Complete a demographic questionnaire

b) Conduct two individual interviews with the researcher (SKYPE, audio-recorded) which may last 1.5 hours or more.

These interviews will be recorded and everything including identities and/or names mentioned will be kept confidential.

No risks, stress or discomforts whatsoever are expected from participation in this study.

No information provided by me and/ or about me will be shared without my written consent. Data or information (including names) provided by me can only be shared with the Director of studies Professor John Cook and the Supervisor Professor Liz Falconer, during the course of the study and data analysis. After this study is completed, the researcher will securely keep the data and recordings at home in a locked filling cabinet and will only use it for future research if necessary. Pseudonyms or numbers will replace all personal names provided.

The researcher will answer any questions about the study and can be reached by mobile device (Hong Kong) at (+852) 91204143, email dsantandreu@yaho.com and/ or Skype: dsantandreu1

I consent to participate in the study titled “Have disruptive innovations arrived at the gates of academia?” conducted by David Santandreu from the Department of Education of the Faculty of Arts, Creative Industries and Education at the University of the West of England (UWE).

Name of participant (including Title) Signature: Date:

APPENDIX D: Example of an Interview Transcript

PARTICIPANT 001
MALE
03 / 09 / 2014
| AUSTRALIA | - SKYPE

David: So, um…So you have been selected because you have been identified as someone who has a great deal to share about disruptive technologies in Education, and particularly MOOCS. Um have seen your…your article on the um the failure of MOOCs recently, and their potential to democratise access to higher education. Um the context of my study is the US, um but you might however discuss the situation context in your country/institution.
Um…so let's start with the interview…interviewee background. How long have you been at um in your present position?

P001: I have been in my present position for three years.
David: Three years. And um at this institution, so three years, and before that?
P001: Ah before that, I was at Dxxxxxx University for two years. And…at the University of Wxxxx (David: Oh wow!) for… um …five years.
David: So do you know Mxxxxxxx? And…
P001: Yes, yes I know Mxxxxxx.
David: and..and you know Sxxxxx? Yeah, no, not as well as Sxxxxx, but I know Mxxxxx a little bit.
David: Great, excellent! Um so what is your highest degree?
P001: Um PhD in higher education. Technology and Higher Education
David: Okay, and your field of study, technology and higher education, yes.
P001: Yeah yeah, I guess I do, prior I did um honours degree in computer science. [inaudible]
David: Um can you describe briefly your role um at um your present role at Mxxxx?
P001: So I'm a lecturer in learning and teaching. So that involves me doing some teaching in higher education, so I teach a postgraduate course about learning and teaching at universities. I'm involved in sort of…ah…input to policies, strategies, that sort of stuff. Um I do higher education research as well, and all the other typical academic things, I supervise doctoral students, that sort of thing.
David: Thank you! Shall we start the um… the interview on disruptive technologies?
P001: Yeah!
David: My first question would be um general questions. What are your views on disruptive innovations in education?
P001: Woo oh… It's a good question! (Silence) So…
David: Did you think for example that higher education needs disruption?
P001: It's been very nice the way it's been. It would be nice if, it's, you know, some things would stay the same. But they just won't. I think um whether or not it needs disruption, disruption is just going to happen. I guess if I think to say Neil Sullivan writes a little bit about technological determinism. I do think some people take technological determinist attitude to education whereby um the technology has

these affordances therefore we are able to use them to do certain things. I think whether or not you personally adopt that, technological determinism is a sort of a theme that happens. You are afforded it marches forward with or without us. and MOOCs are a great example of that, whether or not they are a good idea.
David; Okay so what are your views on MOOCs then?
P001: Okay, yeah, so, I guess I have seen a whole bunch of things about MOOCs on the public record, So I am in this interesting situation if I can go to my personal life, my wife does so many MOOCs. [Laughing] She really likes MOOCs, and she has learnt so much…
David: I should probably interview your wife… as well (David and Philip laugh together).
P001: She loves to study these MOOCs and has gone from somebody who's sort of failed statistics at university to having done I think 4 or 5 statistics MOOCs and has learned to program in R which is that course statistics programming language, and a whole bunch of things and what I see is very interesting: She is an expert student. So she is someone who has got postgraduate study under her belt, um has worked for a long time, understands the technology, has developed self-regulation as a learner. She is perfect for MOOCs.
I think that MOOCs are great for that sort of student and, not great for people who have traditionally faced barriers to higher education. So I think that um you know in Australia we have issues with rural and regional students, (David: Yeah), there are barriers to access to education and I don't think that MOOCs are necessarily a great thing for those students. However, I think that you know there are adaptations we can do to MOOCs , so I look at my mum.
So, if I got personal again, my parents, I think, have dropped down of study 5 times between them, you know, they dropped out of university a lot.
My mum is doing her first MOOCs, she doesn't have a degree. But she has organised with some friends to having a little study group around the MOOC. You know, I think those sorts of things can help make MOOCs work, I think MOOCs on their own won't solve the problem, combining with some of the things we know really well about peer-learning (David at the same time: peer-learning) Yeah, that could be excellent! So…yeah…I have very mixed feelings about MOOCs.
David: (laugh) Thank you! Um so do you think MOOCs could be the new model of education based on what you just said?
P001: Well, I think it could be part of the new model of education. And … I think that we would learn things about MOOCs that we will bring to mainstream blended learning classrooms. Yeah and I think that it will be great. So…yeah one of the things we are learning is about…um educational videos. And … you know, we are learning about what makes a good educational video, what makes a bad one, what works really well, um some learning analytics work is being done on MOOCs that could yield valuable insights because of the fair number of participants they have and the amount of data and the way they designed their systems. So I think MOOCs wouldn't replace Higher Ed but I think we will learn a lot from MOOCs that we will put into Higher Ed. And I'd say the component of the mainstream blended course at the moment that's online would look a lot like what a MOOC looks like now in a few years. We'll take a lot of that.

David: Um you said your wife um took some MOOCs, do you know … that… if she encountered any challenges?
P001: Um…Not...really. I'd say she adapted quite well. So she had a deep orientation to study, self-motivated orientation and also took quite a fixated approach to it, she was after a 100%. I'd say she just worked away at it until she until she got it. I have to say that u know these were highly technical MOOCs and I think MOOCs can really work well for that type of technical things. If you look at the stats on …provided by Coursera, and mathematics, statistics and computer science makes up the overwhelming majority of the units [inaudible], yeah, and I'd say she is someone who's learned, not statistics but she's learned programming stuff really well in the past so was able to apply that, so I'd say she didn't experienced a lot of issues. But that puts the, um... her experience has been quite different to the 90ish% of the people that just fail. And I understand that it is a lot more nuanced than that.

Australia is a big provider of MOOCs. Arrrh, we have a few providers but say Open Universities Australia has published some reports where they've got into, well yes 90% of the people or so didn't complete but also I% logged in, and 1% opened the first video, 1%... and once you've gone through a few of those hurdles you reasonably likely to complete.

David: Do you think MOOCs can replace traditional 'bricks and mortar' higher education?
P001: No, I don't think so. No. Um I think there is a bunch of reasons there. So I think that…um… There is much more to the student experience of higher education than just the homework [inaudible] study and I think the students will continue to demand that. And I think, I think Australian society still has some reasonably conservative views about what makes a good university graduate. And some of those do come down to a bunch of things that are developing well in a face-to-face setting: The networky…- interpersonal sort of stuff. And I've read a lot of discussion around this on Reddit, you know people talking about… say… the University of Phoenix online in the States and people say some really negative things about the University of Phoenix online.
When you dig into it I think it just comes down to some deep prejudices against online education. So, online education, distance education has been around in Australia in the US for quite a while and it hasn't replaced it already. So I don't think it'll completely replace it. {David: Ok}, I think… it will… you know the sectors universities should be worried about are Short professional development courses. I think that MOOCs will replace, not an MBA, but some other equivalent 6 month full-time course, I think that might be the target for MOOCs.

David: What do you think are the biggest challenges of the MOOC format?
P001: Um…So… um… I'd say a big challenge is the resourcing model. So, traditional higher education, you have roughly a linear resourcing model, your resources scale with video links to a number of students. With a MOOC, you have just a flat resourcing model, where you have the same amount of resources, whether you have a hundred students or a hundred thousand students. And I think that's a really big challenge because that means you have to make some design compromises. So, I…

normally do a lot of interaction with my online students and I am wary of becoming a MOOC instructor myself (laughs) because I just wouldn't be able to do that. But, you know, that comes with its own opportunities; it means that instructors are forced to design situations where students have to work well with each other independently and that can be really excellent. If I look at my own face-to-face teaching, I use peer-learning groups in my own work with expert learners, so I actually give them an agenda to work through and I say go on do this, and I give them 12, so 12 weeks this semester, work through these 12 in your group on your own without me and my subject has… is in the top ten in the education faculty at Monash in terms of students' satisfaction, they love this course. Um… so you know, I think that we can take some things like that, self-directed, peer-group stuff to try to plug some of the holes. So you are asking for challenges of … of the MOOC approach. Ok, so I think resourcing and lack of one-to-one interaction is one, I think that there are some [inaudible] issues, I think those might diminish as times goes on, partly because MOOC platforms will become more user-friendly and partly because people would become better at using them I don't buy into a sort of a digital native argument, "students these days are good at Facebook and therefore they are good at technology for higher education. The empirical work doesn't support that assumption. But I do think MOOC platforms are gonna start looking more like those social networking sites. Other challenges with MOOCs…?
I think that certain content areas more obviously fit themselves to MOOCs, so there I am talking both presentation of content but also assessment of content. And within assessment I mean both assessment for learning and assessment for certification and grading. So…assessment for learning in a technical MOOC like a computer programming MOOC is really easily done because you can set people tasks that they can do, and they can check understanding really easily and assessment for certification can be done really easily, you can check if their code compiles, given them so multiple-choice questions and I'd say doing that for a MOOC on ancient history is much more challenging.

David: Do you consider that there are other technology-mediated learning approaches that are going to be more disruptive than MOOCs?
P001: Oh, that's a great question! That's really good. Other things that might be more disruptive than MOOCs…I guess I looked at the NMC Horizon Report recently, I looked at it and I didn't really see anything that I thought WOW! That's gonna be the big disruptive thing. Interestingly, it looked like they've taken MOOOCs off their list [David: yeah (laughs), so that's kind of interesting. Um…I'd say… um… learning analytics is another big one… I don't know… if it's necessarily gonna be disruptive, I'd say learning analytics will be informative, it will tell us some things that will really help, some of the students' dashboard-style things, but that's not really disruptive.

I'd say…I'd say in the sort of short term horizon, MOOCs are probably the disruptive technology. I mean, I'm an optimist when it comes to Artificial Intelligence and I do think that, you know, the fact that Google could do such fantastic work with natural language now, can translate, can interpret your misspellings or figure out exactly what you really want, so you go OK, Google blah blah, smartphone, all those things, I think there could be some interesting Artificial Intelligence but I think there are

longer horizon, we are looking ten or more years for some of that stuff. So I think I'll go to MOOCs as the disruptive one.

David: Ok! Let's talk about democratisation of education.
My first question is: To what extent, do you think, might disruptive technologies democratise higher education?
P001: That's a really good question as well. …Um… Ok so…..
David: For example Stephen Downes he says, "There is enough knowledge for everyone and there is enough access for everyone, but we have not taken it to heart to make that access and distribute that content to those who need it."
P001: Ah it's a really really interesting. I think if you take a translucid view of learning, then make everything open access and we will figure it out, there with that sort of view, so If I write a great book, it's the same as if I teach well. I provide information to people and they can have it, I don't know about that, um…yeah I think the availability of MOOCs to people, so everyone can do it, does assist with democratization and certainly, on the other side to that in terms of who can initiate a course, who can run something, not everyone can go to Coursera and run a course but you can go to other platforms you can go to wikiversity, I think there is a short-lived university of Reddit, or a variety of other things so, democratization does exist on the other end as well, I'd buy it a bit but I am not a 100% on board.

David: Do you think there is a disruptive technology that might widen access to higher education, except MOOCs?
P001: I'd say… We haven't really given Open Educational Resources a good enough go, and …um… you know part of me wonders if … if a lot of the MOOC revolution would end up… if it fizzles out, Open Educational resources would be there to take that space, because you know, in the end you've got the ability for people to assemble and content-curate excellent courses out of very good quality learning resources. But we've got to do some stuff around good repositories but also around good quality control, so it could be that…uhhh, open educational resources that involve some sort of peer review might be the… um…disruptive technology, so we have very good reasons that backs all that stuff.
Ok so another … another one that might be flying under the radar a little bit is …, if I guess Open Educational Resources are the open thing, close educational resources so companies like Pearson or similar getting into educational institutions and putting a lot of their stuff within the assessment of courses and a lot of their textbooks within those and possibly even leveraging a fair bit of control, or Pearson has made moves to set up its own university, there could be things around that, yeah so…. If I look at… ahhh… so say I've done a research project recently looking at how academics design their assessment, and talked to a lot of academics about how they do it, we have a really interesting case, where someone started teaching a new unit and immediately the texbook publisher contacted them saying Hey, we have all of this stuff you could incorporate this into your assessment and they did but now there is a little bit of unease about...
David : yeah, Ok. Um…you talked about your wife's experience with MOOCs and you said that there is a certain, maybe, type of person that would, would be a better

audience for those MOOCs. And if we look at the statistics or the figures around the world they seem to confirm that's true. But do you think that MOOCs have a remedial potential. Some people, like, States like California are exploring this. I'm gonna ask you three questions mini questions in a row, mini questions. So do they have a 'remedial' potential? Do you think they can MOOCs revolutionise corporate learning & development? And do you think that they can solve the 'skills gap'? So these are tough questions (laughs).
P001: Yeah… yeah... good. Um… Ok. Yes, I think they do have a remedial potential. I think they need to be designed in a certain way and probably supported in certain ways… um… I think … um…giving someone who is disengaged with higher education a remedial MOOC to do, with no support beyond what's usually on offer for a MOOC, I don't think that's a great idea. However, If you look at … arhh… existing enabling or access programmes within higher education, I think MOOCs could definitely benefit those. So I look at… u know… some people come to higher education enabling programmes and lack numeracy skills to a… an enormous degree, it's very resource intensive to work with them to develop those. In combination with other support that they are getting from the institution a MOOC could be really helpful, so…yeah, I think there is opportunity
Your second question is about: professional learning in a corporate world.
David: yeah.
P001: That's… That's a huuge opportunity for MOOCs. And… ahr…Gee! I feel like I recently read a news story about about that. I think it's, it will be quite lucrative. I think it's well …what the costs are of, education and training to the private sector. And you've got two very big costs there: the cost of the training itself and you've got the costs of not being present in your job while you are at the training. MOOCs offer more flexibility to offset that cost, so I think there could be some big opportunities there. I have forgotten what your third question was.
David: Can MOOCs solve the 'skills gap'?
P001: Skills' gap, oh wow! For some skills yes but not not for all skills, yes, so I think going back to the nature of the different types of knowledge that can be taught well with MOOCs I think that's an issue, and I also think skill gaps exist…um… there are a variety of levels of education and MOOCs are well suited to higher higher levels but possibly less well-suited to the lower levels.
David: Ok. What are your views on giving students the opportunity to select study programmes themselves, rather than being selected by institutions?
P001: I… I am very much in favour of that. I think it becomes a challenge, having to ensure overall course or programme or degree level outcomes but I'd say that as long as it is done with that firmly in mind it is a really good idea. So… to get. {transmission issues} … Oh, Have I lost you?
David: no, I am here. Yeah.
P001: To give you an example my undergraduate degree I think there were only maybe 3 compulsory subjects and I have … had the rest of the degree to choose, [inaudible] … to graduate in my computer science degree, that was great. I've got to really pursue different things that really interested me but they really designed the course so that the degree level outcomes where made by those degree units and any other combination of units. It's not always possible. So I think there is a course planning… overlay and …certain complexity there to consider and there is a lot of

work being done in that space of assuring graduate learning outcomes and a lot of tools are being developed to map curricula, it's often put into two hard baskets but I don't think it needs to be.
David: Ok. Do you think MOOCs promote collaboration and interaction in learning or do they hinder it?
P001: [Silence] um… I think they promote collaboration in learning when they're done in certain ways and they hinder it when they're done in other ways so I think there are instructional design choices that MOOC developers make that turn them in one way or another. So… um… yeah MOOCs can discourage competition which might encourage collaborative learning… um…MOOCs… and discouraging competition means not having a course graded at the end might do that. Um… but the isolation can sort of get in there as well. But there are things that good MOOC teachers do. Yeah, facilitate the discussion board in a certain way or encouraging people to meet up with colleagues? Yeah and I'd say as well ….I haven't seen this in the research at all but that would be very interesting. I think people have a slightly different approach to academic integrity, when it comes to being a MOOC student versus a proper higher education student: My wife and her father both did some MOOCs together and they are both, [silence] really honest students, really good when they study a normal subject but they felt it was no problem to cooperate on the assessment of the MOOC, because at the end of the day it doesn't really…. matter, you know, what grade you get, so I think there is a difference attitudes in there…
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APPENDIX E: List of emergent indicators from in-depth interviews

Technological determinism P001	**Self-regulation** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018	**Inevitability of disruption** P002-P005-P007-P008-P009-P013-P017-P018	**Expert student** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018	**Barriers to access** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017
Postgraduate P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018	**Not great for rural/regional Students** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Absence of peer learning** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Won't solve the problem** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Self-directed** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018
Part of new model of education P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Learning analytics** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Insights** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**MOOCs wouldn't Replace HE** P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**Mixed feelings** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017
Assist with Democratisation P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Not 100% on board** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Pairing MOOCs With existing Access programmes** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Not good for disengaged students** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Lack basic skills** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017
Resource intensive P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Less suited for low level skills** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Challenges around Cost** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Quality** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Relationship** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018
Utilise MOOC as a tool P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Class experience Is missing** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Relationship with the educator** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Unequal educational system in the US** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Wealthiest have access to highest quality** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Not everyone has equal chance of finishing P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**MOOCs won't do much to enable a larger Segment to participate** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**MOOCs will increase Inequality** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Education is not transmitting content** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**An opportunity** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017
MOOCs will not in itself democratise HE P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**MOOCs as a catalyst** P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**Access vs completion** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**MOOCs will help Replace a HE Experience in Developing countries** P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**People who take these opportunities already have higher education degrees** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018
Improving skills P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Scaffolding** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Power relationships** P002-P005-P007-P008-P009-P013-P017-P018	**Design** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Social mobility** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Geopolitics of knowledge P002-P005-P007-P008-P009-P013-P017-P018	**Flexibility** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Credentialing** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Adaptive and customizable pathways** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Equality of access vs equality of opportunity** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Scale P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Digital literacy** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Competency-based learning** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**MOOCs replace courses** P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**Educational value of MOOCs** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018

Knowledge production and knowledge dissemination P002-P005-P007-P008-P009-P013-P017-P018	**Blended learning** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Fundamental literacies** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Human mediation** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Skills** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017
Heavily mediated online pedagogy P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Treat everybody the same** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Remedial potential** P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**MOOCs don't have an important remedial role** P001-P002-P003-P004-P005-P006-P008-P009-P010-P012-P013-P016-P017-P018	**Access to education and skills is only possible with the use of online technologies** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017
Peer to peer interaction P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Conventional MOOCs do not provide mediation** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Developing countries** P002-P005-P007-P008-P009-P013-P017-P018	**Balance between education and entertainment** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Equal treatment** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Demanding P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Reflection** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Brain power** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Overwhelmed** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Political will** P002-P005-P007-P008-P009-P013-P017-P018
Affordability crisis P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Learning opportunities** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Choice** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Experience in working online** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Learning-enabling technologies** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018
Presence-based learning P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Ideologies** P002-P005-P007-P008-P009-P013-P017-P018	**Equal chance of access and equal voice** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Knowledge for democratisation** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**More access to cultural and social capital** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Knowledge produced from the north P002-P005-P007-P008-P009-P013-P017-P018	**McDonaldisation of knowledge** P002-P005-P007-P008-P009-P013-P017-P018	**Main impact is lifelong learning** P001-P002-P003-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Experimentation** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Interest rather than qualification** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018
Limits in terms of technology P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Corporate MOOCs** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018	**Poor job in graduating students** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Sequencing** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Disadvantaged backgrounds** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Emotional support P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Hard work and not cheap** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Very promising** P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Novice students** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018	**Strong interactive work** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016-P017-P018
Numeracy and quantitative literacy underdeveloped P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Convert access into value** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Collaboration and equality** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Support** P001-P002-P003-P004-P006-P007-P008-P009-P010-P011-P012-P013-P014-P015-P016 - P017-P018	**Quality dependent on family income** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018
Community colleges won't benefit much P001-P003-P004-P005-P006-P008-P011-P012-P013-P014-P015-P016-P017	**Levelled playing field** P001-P002-P004-P005-P006-P008-P009-P010-P011-P012-P013-P016-P017-P018	**Struggling** P001-P003-P004-P006-P008-P009-P010-P011-P012-P013-P016-P018	**Scarcity** P001-P002-P003-P004-P005-P007-P008-P009-P012-P013-P017-P018	**Selectivity** P001-P002-P003-P004-P005-P007-P008-P009-P012-P013-P017-P018

P= participants

- **Global North participants**
- **Global South participants**