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Emergent models of Massive Open Online Courses: an exploration of sustainable practices for MOOC institutions in the context of the launch of MOOCs at the University of Edinburgh.

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DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Masters in Business Administration at Edinburgh Business School, University of Edinburgh. It has not been submitted before for any other degree or examination in any other university.

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ABSTRACT

Over the past decade there has been a significant change in societal adaptation to Internet technologies, advances in accessibility to the Internet and cheaper computer platforms. The combination of these factors and the emerging need for a new type of agile, entrepreneurial learners, led to a serious consideration of the new online educational trend – Massive Open Online Courses - free, open-access online courses with no constraints on the class size. MOOCs represent a possible shift in the way in which higher education is delivered. Just as online retailing has forced traditional high-street retailers to respond, traditional higher education institutions should respond to the 'threat' posed by MOOCs.

A unique research opportunity has arisen to benefit from gathering invaluable intelligence about the prototype MOOCs and early implementations of such in Universities to evaluate the emergent model and sustainable practices within institutions. The University of Edinburgh pilot MOOC project evaluated in this dissertation entailed offering 6 high-quality MOOCs in various subjects lasting several weeks each for the first time in the UK in 2013.

This dissertation focuses on learning about the groups of people interested in providing and teaching a MOOC. This research uncovers the needs and behavioural dynamics of the providers of the first MOOCs, and determines the implications for institutions providing MOOCs.

While it is evident that business models are under-developed for MOOCs, and mechanisms for economic and financial sustainability are unclear, particular recommendations for institutions facilitating or considering MOOCs can be drawn. Within the constraints of traditional Universities caused by organisational characteristics and the nature of academic activities, the heavy commitment of a MOOC requires institutional adaptation, alongside the perceived substantial benefits of engaging in mass education. For that reason it is critical to recognise the cost-benefit process within the MOOC value network and for departments to consider organisational, cultural and structural challenges, instructor service expectations and effort recognition.

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CHAPTER 1

INTRODUCTION

EMERGENT MODELS OF MASSIVE OPEN ONLINE COURSES

Distance learning is not a new phenomenon (Simonson, 2011), however the combination of fast and cheap communication available via the Internet, and computational resources allowing for automatic grading of completed exercises have only been combined in the last decade to provide the potential for mass education. As such mass education in its nascent stage is now attracting much media attention, potentially making celebrities of successful professors and more importantly simplifying access to quality education learners of all kinds and backgrounds across the globe.

Due to their immature status and capacity to attract attention, MOOCs (Massive Open Online Courses) offer an opportunity for both profit and non-profit organisations to gain a share of the large market for further education. The seemingly simple concept of providing higher learning cheaply to many participants concurrently is experiencing rapid growth within the constraints of established models for more traditional learning schemes. More providers appearing in the MOOC marketplace are starting to gain traction and heighten the competition, both amongst existing MOOC providers and with traditional bricks and mortar higher education providers who must be prepared to defend against this fresh threat.

Currently it is unclear whether MOOCs in their current form would constitute a sustainable model for online learning thus initial investigation into how existing models for MOOCs actually work and who provides MOOCs in institutions is necessary. This raises questions for institutional leaders to explore within emerging MOOC models, such as how to sustain MOOC developments past its highly engaging experimental stage. More narrowly this leads to looking for methods to attract and support academic instructors that are able to create high quality, popular MOOCs within the cost-benefit model.

The area of this research is defined by studying a MOOC piloting institution, the change it is experiencing while facilitating the courses, the behaviour and needs of MOOC instructors and its MOOC business model. The question of the business model in particular is said to be one of the

most critical in the MOOC area to date (Gaebel, 2013). Addressing those themes raises the issues institutional leaders need to consider as part of the search for sustainable practices.

1.1. The concept of Massive Open Online Courses

Traditional courses offer expensive education to a small group of select individuals who have passed some kind of entrance criteria. By contrast the concept of a MOOC is to offer cheap education to a much larger audience. Traditional courses can cater for up to around 250 students, and often far fewer, whereas a MOOC can scale up to over 1 million students. As such there are no entrance qualifications and anyone is free to participate; an Internet connection being the only requirement. However, as quality assessment and validation do not scale as well as material delivery, most MOOC courses offer no official credits or certification yet, although this is changing fast. Validation refers to ensuring that the work carried out has been done solely by the individual gaining the certification.

Since its creation in 2008 MOOCs evolved into two different types – connectivist MOOC (knowledge creation and generation) and xMOOC (knowledge generation). A connectivist MOOC is linked to the original MOOC creation when the notions of social learning with others and learning through interaction were emphasised. Connectivism focuses on the philosophy of a network-based pedagogy, as Siemens (2006, p. 8) accentuated that "Instead of knowledge residing only in the mind of an individual, knowledge resides in a distributed manner across a network" with personal learning networks used by each user (Conrad and Donaldson, 2012). This dissertation relates to xMOOCs and so a detailed exploration of the notions of connectivism is not required.

In contrast xMOOCs focus on content quality, scalability, automated grading and centralised facilities to enable working with wide masses. Main MOOC providers - US companies Coursera, EdX, Udemy and Udacity and the UK's Futurelearn - all offer xMOOCs. The Coursera model emphasises a more traditional learning approach through video presentations, short quizzes and testing. MOOCs are time-controlled, structured, designed like a short course and lightly-tutored with self-directed study method. The core difference between a MOOC and previous online learning models is the scale, structure and design allowing much higher levels of student engagement (Carr, 2012). Most

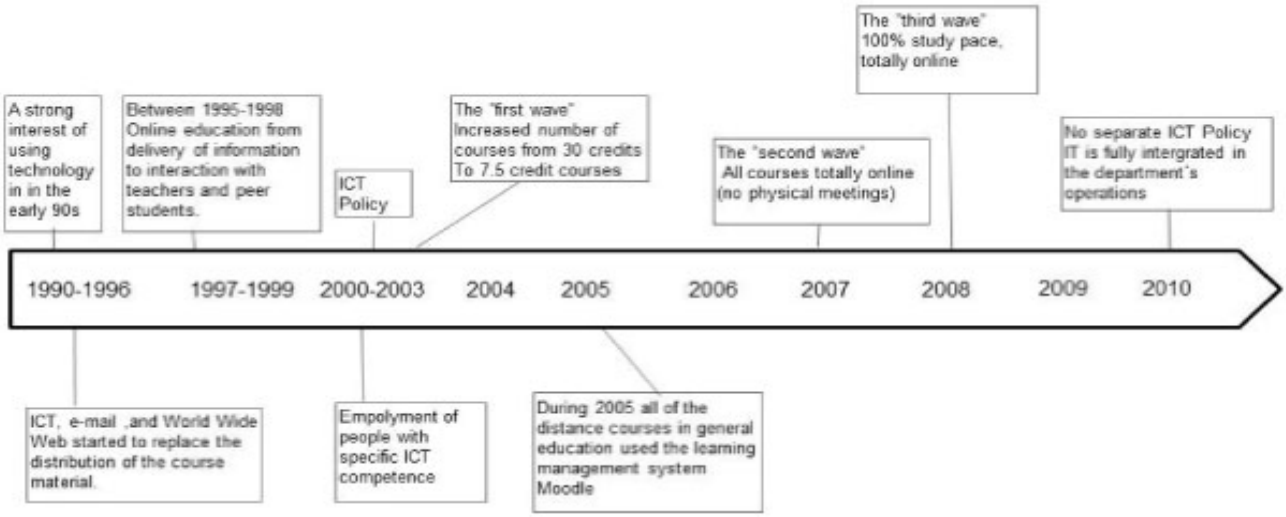
MOOCs are described as a very technology dependent form of education where digital content creation and sharing is key. Delivered since 2008, only now are MOOCs becoming enormously popular with target audiences reaching millions. This is due to the types of elite institutions piloting the concept and active participation of for-profit companies (Gaebel, 2013).

1.2. Open content of knowledge: evolution and trends in open learning

In order to gain a deeper understanding of MOOCs, one examines the development of educational innovation in the field of online learning and OER (open educational resources) which MOOCs are part of.

The question of massive production and distribution of learning in the context of open, distance and online learning has been researched for a decade now with the wave of so-called student-centred education. Learning has evolved from E-learning to online learning as an accompaniment to campus based learning, then further to standalone online learning and finally to free standalone online learning as seen below.

Fig. 1: Timeline of the shift from Distance Learning to Online Learning as presented by the Department of Education (1994-2010)[1]

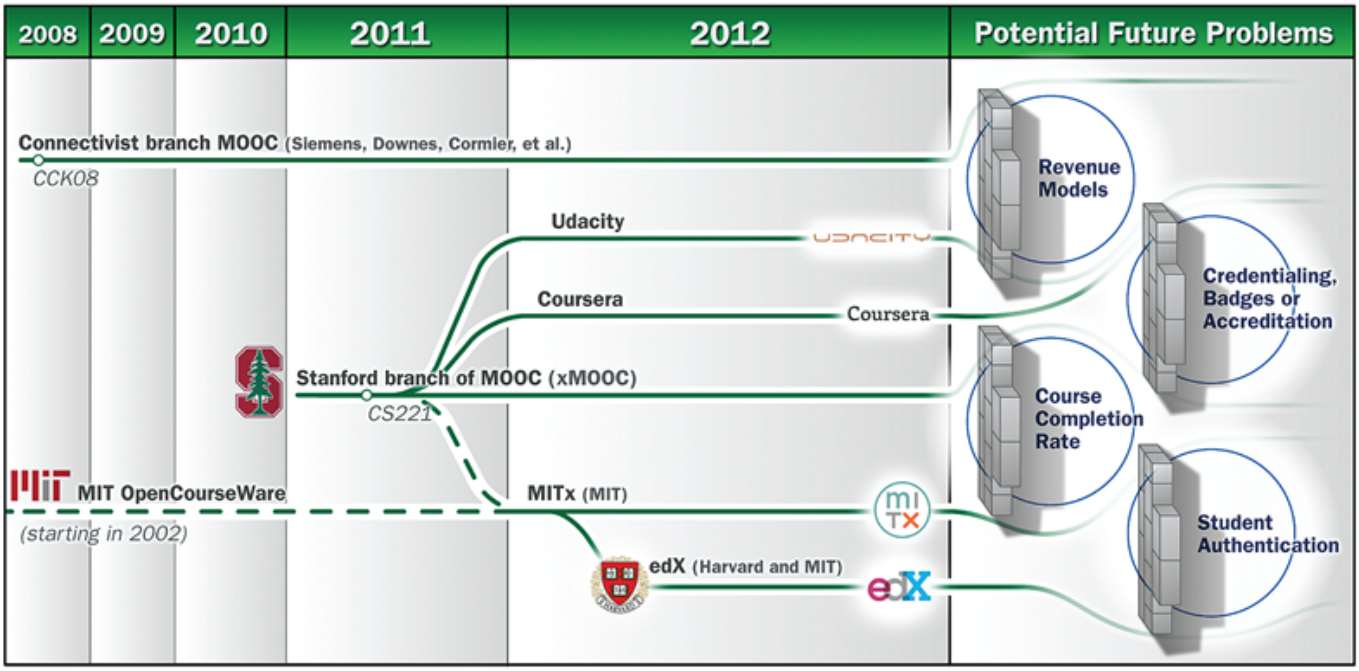


[1] Source: Merwe, A. van der (2011). "Can Online Learning Boost Academic Performance? A Microeconomics Study",

The OER movement began with MIT OpenCourseWare project, which originated in 2002 when MIT started placing materials linked to its credit courses on the web for free, establishing OER as a standard term for such developments. In 2005 OpenCourseWare Consortium was founded (with leading members of MIT OpenCourseWare and China Open Resources for Education) reaching 200 global members in 2009.

Movement towards virtual Universities and drastic changes in Higher Education driven by ICT implementations have been discussed for a decade (Pollock, 2002 and Atkins, 2007). Innovative IT projects in education have a tendency to appear and disappear in waves. The early stages of the open education innovation cycle were defocused, while the latest movements are reaching maturity and the strong recommendation is to retain synergy and synthesis (Iiyoshi and Kumar, 2008). What is seen with MOOCs now is the third wave of 'digital revolution', following the failure of the first two attempts on open learning initiatives.

Fig. 2: Graphical depiction of evolution of different types of MOOCs from "Online Educational Delivery Models: A Descriptive View"[2]



[2] Source: Hill, P. (2012). Online Educational Delivery Models: A Descriptive View, EDUCAUSE Review.

Delivering higher education online was originally driven by traditional open learning motives and aspirations such as universal access to aggregated human knowledge and education. However, world-wide attitudes are changing with particular respect to scalable commercial viability. The financial models for MOOCs in particular have not been fully developed, but as suggested in the Open University report (Sharples, 2012) the obvious approach is to sell accreditation and additional services around the course offering, hence implementing a form of 'freemium' approach to education.

In terms of usability of MOOCs, these courses need to have tangible career and accomplishment value in order to succeed. Prototypes that track accomplishments from MOOCs and other communities and organisations already exist. Some of the models from Figure 2 already offer the associated institution credits and the option to build towards a full degree. Additionally, the MOOC2Degree[3] launched in January 2013, allows institutions, albeit so far a limited group, to offer credit-bearing MOOCs free of charge as a first step toward a degree. Aggregators for MOOCs are being created, for example the Class Central[4] which allows entering a subject to quickly search for a course amongst a number of providers. Independent 'trip advisor' type websites are emerging to allow MOOC participants to rate courses, such as Coursetalk[5]. These prototypes show that MOOCs are starting to emerge out of pure experimentation into supported applications.

Online education may not be a single factor of the change in higher education, and is not a panacea for all the problems associated with Higher Education, however the current generation of online educational delivery models is having a pronounced effect. It is changing discussions at the executive level and causing institutions to rethink their missions (Barber, 2012). Moreover, according to EDUCAUSE Review (2012), MOOCs increase the ability for institutions to compete with one another and can even help generate new institutions.

[3] www.mooc2degree.com
[4] http://www.class-central.com/
[5] http://coursetalk.org/

1.3. Factors contributing to the viability of MOOCs

Following the turbulent history of online learning since the globalisation of the Internet with some false starts, a number of factors currently creates a better environment for the prosperity of MOOCs. First, the change caused by digitisation and globalisation. Atkins et al. (2007), Barber (2013), Daniel (2013) and Noer (2012) define several enablers of MOOCs and more generally OER: connectivity, available broadband and cheap mobile devices, exponential pace of innovation, globalisation in education, the minimal cost of sharing knowledge (with increasing costs of university education and the decreasing value of a degree), the shift in societal culture of learners, low content costs and very low cost transmission and storage of huge amounts of data via cloud computing. As a consequence, there is an increased student market demand for open online courses.

In conjunction with Daniel (2013), Christensen (2011) argues that the high cost of an undergraduate degree, prompted by the failure of institutions to focus on a limited role has created conditions in higher education that are disposed to disruption. This means that the models of Higher Education that traditional universities represent could be too restrictive for active, dynamic, life-long learners who want to study from anywhere; and could be too slow and expensive to compete in an evolving higher education market.

Usually the Higher Education customer faces a trade-off between access and quality. Traditionally the higher the quality, the lower the access, but MOOCs are challenging this assumption or at least offering a different compromise, making the offering more attractive for potential learners.

1.4. Threats and opportunities for institutions

Like any business shifting from a national to global focus, Universities need to consider new competition and how the learning environment is changing towards mentorship. This section will expose the threats MOOCs pose to traditional higher education institutions and, conversely, the opportunities afforded to those same institutions.

For institutions it is important to respond now purely because MOOCs are changing quickly, becoming popular, and can represent a threat to traditional universities. EdX's recent survey indicates that "successful students overwhelmingly preferred their MOOC experience to their previous engagement with comparable courses" (Kolowich, 2012, p. 1). First-mover advantage is usually crucial in innovative practices, therefore the risk for universities lies in doing nothing at this time of change.

There is a trend towards the unbundling of courses – the offering of smaller directed courses which are not enclosed within a larger programme of studies towards the attainment of a college-level degree. In "Avalanche is coming" (Barber et al., 2013) it is asserted that university leaders need to seize the opportunity now by creating new value for their institutions and students by reconsidering their missions and which market segment they are targeting in the new movement of unbundling. The new competition of non-University industry leaders, skill specific professional course providers and increasingly successful Universities from emerging economies may start to provide blended online models of education and MOOCs (Barber et al., 2013).

At present an increasing number of leading Universities are actively experimenting with MOOCs for their own motives which range from retaining competitive advantage to brand recognition and improving campus-based educational materials. Additionally these leading Universities are researching methods of creating business cases for new educational models. The future positive developmental use of MOOCs suggests collaboration between elite institutions both for shared development and brand positioning (Rees, 2013).

In the longer term, analytics can be used to assess what approaches and activities work best in terms of student learning, how to tackle validation and accreditation problems, or what value creation for labour market is optimal in terms of MOOC based professional development and training that industry needs.

Overall, in terms of institutions and academic teams, two major progressive areas have been identified as a future impact of MOOCs – improving teaching quality and encouraging institutions to reconsider their goals. MOOCs may also free up class time for mentoring and one-to-one tutoring, making education more efficient through tailored learning. It could also customise student learning

experience by data-mining each student performance by utilising software (Noer, 2012). Therefore reviewers (Daniel, 2013 and Noer, 2012) suggest MOOCs can actually lead to the improvement of on-campus course design and delivery. Additional institutional benefits will be explored further in the dissertation.

1.5. Challenges for MOOC institutions

Hill (2013) summarises that for MOOCs to become transformative for higher education, the concept must develop revenue models that will make the concept self-sustaining, provide an experience and perceived value that enables higher course-completion rates, authenticate students and deliver credentials. He adds that how MOOCs or successor models can build on current scalability and openness, while accomplishing these four goals, will be crucial.

Given the potential for mass education models to shift and answer the newly growing demand for education for MOOC institutions the challenge is to change, to provide support and to follow on from the current experimental stage by considering the intricacies of complex online learning initiatives in the search for sustainable practices.

Although the Outsell report (2013, p. 21) states that "more than 70% of the 2,820 chief academic officers surveyed agreed that online learning was critical to their future strategy", by actually engaging in MOOC activities Universities must address a wide range of important related issues including: the role of the teacher and the university, culture of sharing, business models and administrative concepts.

In terms of how MOOCs are implemented in institutions, a commitment to more sustainable practices will be a challenge for many Higher Education leaders, and it is now the time to leverage learning from experimentation and study groups of people involved in MOOCs. The nature of the concept assumes any individual academic can theoretically create a MOOC. While institutions can co-ordinate such projects, academic staff who voluntarily share their courses are the key force behind the project success. Such faculty members were the focus of some of the research described in this dissertation.

None of the MOOC companies or institutions have made money from MOOCs yet, they have only spent, in most cases, substantial budgets. In view of this, Coursera proposed several monetisation models (see Appendix 4) amongst which there is certification income (selling completion certificates to students upon successful completion of courses) and future business models that test the market by capitalising on links with those society groups interested in the product of MOOC (Young, 2012). An interesting area to explore is to what extent the financial opportunity might become a motivating factor for course instructors and institutions and what needs MOOCs course instructors will have. So far it has been seen that early adopters have been driven mainly by the freedom to experiment (Sharples, et al., 2012).

1.6. Dissertation

This dissertation helps understanding MOOC prototypes in the context of the University of Edinburgh MOOC pilot (2013). In aggregate this dissertation aims to determine what needs to be considered by institutions in the search for sustainable practices by following this format:

Chapter 2: MOOCs state of art.

The literature is assessed in the appropriate fields of Open Educational Resources (OER) development, existing OER business models and emergent MOOCs models and motivations of providers of OER/MOOCs. The MOOC-specific literature review focuses on recent press releases, open articles, reports and publications. A theoretical framework identifies questions in the current search for viable, supportive models for MOOCs and the existing debate on financing and resource implications of MOOCs in participating institutions. This chapter concludes with the presentation of the research questions addressed in this dissertation.

Chapter 3: Research Methodology.

Chapter 3 outlines the qualitative methods adopted, the natural ontology characteristics of this research, and the primary and secondary data collection methods.

Chapter 4: Project Overview.

An overview of the UoE MOOCs project is presented to the reader with the purpose to provide a context for understanding the intricacies of pilot MOOCs and issues within. Osterwalder's Business Model Canvas (Osterwalder, 2010) is used as the main framework for analysis.

Chapter 5: Findings.

Data is presented in two areas.

MOOC organisation:	**MOOC instructors:**
Motives and perceived benefits	Motives and perceived benefits
Strategic development	Perception of a sustainable MOOC
Institutional implications	Requirements and barriers to providing a MOOC
	Perception of a workable MOOC business model

Chapter 6: Discussion of implication of the above findings on sustainable practices.

Chapter 7 and 8: Conclusions and recommendations for the University of Edinburgh and other institutions in similar situations, with areas of further research clearly identified.

To conclude this chapter, amid the ocean of apocalyptic predictions it is clear that MOOCs, due to technological and societal change, are positioned better to deliver value in education today than in the past. It is also clear that the rising competition from Universities and non-academic companies providing education create urgency in the need for Universities to move along with educational change. The development of Open Learning, and particularly MOOCs, is complex with unclear business models, but typologies suggest value-exchange is important in the current mode of education. MOOCs are free to study but not free to provide, and provider motivations and needs are key in considering sustainable practices.

The following chapter will start by looking at what literature pronounces about MOOC models and underlying issues for institutions.

CHAPTER 2

LITERATURE REVIEW

CURRENT STATUS OF MOOCS

In this chapter theoretical frameworks act as a foundation for identification of the suitable research questions that would extract the best research value from MOOCs. Evidently the nascent stage of MOOCs implies a lack of systematic research and limited availability of valid data on this particular topic. Therefore an assumption is made that the quality of some material is inferior to well researched areas. This review dissects existing publications and media in a concise way to define some of the challenges posed by emergent MOOC models. In addition to existing MOOC materials it was appropriate to recognise some research that has come from earlier work on online learning. Research to date on open learning, sustainability issues in OER and motivations of OER providers from a few key researchers proved to be a valuable source of ideas. Such OER models should not be used here without caution as their applicability to MOOCs is not immediately guaranteed. However, the combination of these two areas supplies useful theoretical insights for this exploratory research.

2.1. The current state of research on MOOCs

Currently MOOCs at their nascent stage are under-researched. It is recognised that universities will need to provide their own MOOC or other online distance learning (ODL) models to answer the demands of their own targeted students. Additionally, still being tested is whether and how MOOCs would be integrated with current University teaching practices. At the moment there is a search for viable business and economic models, but also, prevailing in volume, research on the market and pedagogy issues surrounding MOOCs. The current status of research mainly addresses student experience, needs and preferences and the type of the learner, value creation and maximisation for the learner and efficiencies for organisations, as seen in the research roundup of MOOCs and online learning (Harvard Kennedy School, 2013).

Most reports come from departments of education and international reviews on educational trends (government publications and scholarly articles) from US, European and Canadian bodies. As the media hype is settling, alongside existing material based on assumptions and predictions, there are an increasing number of reports that look into the next stage of MOOC development: sustainable models and realistic business cases. The question of what institutions decide on models for MOOCs is still poorly defined and established in the literature.

2.2. OER Sustainability

As cautioned above, the sustainability of OER models may not be directly applicable to models of MOOC sustainability. Despite this it is surely relevant and as such a review of OER sustainability literature was carried out.

The Organisation for Economic Cooperation and Development (OECD) (2007), Wiley (2006), Dholakia (2006), Downes (2006) and De Langen (2011, 2012) have published several articles drawing conclusions of what makes OER initiatives sustainable and proposing considerations for business and funding models.

By and large OER are ventures needing robust supportive networks since they do not necessarily generate revenue, they rely on volunteers and philanthropy, and are characterised by a new kind of business model based on giving away something for free, called Open Business Models (De Langen, 2011). Since the community business model that was recently conceptualised by De Langen for OER (de Langen, 2011) builds on voluntary work and enthusiasts, sustainability is not so much a matter of financial resources as of disassembling barriers that hinder the success and growth of the OER community.

Wiley (2006) points out that although no university is required to take on OER, it is usually that one does, and the rest follow in order to stay competitive. When it comes to sustaining the OER initiatives, the central idea seems to be incentivising the participants, and clearly understanding the

goals of such projects. Most advice on OER initiatives comes from a point of view of creating new OER ventures, where the best recommendations are drawn on content format and delivery methods, and the type of customer targeted. In other words: assuming the project is shaped from nothing. This of course can be only plausibly applicable in Universities that follow the existing xMOOCs template format and embrace the constraints and conditions of the chosen platform, rather than designing new MOOC models from scratch. For the purposes of this dissertation, the general conclusion from OER sustainability literature can be drawn as the importance of focusing on the value-creation part of the model. That is smart, effective resourcing and funding, reducing costs, deploying volunteers and leveraging non-monetary incentives for participants (Willey, 2006).

OER-based courses are appearing in the market generally in the form of projects with external or internal funding (OCWC, 2012), however, according to Schuwer and Janssen (2013), it still appears to be very difficult to apply a sustainable OER-based business model after the pilot phase. What is important to note is that any free OER initiative carries a significant financial burden to the parent institution, and keeping it free in the long-term may be challenging (Downes, 2012).

To support a multitude of activities, sufficient funding for supporting resources for successful initiatives is needed, since initial funding usually runs out quickly and other means are searched for. However, even taking into account the above listed recommendations, it was noted that sustainability of OER projects is highly contextual until most institutions embrace OER and students expect institutions to offer OER by default, as asserted in the Centre for Educational Research and Innovation paper "Giving Knowledge for Free" (OECD, 2007).

2.3. MOOC Business Models exploration based on OER research

This section assesses the emerging business models of MOOCs in order to gain an understanding of typical implications for the interaction of processes such as cost-benefit relationships, exchange of values and resourcing for the organisation and instructors of MOOCs. Due to the immature nature of the field of MOOCs, much of the exploration of MOOC business models presented here is based on OER research.

2.3.1. Network value-added approach of business models

Early definitions of business models assumed that a business' primary goal is to make monetary profit with other goals being subservient. Such a taxonomy might not suit open learning, as the overall complexity of that area is caused by the inter-dependencies between customer and creator, where both sides are creating and consuming content (Downes, 2012). When it comes to linking OER and sustainable business models De Langen (2012), Downes (2006) and Hylen (2009) concluded that non-traditional business models are applied where the roles of consumers and providers are interlinked, and are greatly dependent on value networks in comparison to standard models.

Moreover, De Langen (2011) concludes that focusing exclusively on revenue is not appropriate, as it disregards the complexity of OER linked models. The openness requires a change of business and educational perspective and the following are considered:

- OER does not involve monetary gains or selling, i.e. products and services delivered to a paying customer (the earning model)
- Focus shifts from monetary gains to the exchange of values and the efficiency benefits of OER
- OER acts as an intermediary between different stakeholders – learners, teachers and supplying universities (De Langen, 2011).

The common thread amongst the varying definitions appears to be the link between inter-dependencies and value creation, non-monetary gains and efficiency benefits. In regard to revenue generating, it remains unclear whether there is a correlation between the heightened customer engagement in MOOCs in comparison to previous OER and how this factor would change the feasibility of money making business models.

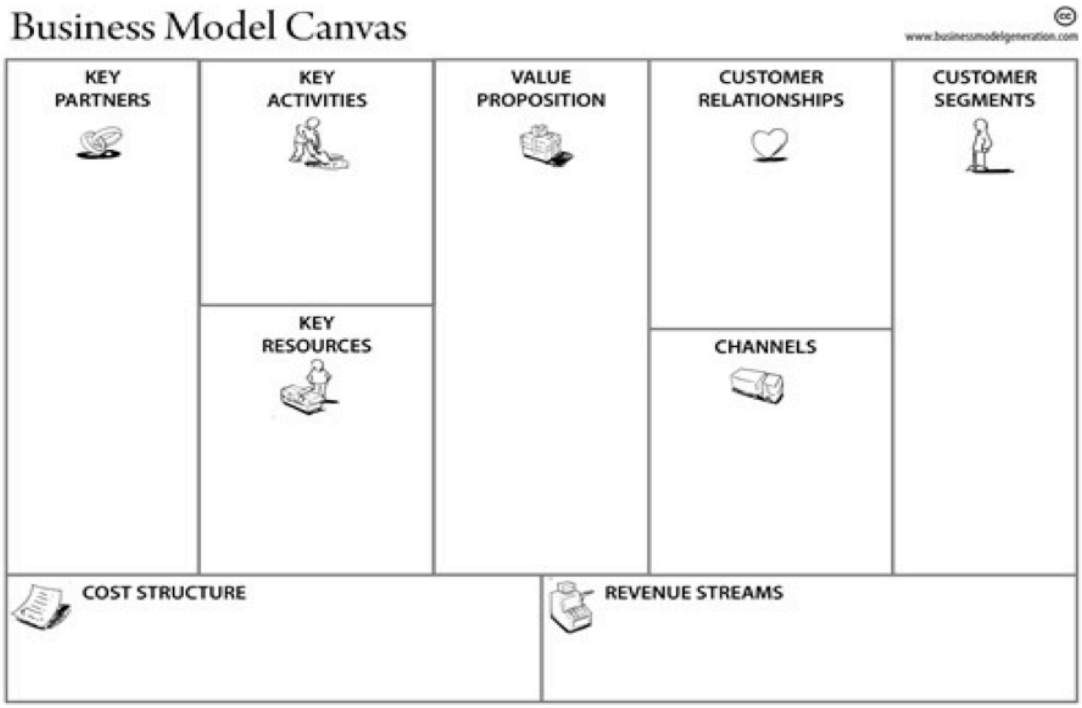
2.3.2. Alex Osterwalder's Business Model Canvas

The ontology of business models more applicable to MOOCs would consist of two categories; strongly sustainable and open business models. Strongly sustainable business models

are described by Upward (2013) as sufficiently profitable business models which simultaneously create environmental and social benefits. Open Business models take into account value exchange processes between users and creators of open content. Open Business models stem from such cases as cloud computing services, open-source software and creative commons content. Due to dependency on their own value network, University-specific, autonomous business models are to be developed in due time and for now there is as yet no standard mechanism for MOOCs model.

Amongst the existing ontologies it seemed appropriate to select the Business Model Canvas of Osterwalder et al. (2010) for assessing the UoE MOOC project (Chapter 4), where the definition of a business model describes the rationale of how an organisation creates, delivers, and captures value (economic, social, cultural, or other forms of value). Although usually used for for-profit business analysis, current non-profit MOOCs can be represented quite well. To the best of this author's knowledge there are no publicly available examples of a business model canvas applied to MOOC developments yet, the closest would be the 2012 adaptation of De Langen of Osterwalder's Canvas to OER (De Langen, 2012b).

Fig. 3. Business Model Canvas: nine business model building blocks (Osterwalder, Pigneur et al., 2010)



In this dissertation the Business Model Canvas is used as a template for documenting the UoE MOOC existing business model. It is a visual chart with elements describing MOOC value proposition, infrastructure, customers, and finances. It helps with understanding the cost-benefit process.

2.3.3. Free element in value networks

At the time of writing this author has no knowledge of any MOOC which has generated profit. Institutions and organisations offering MOOCs must bear their own costs, however there are options for financing and monetisation. The University of Edinburgh in particular views their running MOOCs (2013) as a non-profit venture with an accent on non-monetary return on investment (this will be discussed further in Chapter 4).

The idea of a free education component (no cost to consumer of material) encouraged many researchers to search for various funding models – Downes (2006), Dholakia et al. (2006), Koohang et al. (2007), OECD (2007), Guthrie et al. (2008), Lane (2008), de Langen (2008) and Stacey (2012). There are major pieces of work referring to sectors of businesses that are not money making, but survive on intangible benefits, such as building reputation, brand awareness and other non-monetary benefits like satisfaction (Anderson, 2010) that seem to fit the nature of MOOCs.

The potential revenue opportunities for institutions include selling student information to employers, a 'freemium' approach, the link to credits/degrees (Sedehi and Saccocio, 2013 and EDUCAUSE, 2012) or spin off/licensing model (sell the course material to businesses or license institutional use of the MOOC platform itself) (EDUCAUSE, 2012). Both the consideration of subsidising MOOCs with suitable for 'free' models revenue methods and relying on funding streams are being explored, and current propositions were used in the primary research interviews.

2.4. Challenges for MOOC institutions and MOOC instructors

Research into emerging areas must always focus on the change to existing providers as well as the challenges faced by the emerging sector. In this case there are challenges for MOOC

organisers as well as changes which may be forced upon existing faculty members who may become MOOC providers or else face competition from MOOC providers/instructors.

2.4.1. Organisational readiness: internal capabilities and considerations

At present MOOCs are seen as a valuable experimental tool in online pedagogy, but to capitalise even just on experimental opportunities careful consideration has to be given to organisational issues.

Iiyoshi and Kumar (2008) discuss the notions of sustainability in relation to value proposition and assert that open education requires significant structure to meet its potential for sustainability. This structure is provided through leaders and organisational processes that purposefully incorporate open education into current and new practice. The questions of institutional provision of support (resources, money, rewards) to help with sustainability of Edinburgh MOOCs will be discussed in Chapters 5 and 6.

One of the issues is whether the organisation is ready for innovative practices. Innovation often entails complex processes in terms of social constructs which, according to Lazonick (2005), need:

- strategic control (decision making)
- organisational integration (knowledge and skills integration)
- financial commitment

Another issue inherent to the nature of innovative MOOCs lies in the fact that whilst innovation requires rapid change, Universities are not structured for rapid change. Mehaffy (2012, p.42) summarises the challenge in Universities as "Higher education institutions have a confusion of purposes, distorted reward structures, limited success, high costs, massive inefficiencies, and profound resistance to change. Surviving—indeed, thriving—in this new era is not an issue of technology, even though technology has been a powerful driver of change. Ultimately, the issue for traditional higher education is one of culture."

This dissertation will address such considerations of institutional support for instructors given the organisational limitations of the University. Additionally, this dissertation will address such question as those outlined in a recent report by EDUCAUSE (2012) titled "What Campus Leaders Need to Know About MOOCs", the motives for the Universities to adopt MOOCs now, how MOOCs fit into their e-learning strategy and the institutional capabilities for offering MOOCs.

2.4.2. MOOC Instructors

Assuming that free MOOCs can be made credible enough to provide value to learners and mechanisms for course assessment and delivery are improved, a lot of attention also needs to be paid to who can actually create new, high quality MOOCs. An Outsell report (2013) states that to be successful, MOOCs need high-quality instructors, adding that expansion into the MOOC space gives the opportunity for top institutions to leverage existing high-quality instructors – those who are also able to develop robust online learning environments.

Generally one of the key characteristics that shape definitions of open learning is the importance of the technological side, the reliance on IT for teacher-learner communication routes, and the integration of pedagogy and IT (Aretio, 2010). The question therefore is whether the capacity of the provider is dependent on certain IT skills, and the provider's abilities to design good quality material that adds value for, and highly engages, the learner.

Coursera currently leaves it entirely up to individual instructors and teams to decide how they want to teach. Partner institutions also do this, but, depending on quality control, may only accept a small number of applications from academic instructors providing high quality content. By doing that the goal is to reach a critical mass of top quality MOOCs, as a reputational risk cushion against failed, poor MOOCs. To this end a provision of capable instructors who are adaptable to online learning is key. "Trend report: Open educational resources" by Jacobi and van der Woert (2012) suggests that an instructor or learning guide must be able to provide assistance with personalised learning programs and processes. Acquainted with "21st-century skills" (p. 13), the instructor needs specialised competencies inherent to online learning, for example interaction through popular online social networks.

2.4.3. Needs and motivations of MOOC instructors

The high dependence on great instructors with suitable knowledge and skills implies the need for institutions to incentivise and encourage course instructors. The survey, conducted by *The Chronicle,* indicates that 55% of professors[6] said "teaching a MOOC caused them to divert time from other duties, including research and traditional teaching. And preparation has been described as a full time job." (Kolowich, 2013, p. 4). Given the effort needed, proper incentivisation is required, otherwise the costs outweigh the benefits for the instructors.

In terms of understanding what might motivate providers to take part, the same survey suggests that the motivation for most is an altruistic one. Later in the dissertation, the data from interviews confirms some of the efficiency gains and exchange of values that De Langen (2012b) suggests. However it is unclear to what extent non-monetary tendency depends on the perception of the value of possible income share to instructors, as currently revenue acquisition is only theoretically applied.

Table 1 shown below summarises the main motivational factors of OER-type organisations and individuals.

Table 1. Synthesis of motivations of OER-type individuals and organisations.

View	Author
"Helping build a strong brand image of educational institutions"	Manhas (2012, p. 75)
Educators can gain a better understanding of both how people learn and their own practice through the learning experience of MOOCs.	Cormier and Siemens (2010)
Response to or in anticipation of new market opportunities for academics.	Vanhaverbeke, Cloodt (2006)
Individual motives were described as "altruistic or community support reasons", "personal non-monetary gain", "commercial reasons" and opening up the educational resources.	OECD (2007, p. 66)
Organisational motives were described as an "altruistic argument	OECD (2007, pp. 64-65)

[6] The survey aimed to reach every professor who has taught a MOOC.

that sharing knowledge is a good thing to do", leveraging "taxpayers' money by allowing free sharing and reuse of resources", "cutting the costs for content development by sharing and reusing", and developing public relations, new learning resources and attracting new students.	
"It does not cost anything to share digital resources; it gives educators alternatives and increases competition on the market; it is democratic and a way to preserve public education".	Siemens (2003, p. 23)

As noted by Hylen (2009) there can be a conflict depending on the amount of materials the individual wants to share and the division of future income. Individuals will be motivated to supply open educational resources, however there is a danger that they will resist their materials being used for monetary gain perceiving that it may damage their non-monetary gains, such as reputation. Equally the aim of the organisation to supply the educational resources for free might conflict with the commercial motives of the individuals.

Parker's (2012) study sought to help understand what reasons instructors have to contribute their materials to an OER initiative (MIT OCW), because "common logic would suggest against doing so" (Parker, 2012, p. 95). The answer is because the benefits seem to outweigh the costs. The instructors felt the benefits of improved reputation, improved course content, course feedback, and students accessing materials are greater than the corresponding cost of public materials, realignment of individual professional goals or damaged reputation (Parker, 2012, p. 95).

However, even if the perceived benefits of OER outweigh the costs, the impact of MOOCs may be so high that special adjustments are required. In particular the impact on the instructor's time is likely to be at least significant. This aspect was explored as part of the sustainability section of interviews and will be discussed in Chapter 5. In terms of the impact on the faculty, adjusting job descriptions to account for this new time burden may be important for institutions that wish to explore MOOC opportunities. The time burden may decrease over time, but at this early stage in the market, allowing faculty time to build courses, and to use their experiences to revise these courses, will be crucial to the creation of high-quality online learning experiences.

Since one of the purposes of the literature review was to use heuristics from research on MOOCs, OER and open learning to define the appropriate methods to frame research questions it is important to evaluate the literature utilised. The main critique of the existing, publicly available material of MOOCs is the degree of material based on assumptions. Also it is unclear whether the existing publications, having a high promotional value, are not biased towards the host institutions' interests. Since MOOC models are evolving in the absence of standard prescription, one asserts that the models suggested in the literature are still to be tested on the dynamics of organisations. Business models in particular, created autonomously, are to be adapted to the new type of value networks and value creation mechanisms. Thus, the implication for this research is the lack of a solid framework to test conclusions against.

Additionally, the applicability of researched OER principles to MOOCs has not been sufficiently tested. Also, due to the lack of organisational MOOC case studies, existing material seems to provide a narrow, prescriptive view, while it should focus more on how the organisation evolves and changes in response to MOOCs.

2.5. Gaps in literature/research

While new, technological, and experimental trends imply that little is systematically researched, some areas have received comparatively little or no research. Such areas include: insufficient attention to the provider side of the emergent MOOCs models and the institutional change that MOOCs bring about. There is a vigorous assessment of existing MOOC provider business models and monetisation strategies, however the current author is not aware of a running MOOC business model which has been conceptually tested. Overall further insights are required into the behavior of those who are interested and motivated to provide and teach MOOCs.

2.6. Summary

The findings from the literature review can be categorised into three categories: business (1), institutional (2) and motivational (3).

1. Business: No conclusions are made on a workable MOOC business model, however findings from OER research suggest reliance on social value, external funding and interdependencies between creator and user of content. In other words, reliance on an interdependent value network. This aligns with the network value added approach business models in which expanding possibilities and maximising the effect of OER within the given financial boundaries is central. In contrast current proposals for MOOCs specifically accentuate revenue generations connected to the "giving education for free element". This area of literature review serves two purposes. Firstly to summarise the current state of research on MOOC business models as a base for future research, and secondly to propose a theoretical foundation for the overview of the business model of the UoE MOOCs project. As a result Osterwalder's framework (2010) was chosen for the overview. The general critique of the business model approach is that existing frameworks have not evolved enough to consider all the complexity of open initiatives. However it was valuable to gain insight from respondents on the merit of this exploratory research, particularly with respect to tendency of perception, views on monetisation, and modelling of MOOCs as business cases.

2. Institutional: Institutional issues exploration clearly points to the fact that institutions need to provide incentivisation for instructors capable of providing quality content and support for MOOCs. Institutional limitations need to be considered due to the requirements of innovative projects, and faculty job/timetable adjustments to accommodate OER type engagement.

3. The common factor between (1) and (2) is the link to the monetary and non-monetary motivations of instructors. Alongside motivations it is important to understand what value MOOCs pose for instructors to prolong their interest. Interests and motivations of the instructors sometimes align and sometimes do not align with those of the parent institution.

2.7. Objectives and focus of research

For the most part, previous research focussed on the issues concerning MOOCs at the level of effect on Higher Education or pedagogical implications, concentrating specifically on students. In this author's view, existing material gives insufficient attention to the provider side of the emergent MOOCs models and institutional change that providing MOOCs brings about. This final section of this chapter defines the objective and focus of this dissertation in accordance with the need to provide a good basis for future research.

A research opportunity has been identified to gather invaluable intelligence about the prototype MOOCs and early implementations of such in Universities to evaluate the emergent model and sustainable practices within institutions. It will follow a general review of approach adopted by the UoE with a focus on the provider stakeholder activities, specifically focusing on learning about the groups of people interested in providing and teaching a MOOC, i.e. a MOOC organisation and MOOC instructors. Addressing the learner/consumer side of the model is outwith the scope of this research. This author hopes to add to an understanding of how MOOCs or similar OL initiatives function by assessing a real-life running MOOC project at a leading, renowned University during these disruptive and exciting times for Higher Education.

This chapter has exposed the initial issues in the evolving area of MOOCs, some related to the ambiguous, untested nature of prototype projects in mass learning and some to institutional complications in embracing innovative projects. The material in the first two chapters identifies that MOOCs, either in their current form or some evolved form, are to be a persistent part of the educational network/landscape. A theoretical framework identifies questions in the current search for viable, supportive models for MOOCs and existing debate on financing and resource implications of MOOCs in participating institutions. While it is evident that business models are under-developed for MOOCs, and mechanisms for economic and financial sustainability are unclear, this dissertation aims to have a valid data pool from which to draw particular recommendations for institutions facilitating or considering MOOCs.

In terms of usability for future research, this dissertation aims to provide a solid base for future research through assessing closely one of the first MOOC projects in a UK institution, utilising internal data to uncover the needs, motives and behavioural dynamics of instructors, and the institutional implications accompanying running MOOCs. This involves studying the business model, and within it, the cost structure, plans for financing, cost-benefit relationships, instructor expectations and institutional capacity for future developments**.**

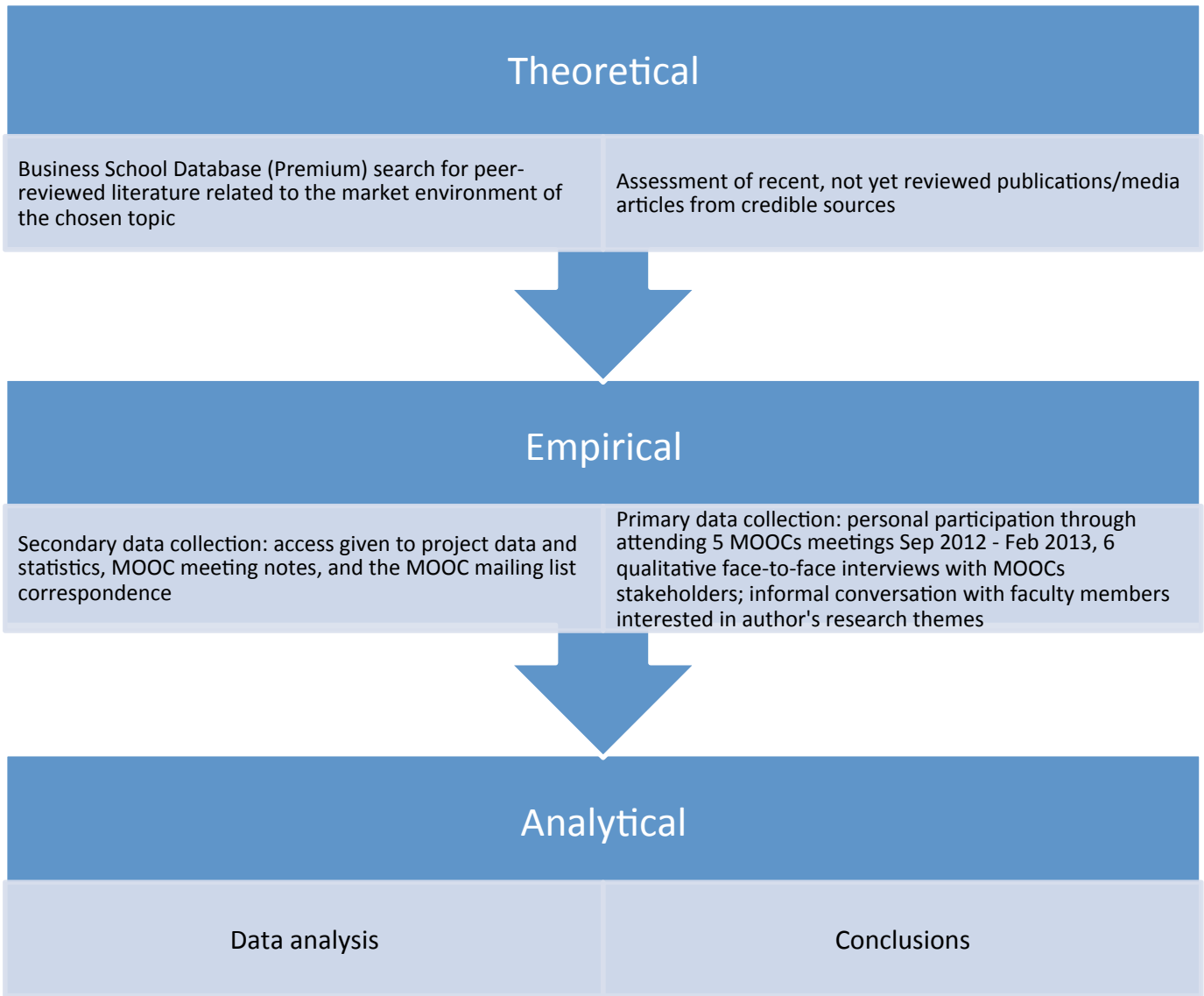
The next chapter discusses the research design and methodology and its successes and limitations.

CHAPTER 3

RESEARCH METHODOLOGY AND DESIGN

In this chapter the research methodology and design is outlined. The process of gathering and analysing data in this dissertation can be summarised as depicted in Figure 4 below.

Fig. 4. Research methodology and design.



3.1. Research design

Exploratory research was undertaken as only a few previous studies exist. This kind of research was used to generate a posteriori hypotheses regarding stakeholder behavior by looking for potential relationships. The aim was to look for patterns, hypotheses or ideas that can be tested and that would form the basis for further research. Research techniques included a MOOC pilot project assessment, observation and reviews of previous related studies and data. Research questions were based on the characteristics of the MOOC project, the nexus of OER sustainability models, key debates from the literature, motives of individuals and institutions, impact of MOOCs on educational providers and the institutional and financial barriers to future MOOC provision.

This study fits into the framework of naturalistic ontology by fitting the following characteristics: qualitative methods, natural setting, purposeful sampling, inductive analysis, case study reporting mode, special criteria of credibility, and cautious application of findings (Lincoln and Guba, 1985).

A qualitative research approach was adopted to define the direction of open-learning development, disruptive innovation in Open Education and the applied business models. The qualitative data collected was categorised as primary and secondary. The primary data collection consisted of semi-structured interviews with stakeholders, on-site observations and informal conversations with faculty members interested in this research. The secondary data collection involved analysing existing literature and media data. A quantitative approach was considered inappropriate here due to the nature of studying a new trend.

Despite a sizeable collection of secondary data and existing observational data this study collected additional qualitative data from Schools within the UoE and the Knowledge Management Group of the University via interviews. Evaluating the available literature and media material uncovered some of the current debates about emergent models of MOOCs and interviews and informal conversations were built to gain an insight on those topics. A diverse range of Schools were chosen to allow for potentially varying motivational drivers and aspirations for MOOC initiatives. Members of the chosen schools were interviewed individually as peer pressure at group meetings could have prevented some members from expressing their opinions openly and objectively, especially when

financial motivations are concerned. From each School at least one member of each functional group within the value network was interviewed.

The choice of techniques proved to be a reliable and valid way of gathering data as it placed stakeholders into contrasting environments, in groups and individually, which permitted to cross-examine the validity of data. The theoretical framework helped assess and refine goals and develop realistic and relevant research questions. The questions asked gave access to people's motives, desires and concerns. This suited well the exploratory kind of research employed here and in general used when little is known about a particular field.

The following stakeholder groups were targeted for data collection:

- MOOC academic teams, School Management, University Strategic management, and potential MOOC instructors (through formal interviews)
- MOOC project officers and faculty members (through e-mails and personal conversations).

Some valuable insights were collected through informal conversations with faculty members interested in the research themes studied.

3.2. Research themes

The following research topics address the institutional and faculty implications when considering to or offering MOOCs:

MOOC organisation:	**MOOC instructors:**
Motives and perceived benefits	Motives and perceived benefits
Strategic development	Perception of a sustainable MOOC
Institutional implications	Requirements and barriers to providing a MOOC
	Perception of a workable MOOC business model

Other stakeholder groups such as students, government bodies and policy makers were not explored in this research.

3.3. Secondary data

Access was gained to internal Strategy and Planning documents and notes from MOOC related financial and strategic meetings. For the benefit of the research, the author was allowed access to all requested material.

Information about chronology, key events, various settings, people, and processes or issues related to the study was gathered in a context chapter (Chapter 4) of this dissertation. This particular sequence with interviews being the last stage allowed the author to build a solid knowledge of the topic/project before investigating stakeholder perceptions through conversational practices.

3.4. The in-depth interviews

Personal in-depth interviews with open questions were used widely to supplement and extend the knowledge about the individuals' thoughts, behaviours and actions that was gathered through secondary research; it proved appropriate for spontaneity of answers and exploratory work and allowed observing reactions.

Interviews were approximately one hour long. Most interviews were recorded using a voice recorder device. Terms of confidentiality were addressed and permission was sought for usage of any attributable quotes. All interviews were conducted within the University premises, often in the office of the person being interviewed.

There were 6 interviews, one with 2 members of staff, and 5 one-to-one interviews. Seven individual people were interviewed, including people of both genders and at all senior job roles. Three key groups were interviewed: MOOC academic teams, MOOC strategic management and potential MOOC instructors. Table 2 gives the list of people interviewed and their position in relation to the MOOC project.

Table 2. The list of interviewees.

Position within the University of Edinburgh	Position in relation to MOOC
Vice Principal Knowledge Management and Chief Information Officer	PROJECT LEADER
Professor in Informatics, Coordinator for Distance Education, School of Informatics	INSTRUCTOR
Director of Professional Services, School of Informatics	SCHOOL MANAGER
Teaching Fellow in Biomedical Sciences	INSTRUCTOR
Head of Subject Area in Philosophy	ACADEMIC MANAGER
Lecturer in Philosophy	INSTRUCTOR
Senior Reader in Informatics	POTENTIAL INSTRUCTOR

It was believed that the in-depth interview technique would be useful with senior managers and academic staff on a less directive, i.e. a semi-structured basis, which encouraged respondents to express experiences, attitudes, needs and ideas relevant to their organisation's strategies (Wright, 1996). The partial pre-planning of the questions still allowed for duplication of the interview with others, but was less controlled. Standardisation of some questions increased data reliability without taking away the ability to ask spontaneous questions depending on the direction of the interview. It was felt that interviews were open and prejudice-free as respondents were in little or no acquaintance with the interviewer.

The interviewees were seen as a unique subject from whom the interviewer wanted to know the attitude towards the new MOOCs project, therefore social cues were important. The semi-structured basis was a good compromise between a full directed survey and an entirely open interview. While an entirely open interview allows respondents to express experiences, it is less appropriate for comparing interview results. Hence the semi-structured approach represented a good compromise between these two extremes.

3.4.1. Questions and Interview Design

Initially this author approached the project with a set of research questions to explore three themes (motivation/benefits, sustainability and business model). However once the debate about the financial model and the degree of its prioritisation started to develop, the tendency of disinterest in financials was discovered and the alteration of interview questions was required. Such observations of motivational factors led to an adaptation of the approach from a financial/revenue focus to a holistic model approach, where groups of people and institutional changes were studied.

The same research themes were explored in all interviews with a tailored list of additional questions designed for each group representative. Common questions addressed the resources needed for the person's MOOC, their reasons and motives ('why MOOCs' and 'why now'), future barriers to developing more MOOCs and strategic alignment to their activities. Commonalities allowed the identification of trends in answers, while strategic and business questions prevailed for University Vice-Principal and School Directors in order to explore institutional capabilities for MOOC activities. Academic instructors were asked about how their MOOC is run, and what resources are required and will be required in the future.

The flow of the conversation dictated the questions asked and those omitted, as well as the order of the questions. Probing was used when needed, for example to discuss future financial or supportive models, and sometimes the MOOC-adapted Osterwalder's Business Model Canvas (2010) was used to aid the conversation about business models.

3.5. Analytical models

The most appropriate procedure for analysis of the data was to look for trends in answers and make general conclusions in order to answer the research questions. Primary and secondary data was aggregated to represent major themes or categories that describe the phenomenon being studied, and analysed by identifying and categorising patterns or themes found in the data. Despite this method being contextually subjective, a variety of themes were discovered. Examination of the

broader range of social context was also taken into consideration when analysing data from respondents from a variety of job roles.

Heritage (2011) states that analysis of conversational interaction involves sequence analysis, and identification of conversational practices and intersubjective meaning of the conversational practice. Interpretation of interview data therefore depends on the knowledge of the meaning of social and business circumstances, which the author had pursued.

As part of data management of interview transcripts, a judgement was made on the importance and relevance of interviews to determine which ones required full transcription. Others were subject to only part transcriptions with main emerging themes and opinions noted verbatim.

Finally, selected extracts were analysed and related to the analysis of the current literature, thereby producing a scholarly report.

3.6. Limitations of methodology

This section recognises the essential and accidental limitations of the research methodology used, particularly regarding the scope of the research and time constraints.

3.6.1. Issues with the scope of research and quality of literature

Exploratory research usually assumes there is only a few or non-existent studies and a lack of theoretical foundation, however the difficulty with the MOOC research area was enhanced by the need to dissect a constant inflow of new media and articles and to handle the abundance of myths and speculations in order to find credible information. The short history of adaptation of MOOCs by institutions also meant a lack of quality in-depth available research. Realistically it made academic sense to maximise the benefit of this study by analysing a specific project, uncovering real issues surrounding the Edinburgh MOOCs with a view to generalising where applicable.

3.6.2. Interviews and sample

Due to resource constraints the respondent sample was rather small. Interviews with a more varied stakeholder pool would allow for the generalisations to be better validated. Research could have benefited greatly by interviewing every School that provided the first round of MOOCs at both a teaching and governance level. Due to access and time constraints the current sample did not include academic Heads of Departments and one School that designed their first MOOC differently, and therefore could have presented a different set of barriers to future course implementation. Additionally a larger sample of those not having taught or developed a MOOC yet would have enhanced the critical view on viability of MOOCs in comparison to those already running it. The latter were somewhat largely and positively affected by the amount of students they attracted.

Moreover, there was a degree of difficulty in quantification and analysis due to the spontaneity factor, and due to the fact that the qualitative approach is generally prone to bias.

Another limitation is the fact that at the time of primary data collection the project was still running, depriving of the opportunity for post-project reflection. This factor could be viewed as both a limitation and as a unique aspect of this research, due to the ability to talk to people currently engaged in the project. This should also be taken as the main caution throughout the findings and conclusions chapters, as post-project evaluation and reflection could have led to a different set of conclusions.

In comparison to post-project interviewing, responses could have been biased, as aggressive timelines and pressure prevented people from being completely objective. It takes time for an idea to settle in people's minds especially when that idea is linked to disruptive innovation. Most participants had not had time to thoroughly plan or think about the intricacies of MOOC models or their future specifically. Sometimes prompts were needed to provoke a topical thought, especially for non-academia business themed questions, i.e. the financial model.

Some of these problems will be ameliorated by focusing on the specific project and giving recommendations for a similar project, rather than a wider market context.

CHAPTER 4

PILOT MOOCs AT THE UNIVERSITY OF EDINBURGH

This chapter provides a contextual aid in understanding how MOOC projects and platform providers function. This is achieved through a case study reporting mode by presenting data obtained at observations, University publications, interviews and personal conversations. A concise description of structure, delivery method, financing and business model is presented.

4.1. Courses

The MOOCs pilot project developed six short first year undergraduate online courses in several diverse subjects[7], offered as Edinburgh University (with quality assessment to ensure UoE standards), that attracted just over 309,000 learners. Courses ran for 5-7 weeks with study loads of around 2-3 hours per week starting on January the 28th 2013. Following the presently common xMOOCs format, the MOOC courses at UoE are time-controlled, structured, designed like a short course and lightly-tutored with self-directed study method.

Courses are accessed through the Coursera platform. The student registers on Coursera, logs in, follows the course materials, completes the readings and assessments, and can receive help on the course's online forum from the learner and teacher community. At the end of the course students receive a Statement of Accomplishment from Edinburgh University[8]. Courses are to run 3 times within a 3 year life-span. Only the first round is assessed in this dissertation. The second round of MOOCs is planned to start between autumn 2013 and winter 2014.

[7] Artificial Intelligence Planning (School of Informatics)
Astrobiology and the Search for Extraterrestrial Life (School of Physics & Astronomy)
Critical Thinking in Global Challenges (School of Biomedical Sciences)
E-Learning and Digital Cultures (School of Education)
Equine Nutrition (School of Veterinary Medicine)
Introduction to Philosophy (School of Psychology, Philosophy and Linguistic Science)

[8] In total, 34,850 SOA (statement of accomplishment) certificates were distributed – 21% of active participants, 12% of total enrolment (in comparison to 2-4% from many Coursera courses) with a 98% student satisfaction score.

A MOOCs student survey indicated that the prevailing number of users studied MOOCs for expanding their knowledge base, i.e. learning something new (MOOCs@Edinburgh Group, 2013) rather than to obtain a recognised qualification.

4.2. Inception of MOOCs at UoE

The University of Edinburgh is a UK leading research and teaching University, ranked 6th in Europe and 32nd in the world[9] and has strategic goals of excellence in education, research and innovation. For the last 10 years the online learning initiatives have received significant attention from University leaders and funds were allocated for various e-learning initiatives. Naturally the University was highly interested in studying the evolving field of mass education and innovation in pedagogy when MOOCs gained popularity with the lead of proclaimed US Universities. Positioning UoE as innovative and adaptable to technological change was also important for governors.

UoE joined Coursera in summer 2012 after Stanford, Princeton, Michigan and Pennsylvania. MOOCs Development Timeline (Appendix 4) demonstrates the agility of the development. With the help of the Knowledge Management team the Principal of the University initiated the legal processes in creation and course provision through Coursera, and negotiations with academic teams, matching areas of interest with those who can deliver the courses. The Vice-Principal in Knowledge Management led the MOOCs initiative, which is managed as part of the Distance Education Initiative (DEI).

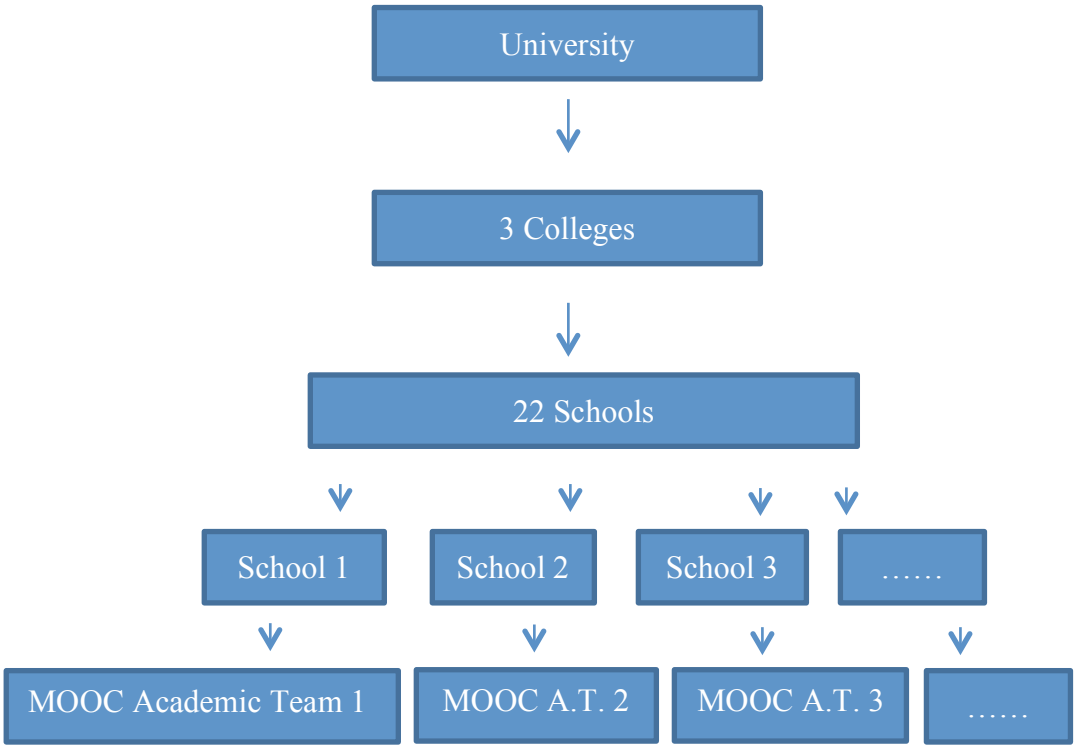
4.3. MOOC Academic Teams

The University of Edinburgh chose these 6 particular subjects due to the presence of professors in those areas who were excited by the prospect of teaching very large numbers of students. The University was responsible for designing, developing and creating the course, including the associated learning resources such as videos and assessments. Each course was

[9] According to the 2013 Times Higher Education ranking.

created by academic teams affiliated with and overseen by different Schools within the University as depicted in Figure 5 below.

Fig. 5: Simplified graphical depiction of Edinburgh University Organisational Structure that demonstrates MOOCs team affiliation.



The experimental nature of the project meant MOOCs were initiated quickly within agile management practices and light but vigorous governance. A call for action came to Schools in a form of a blind commitment as at the time the amount of work involved was unknown. Some course design was to a degree driven by the sort of team chosen to create it.

4.4. Coursera

Coursera[10] is responsible for providing the delivery platform, providing clear guidelines to the University on the use, signing up students, marketing, and receiving payment from students. Each University can manage its use of the platform differently. Coursera is a commercial company

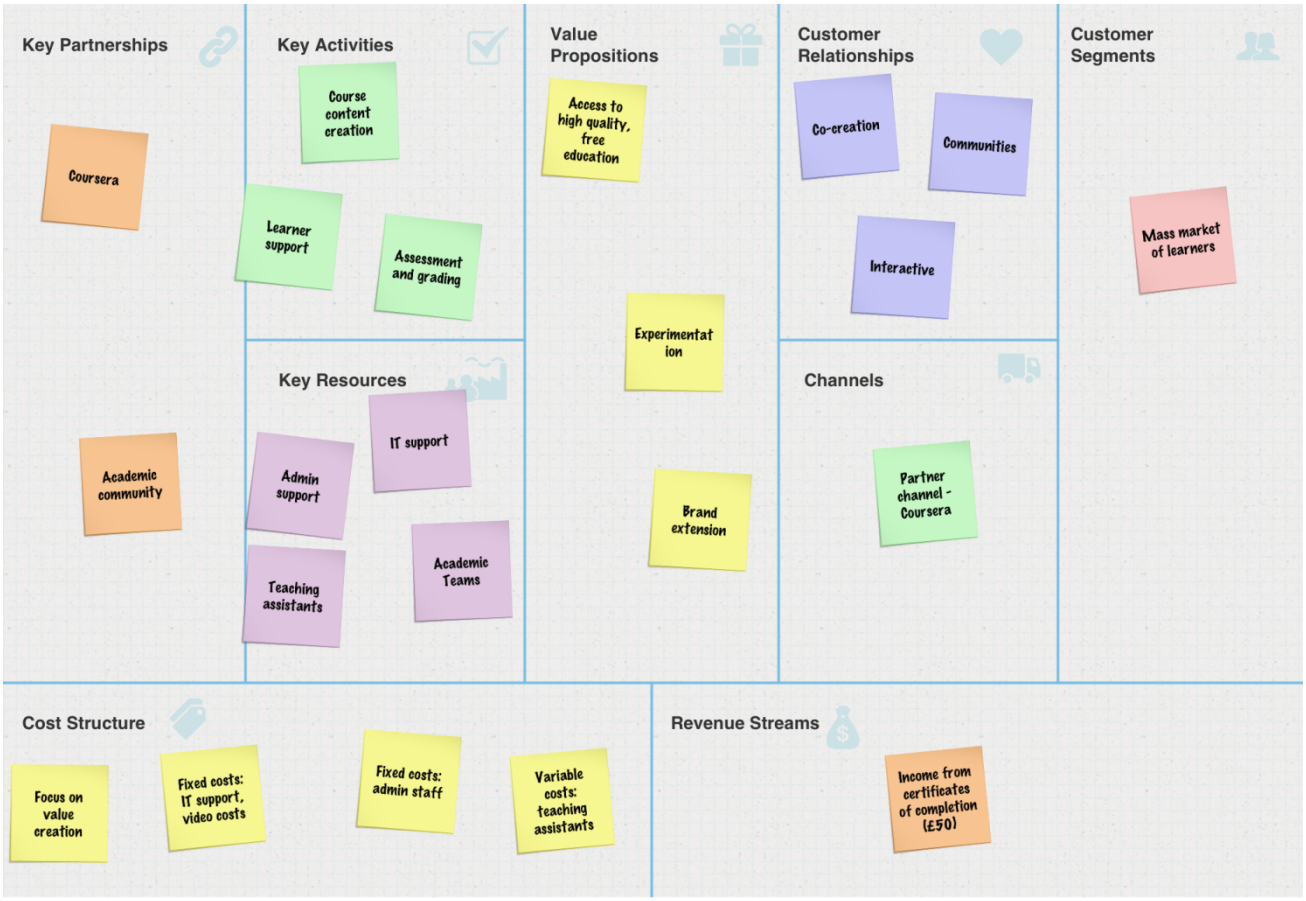
[10] Numerous platforms, for profit and not, were launched for delivery of MOOCs. UoE has entered into a partnership with the for-profit Coursera (founded by Daphne Koller, Stanford, 2011) due to similar ethos of "democritisation" of knowledge and accessibility of education.

with several proposed monetisation options, high-profile University partners and 3.7 million enrolment count in June 2013. See Appendix 4.1. for key facts about Coursera.

4.5. Current Business Model

The proposed business model for MOOCs in the University is illustrated with the components listed below. The first round was managed differently as no certificates were sold and the project was fully funded by the University.

Fig. 6. Osterwalder's Business Model Canvas (2010) adapted to UoE MOOCs Business Model.



11 12

[11] **Value propositions** are also identified as "education access, experimentation and brand extension" in EDUCAUSE report (EDUCAUSE, 2012).

Components of the business model:

- Courses are entirely free to study and anyone can enrol.
- No formal credits assigned to MOOCs.
- A certificate of completion can be produced for a charge (~ 100 USD).
- Break-even model with no intention to generate profit.
- A three-year course lifespan and the associated income share of **15% to the University**.
- Income share pays the teaching costs (eg teaching assistants).
- Academic instructors do not receive any additional remuneration.
- Exit strategy - Coursera and the University are willing to end the MOOC if it is not working or attracting students.

Cost Structure: Typically for an IT project there are high upfront costs (with smaller subsequent costs) in building up the content, especially required for the production of UOE high quality courses. The finance summary for the first round gives a total cost of £250,000 for 6 MOOCs (Appendix 2) with main segments of teaching assistants, staff, equipment and video production. Additional costs include the media/press costs, travel costs and management expenses. This is the real cost needed to extract the full reputational value. No certification revenue was received in round 1. Round 1 was underwritten entirely by central University funds.

For the University MOOCs is a not-for-profit venture with an accent on social and pedagogical research. However, monetisation options are evaluated in line with Coursera. See Appendix 4 for the list of Coursera's monetisation strategies. And for now the certification model is chosen by UoE, where a student pays for a certificate upon successful completion of the course. Other streams of income such as selling student info or text books have not been deemed appropriately ethical by UoE and are dismissed for now. Any potential profit from such monetisation will be reinvested back into the courses – for tutor effort and production costs.

As for other MOOC providers in the marketplace, neither the feasibility of monetisation strategies, nor the successful business model for MOOCs at UoE are clear, both for the institutions and platform providers. Completion rate (12%) of the first round may be insufficient to cover project

costs of such magnitude even if the entire 12% opt for a certificate. The low completion rates are a current issue in the market.

There are three support requirements that need investment: technical, instructional and managerial. To support the project, the University had allocated 'special project' DEI funds for MOOCs and were not reliant on any types of income. Their economic goal of non-profit making was clear from the start and did not change throughout the course of the research. The costs are elevated by the requirement to produce high quality content and support for the courses. Financing this project however did not grow into a budgetary burden during the current life-cycle, as the amount of the funding required was equal to only a small fraction of the university annual turnover. The predictions are that with the set cap on the amount of specialised, high value MOOCs in the University, the expenditure will be manageable.

However the departmental financial burden will shift as Schools will be partly financing their own MOOCs post round 1, mainly the TA and staff time. Although the income share will also be redirected to Schools with the view to reinvesting into their local MOOC activities, the shift and the volatility of any income will create additional pressure and complexity for departmental heads.

This chapter has shown how the first round of MOOCs worked and the model for the remaining rounds of the first MOOCs. The resources required for a typical MOOC and the organisational structure behind them indicates that the current model is too reliant on volunteers as academic time is not paid for while the costs are significant. Given the shifts in financial commitment between departments and the uncertainty and agility of the project, the institution needs to consider faculty implications and needs. The fast paced, uncertain nature of the project affects both those managing and teaching the courses.

In the next chapter the main findings from the research described in this dissertation are presented.

CHAPTER 5

FINDINGS

MOOC INSTITUTION AND COURSE INSTRUCTORS

This chapter presents the findings from the data collected in the form of a summary and analysis in order to explore the research themes. Whilst being cautious not to draw unwarranted conclusions, the data reveals both patterns and inconsistencies. The most important findings with direct implications for MOOC development are highlighted.

5.1. MOOC institution

It is seen from Chapter 4 that the UoE was highly driven by the opportunity to engage in the kind of innovative learning that MOOCs represented, and could not underestimate the importance of the first mover advantage within the fast evolving landscape of mass education. UoE had several reasons to engage with MOOCs: as the means of raising publicity, as an enhancement of its reputation as an innovative institution, to use MOOCs as a vehicle for educational R&D, for political and social gains of new academic partnerships, and as an outreach to new student markets. As the courses started to run these motives turned into benefits that the participants shared at meetings and interviews.

Synthesising the cost-benefit process is crucial in understanding the value of the project and how MOOCs function. The costs side was discussed in Chapter 4. As for the benefits side, a significant amount of non-monetary value was put on the first MOOCs that this dissertation elucidates.

This section analyses suitable data to determine the benefits of MOOCs as perceived during the project.

5.1.1. Perceived Benefits of Providing MOOCs

The data collection exposed both tangible and intangible perceived benefits. These are presented in the following 6 categories.

- **Profile raising and publicity**

A boost in publicity and profile raising for the University through the initial MOOCs were yielded for a fraction of the cost and at an accelerated speed than that achieved by traditional advertisement mechanisms. The press launch after joining Coursera generated large media interest with interviews and conference invitations that followed throughout 2013. Affiliation with an exclusive group of open-minded leaders in online learning through Coursera has been beneficial for the UoE and also enabled the promotion of its quality brand on an international stage. There was however, an associated high reputational risk; when providing a MOOC, institutions must get the content and design right as otherwise the adverse effect can be immensely negative. This was demonstrated in the case of one American University who publicly failed with their course on digital learning. UoE created high quality MOOCs with the ability to work to very tight deadlines and high-level strategic decisions had to happen promptly to capitalise on the first mover advantage, identified as instrumental in digital economies development.

The direct financial benefits did not attract interest, however indirect financial benefits such as attracting fee paying students to the University via MOOCs received more attention: “I think the most likely benefit is more to do with enhanced reputation due to knowledge exchange, which is one of our strategic aims.” MOOC Project Officer (Appendix 6.7.)

- **Recruitment**

In terms of recruitment, MOOCs have already proven to attract new Chair-level candidates, who have heard of MOOCs and arrive to Edinburgh already expressing the wish to teach their own MOOC at the UoE. However, in order to achieve this, a "huge amount of effort in publicity" and "trying to get mentioned in all possible sources that could have contributed" has taken place with University Leaders participating in over 20 MOOC related conferences (MOOC Project Leader, Appendix 6.8.). At the same time it is recognised that such a degree of effort cannot be sustained and the media and press interest is expected to diminish (MOOC Project Leader, Appendix 6.9.).

- **Positive influence on pedagogy**

Iiyoshi and Kumar (2008, p. 438) stated that MOOCs present the opportunity to "redefine, rethink and rearticulate educational practice at several micro and macro levels—courses, programs, institutions, missions, strategies". This was concurred in the interviews by the MOOC Project Leader, who was positively surprised:

"*The level of impact on University presidency and vice-chancellors is way beyond of what I expected to see. I have never seen presidents and VC talk about education. Normally they talk about research and money, but not pedagogy. And I feel as a consequence of this our educational world has actually been shifted.*" (Project Leader, Appendix 6.10.)

- **Fresh view of Distance Learning**

Developing a DL Initiative is on the agenda of University leaders. MOOCs have proven to generate conversations within University groups about these programmes, which were previously viewed as a high-risk uncertainty and met with significant resistance. A member of one School described the shift in the process:

"*Initially when these ideas [of online learning] were talked about a couple of years ago, distance learning was a hostility, especially in the postgraduate group in the school towards the very notion of e-learning, and now people are getting used to the thought."* (MOOC Academic Manager, Appendix 6.11.)

- **R & D**

One of the perceived tangible benefits of providing MOOCs is the opportunity to research and develop new methods of teaching. For example in the briefing for the First Minister of Scotland "Why did the University decide to develop these courses?" (2012) the University Knowledge Management group reported that:

"The exploration of teaching and learning at very large scale offer chances for the University to test new ways of teaching, and especially assessing learners that cannot be done on much smaller on-campus courses. " (Appendix 6.12.)

- **Strengthening the University Position**

The other reasons were highlighted by the University as hedging bets and diversification strategy to ensure compliance with change in educational models. If mass education succeeds, Edinburgh is well placed to take part in the new area, preparing people for the change:

"…the way we do our business [in education] is going to be distracted and that distraction is going to be quite significant. I look upon MOOCs as our learning about how to move to a place where we can survive the disruption. The long-term payback is getting in this space and understanding how to do that." (MOOC Project Leader, Appendix 6.13.)

"..the more people we can change [with MOOCs' experience] the more people we can put in this general world view and in our view of universities and what they can do, the more chance we can change ourselves fast enough in order to survive. " (MOOC Project Leader, Appendix 6.14.)

To strengthen the point, in asking the question about the costs of not providing MOOCs in this University/School, several trends in answers were noted: (1) diminished reputation, (2) losing the learning by doing experience, (3) losing the buzz, the excitement and the fun; (4) missing the first mover advantage.

Capitalising on such non-monetary benefits relies on the quality of the offered MOOCs. Edinburgh MOOCs were of a prime quality, which was proven by the community[13] studying it. As expressed by MOOC Project Leader "The community of that type would have torn MOOCs and their teachers apart had they not been of top quality" (Appendix 6.15.)

The greater attention paid to indirect financial benefits was reflected at the University strategic level with leaders who were "looking upon MOOCs as educational R&D" (MOOC Project Leader, Appendix 6.16.). They did not understand why anyone would expect a monetary profit from "investing in your future" (MOOC Project Leader, Appendix 6.3.).

The focus of this section is on *perceived* rather than the actual benefits and some of them are questionable. For example there were concerns that MOOCs may be distracting from movement into online development from cognitive point of view rather than supporting it. The MOOC Project Leader expressed:

"They [academic staff] might feel that they've done it with the MOOCs, and don't need to do other online learning. While what really matters is not MOOCs, but the online teaching. The question really is how to make the MOOCs supportive of that absolute decision that we are going into fully taught online learning." (MOOC Project Leader, Appendix 6.17.)

Another example is the conflicting views amongst reviewers on the benefits of MOOCs. Some hold the view that since MOOCs are free there is a risk of reducing the number of fee-paying students down instead of up (Sharples, et al., 2012). Others hold the contrasting view that it would stir up recruitment by attracting fee-paying students to the university (University of Edinburgh).

[13]The majority of learners were educated at undergraduate or postgraduate degree level, as indicated in the student survey of "MOOCs @ Edinburgh 2013 Report # 1" (MOOCs@Edinburgh Group, 2013)

5.1.2. Strategic plans for future development

In terms of further strategic integration "Choosing a MOOC strategy for the University of Edinburgh" (Haywood, 2013) outlines the future strategy for the University in developing MOOCs further as outlined below.

The plan for Edinburgh is to expand its initial offering of 6 MOOCs to an additional, 6 making 12 in total, with the more long-term goal of offering no more than 20. In terms of strategic integration there is a rethinking of the governance of future MOOCs and exploration of how MOOCs can be linked to other Distance Learning programmes to drive income, with MOOCs as an addition to and not instead of formal programmes. Additionally, new proposal evaluation methods are considered to improve the chances of differentiation within the increasing competition in the growing Coursera platform.

Senior management at UoE investigated in detail the possible futures for MOOCs in the wider context, predicting that instead of dying away or remaining in the elite circles, MOOCs will actually expand, diversify or even disrupt the higher education business model. To prepare for such shifts, more strategic incorporation of MOOCs into higher education is being discussed. In the short-term the discussion mostly revolves around: the enhancement of community learning, more flexible curricula, franchising amongst mid-to-high ranked universities, new payment models (e.g. charge-by-credit), and expanding of the range of MOOCs (e.g. introducing higher UG levels). In the longer term, university strategists are evaluating options such as those connected with credit-bearing MOOCs, licensed MOOCs and MOOCs for a fee.

It seems that the actual distinction between these short and long term themes are to do with the distinction between making MOOCs a valuable addition or complement to current higher education programmes and, in the longer term, incorporating them as part of a higher education programme of study.

Following the first round of courses, the financing is being revisited and major costs for the University and Schools are being recognised. As seen from Chapter 4 the core costs of future rounds of MOOCs will be financed by the Schools who will face the major issue of the workload for

their core MOOC facilitators and their pay/reward. In terms of project goals, the experimental, innovative merit of the current project entailed the lack of structure and goal. While it was acceptable under the unique conditions of the first round, to ensure sustainability for the successive rounds leaders now recognise that the project has to have a purpose, clear measurable outcomes, and an attributable value which the following developments would aim for.

5.1.3. Organisational implications

The analysis of School level events and perceptions during the first MOOCs reveals a push process in which Schools were clearly instructed on MOOCs design, timeline and delivery by University leaders. A certain level of incentivisation from University governors was required. With proper incentivisation suggesting the benefits outweighing the costs, Schools were ready for the brave move despite the perception of MOOCs as a potential black hole for academic staff time.

Justifying and predicting the academic input was difficult, albeit not necessarily inoperable. It was important to use MOOCs as the means of positioning Schools as innovative and agile enough to take advantage of changing market conditions both within the University and in the wider academic community. Financially, this process for Schools was de-risked, with full funding from central University, however ultimately this will shift towards Schools mostly self-financing. Reputationally, similarly to the University perspective, it was a combination of a potential yield from attention to successful MOOCs and at the same time, a risk, had their MOOC failed and attracted attention for being a failure or attracting attention but failing to deliver a quality course.

A reversal of the process is expected for the subsequent rounds, in that Schools will be applying to produce a MOOC. Future MOOCs will entail a shift of commitment to Schools and less so on the University or the individual instructor. This encompasses a more careful departmental strategic planning of resources to ensure sustainability in developing, refining and delivery of courses. Post-experimental stage involves counting up the real project costs and faculty time needed for sustaining the MOOCs. As for Schools, on par with the University conclusions, sustainability means being realistic about resource implication, since a heavy commitment for teachers and teaching assistants is expected. Departments are also en route, albeit at varying speed, to thinking about

development cycles for MOOCs in more detail: institutionalising MOOCs into teaching programs, treating them as a normal teaching commitment equivalent to a credit-bearing course (10 credits), and integrating MOOCs into their workload models.

It is seen from the first section of this chapter that despite expectations for a typical traditional University like UoE, they have proven they are capable of moving with the change quite quickly and positioning themselves firmly as an innovative, responsive and adaptive university. It can be considered progressive with regard to its willingness to take the risks inherent to innovation.

According to the data results there are enough benefits and incentives for the University to continue with MOOCs, which are now being strategically integrated. However, with the expectation from participants of diminishing returns, it is unclear to what extent the future development will be able to capitalise on non-monetary benefits in the same way as the first phases.

With the provision that the University is continuing with MOOCs, this dissertation now moves to the core investigation of instructor issues and implications of such on sustainability.

5.2. MOOC Instructors

MOOC instructors were originally chosen by matching interest to available resources. Course design stemmed from available teaching resources, the details of which are provided in Chapter 4. The process of bringing teams together to work on MOOCs was quick and centrally pulled, yet, according to the MOOC Project Leader, with a surprising level of “constructivism and engagement” amongst academic teams (Appendix 6.18.). Despite very rigid timelines, the content and design of the courses was of a high quality and right for the type of MOOC learner, demonstrating a huge achievement for those selected to create these first MOOCs.

5.2.1. Motives and benefits

When assessing the general attitude to the notion of MOOCs, a huge spectrum of aspirations in the University came to light, ranging from those who will never engage, those who will be pushed to engage to those who are natural enthusiasts.

The results of interviews indicates that those who chose to engage in the first MOOCs activities generally enjoy engaging in new professional activities and hence sustained a lot of activities with great enthusiasm. Many of the participants have been already committed to free, open education, already were looking at open source, publishing and packaging educational materials and are passionate about it.

During the run of the courses instructors were highly motivated with enthusiasm fuelled by perceived "incredible success" as courses started to attract student registrations in 5-digit figures. When the courses started to run, lecturers were stating how "amazed" and "pleased" they were with the student numbers, and what a "positive impact" it has had on people's perception of MOOCs (MOOC Academic Manager, Appendix 6.19.). In the first round academics enjoyed challenging and being challenged by participating students in this new knowledge exchange social experiment. Similarly to conclusions in the Duke report (2013) they found engaging in MOOCs a valuable experience for learning the intricacies of online courses provision.

The core idea of MOOCs/OER may suggest certain approaches for value creation (see Chapter 2). Information gathered at MOOC meetings and personal interviews revealed a list of incentives and perceived benefits.

When instructors were asked to name one single reason for publishing a MOOC, the responses were: knowledge transfer, free education for all, collaboration opportunities, archiving medium, fun, social experiment, educational experiment, market research, outreach, visibility in academic community, innovative reputation, a base for developing other distance learning programs, and recruitment tool for university students. A list of quotes enhancing the aforementioned is provided in Appendix 5. More tangible benefits included using MOOCs as a medium for archiving and distributing academic material in a clear and concise way within the academic community.

One professor affirmed how crucial the impact of first mover advantage and the corresponding positive reputation could be on a faculty member's career:

“When MOOCs expand and learner volume grows, it becomes a number game. In the past it used to be that you needed one good course in one area per University, for example, machine learning for robotics catering to say around 200 to 300 students. Now with MOOCs, it could be one good course in that topic worldwide, catering to millions.“ (Prof. Sethu Vijayakumar, Appendix 6.20.).

For Professor Vijayakumar, the single most important reason for opening up his own MOOC would be to publicise his research methodology to the masses with unprecedented scale. However, notably, amongst respondents, only those who are already highly visible in the academic world valued such reputational benefits, others less so.

The material above is mostly reflective of the content of literature and media in motivations of OER and MOOCs providers, yet the empirical research also resulted in the identification of intangible benefits that were not identified in the literature review. For example, the technology transfer and knowledge efficiencies, such as the identification of academic subject-related problems and solutions emerging from student forum discussions.

The enhancement of the dimension of some benefits was the general perception that MOOCs will attract absolute masses of audience, since most MOOC publicity is shouting out 6-7 digit student take-up per University, leading to the opinion that individual benefits can be extracted by capitalising on the volume factor. The actual completion rate is so much lower that this is questionable. However, of course publicity, archiving and community building elements seem to be less dependent on completion rates and more on visibility.

It was noticed whilst interviewing a School representative, a University representative and instructors, that while the major perceived value of MOOCs was fairly consistent amongst those different types of stakeholders, the discrepancies seemed to be connected to how or whether MOOCs were initiated: self-motived, instructed to get involved, not involved in MOOCs yet and have a fear of opportunity loss.

In contrast to non-monetary theme, the interview questions were set to unveil the debate about the financial model and the degree of its prioritisation amongst the instructors. Throughout the process, however, the tendency of disinterest in financial motivations was discovered and alterations of interview questions were required to focus on non-monetary gains within the models as they seemed to attract more interest and enthusiasm. This was indicative of the purist behaviour typical to the OER movement, which dislike these commercial aspects, present in UoE.

At this particular stage of the MOOC life cycle people generally did not believe that the courses are set to provide outstanding profit, hence material interest was minimal or even irrelevant. What seemed to be more important is the consideration of effort.

"I'm not asking for much. I won't say no to money, but as long as my hours are paid, I'm not asking for money specifically… In long term it wouldn't be my primary interest, as long as my work is recognised and paid appropriately." (MOOC Instructor, Appendix 6.21.)

The first stages of the project, both for the University, Schools and instructors, yielded significant return on investment in terms of visibility, reputation, mission re-thinking, great synergies within academic communities and the learning of new educational models. All those interviewed stated that MOOCs have been a worthwhile investment of time and resources for them, although there was some admittance that processes have to be revisited and redesigned for the next time around. Overall, it appears that some people indeed are benefiting from capturing new opportunities and are motivated by philanthropic goals, and non-monetary gains, and no one specifically was looking to make money out of it yet. The range of motivations was diverse, even including a case of motivation by power of coercion. The single most important driver for many of the instructors was the experimental and exciting nature of delivering the first MOOCs at Edinburgh. However, much is likely to change if and when MOOCs become more established within higher education institutions.

5.2.2. Future developments: requirements and barriers

Personal interviews addressed the issue of future involvement with current instructors, who all expressed the will to continue with MOOCs in future rounds. All 6 MOOCs are planned to run again in 2013-2014 with minor changes. However, the data results suggest there were differences in perception of what the process requires between current and potential instructors.

In terms of the future of MOOCs, the following aspects were named by interviewees as "potential barriers" in providing MOOC in the future:

- Workload and time
- Absence of institutional support
- Course platform restrictions

These sub-points are analysed in the following sub-sections.

- **Workload and time**

Since the MOOC production is initially very resource heavy (approximately 30 academic days per MOOC), serious consideration of time and resourcing is required. Time was the biggest barrier to run these courses on a regular basis in the future, described as "enormous", an equivalent to a "very heavy teaching duty" (MOOC Instructor, Appendix 6.1., 6.22). To a certain degree time difficulties were pertinent to the nature of the pilot project with the time pressure to produce described as an "aggressive timeline" and "being given weeks to do something that you need a year to produce". (MOOC Instructor, Appendix 6.23.).

With only 3 months to plan and develop the material to open up in January, most academic teams interviewed experienced workload implications on top of their normal duties. Overall, the course required more time than the instructor had expected varying between 60% and '150%' of standard workload, particularly in relation to the amount of time spent interacting with students and dealing with various issues while the course was active.

In addition to significant time spent designing the course and creating content, the instructors still reported spending many hours each week engaging with the students, although in most cases that time was reported as enjoyable. Considering this, no direct correlation was recorded between apparent presence of the course team (academics and TAs) on the forums and overall forum activity (MOOCs @ Edinburgh report). There was however a correlation between the amounts of voluntary time spent and the level of enthusiasm of instructors, as the less enthusiastic spent as little as 10-15%. Even the lecturer who spent 10-15% of time thought it was too much and in the future a more careful and realistic consideration should be given to resources.

The overload has been described as "hellish time" by one course creator who had no prior experience with online teaching (MOOC Instructor, Appendix 6.24.). Creating something for large masses successfully in unknown territory put significant pressure on the inexperienced and not everybody was happy with the content they created.

The perception of the level of impact of those barriers depended on the initial motives for creating first MOOCs. Those who wanted to flip a classroom anyway, were more forgiving of the implication on their normal activities, while those who were instructed by the School to get involved really took it rather hard.

Although the literature suggests that the instruction costs for MOOCs are abnormal as they allow massive scale economies, in reality the project entailed significant instructor effort in social networking activities. Enthusiasts suggest that the second round of MOOCs will be even more resource-heavy due to the fact that the better adaptation of the course platform to supporting MOOCs will drive innovative things and the lecturer will have more experience with the social part of MOOCs to want to do more.

- **Institutional support**

More tolerant towards the absence of any structural or resource modifications to provide scaffolding for the first project (6.1.3.), many instructors believed Schools will support them in continuing with MOOCs. In the future however, resource modeling will be crucial, and although

management begins to recognise this by recognising the MOOC weight and steering MOOC developments towards institutionalising, it is still insufficient and still not reassuring for instructors. Even the school furthest ahead in taking steps towards institutionalising MOOCs was perceived as still being far from having done enough. Their members expressed great concern with resource implications of MOOCs on individuals.

"My main negotiation point with the school for future MOOCs will be treating a MOOC as a teaching commitment, incorporated into timetables, with specific resources. If they are not ready to do this, then there is an issue." (MOOC Instructor, Appendix 6.36.)

- **Course platform**

Instructors felt that overall the Coursera platform proved capable of delivering a video-intensive course to a world-wide audience with sufficient support and ability to adroitly solve technical problems. However, those more experienced in online course delivery felt restricted and somewhat frustrated.

It was asserted by one professor that Coursera didn't want to implement different awareness levels, as it needs the simplicity for commercial re-sale reasons. But instructors wanted to achieve more through this platform out of this social learning experiment. (MOOC Instructor, Appendix 6.25.)

5.2.3. Perception of a sustainable MOOC by current and potential instructors

Bolstering on the perception of barriers, this subchapter section puts the associated difficulties with MOOCs in long term perspective by conceptualising what sustainability actually means for those interested in providing MOOCs. Dissecting a range of views on what a sustainable MOOC represents, most people mentioned teaching resources and a few – solid funding and financial stability[14]. Also mentioned were: alignment with strategy, being realistic about resources,

[14] It is worth noting that some people admitted that in the context of the existing project they have not had time to give a lot of thought to longevity of activities and they just wanted to experiment. There were providers who agreed to

providing incentives for facilitators, breaking even financially and in terms of students - large completion numbers, unique sign-ups, and learning outcomes. One view sums it up as: for MOOCs to become sustainable "there should be an integrated resources planning within organisations and motivation amongst academic staff best suited to deliver a particular MOOC." (MOOC Instructor, Appendix 6.26.)

Many acknowledged that MOOCs will not be sustainable unless time and effort and the skewness in distribution of such in providing them is recognised. Motivation has to come from the University with a concrete proposition on how resources could be managed. It is not sustainable if Schools are not willing to accommodate basic needs of academics willing to start their new MOOC in the future. At the same time it is expected that Schools will not jump on the chance due to reluctance to commit to the unknown.

One particular successful female member of the professoriat uncovered her concerns regarding MOOC involvement. Despite a great enthusiasm, will and appropriate expertise placing her as a great candidate for MOOC teaching, she had great reservations about investing time, and clearly stated that she would not agree, if asked by School, to provide a MOOC unless the issues are addressed (Potential MOOC Instructor, Appendix 6.29.)

What was consistent amongst those interviewed is anxiety about the value of MOOCs in comparison to other core academic activities, namely research.

"*At the moment research is bringing tangible, measurable benefits and MOOCs are not.*"
(Potential MOOC Instructor, Appendix 6.27.)

Although it was suggested that Schools perhaps should shift the research focus, alongside recognising the value of MOOCs and allocating funds, overall it is accepted how difficult it is to put tangible value on MOOCs as not enough have run. It was recognised that central funds could not sustain MOOCs for long and that income needs to feed back into covering teaching costs. Most

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participate before they knew what it was, as it seemed an exciting opportunity. They were somewhat thrown by some interview questions addressing future plans and modelling, as expected in agile projects.

liked to see MOOCs still free in the future, therefore were concerned about funding models. It wasn't clear to people how much money certification would bring or, in fact, what the value of the certification would be.

Contrary to facilitators' perceptions, as far as volume and cost relationship is concerned, one of the main University conclusions for now seems to be that MOOCs are sustainable in their current shape, but on a small scale (a maximum of 20 MOOCs). It was decided that as an educational R&D, it is worthwhile investing in a small number of running courses for the masses to explore new educational models. In terms of implication for the current business model, since there is no plan for over 20, there is always likely to be money for it. According to the Management, approximately £ 1 million should be sufficient, even if MOOCs are solely funded by central funds.

5.2.4. Perception of a workable business model

Following a discussion of the business models development of OER and MOOCs in Chapter 2, the conclusions in terms of value-creation and monetisation options were used in interviews to obtain insight into participants perception of emergent MOOC models and their capabilities.

Concurring with De Langen (2011) one manager expressed that the business model will only be workable if participants (academics and TAs) are incentivised and value exchange is enhanced (MOOC School Manager, Appendix 6.28.). It was generally viewed as a funded, non-profit project, and it should stay this way. When asked to express opinions on possible business and financial models the general feeling was that conventional commercial advertising models were not appropriate for the academic course providers. In terms of possibilities, although some expressed understanding of which methods of profit generation would be effective in funding MOOCs, they were not prepared to start this with their MOOCs. For example, advertising, even though some have already received offers to place advertisements on their MOOCs.

Amongst the accepted models were: (1) licensing (as some schools and lecturers discussed the possibility of the usage of their course for career development) and (2) certification (however the value of certification, similarly to what literature suggests, was unclear to facilitators). Many

thought they needed to retain the charitable feel of MOOCs, and commercial models would put that at risk.

The next section will discuss the implications of the above results for sustainable practices. Data and analysis will be interpreted to specifically address the exploratory questions in this research.

CHAPTER 6

DISCUSSION OF IMPLICATIONS OF FINDINGS FOR SUSTAINABLE PRACTICES

The results indicate that for UoE this first prototype has two main purposes: as an experiment from which to learn and as a provision against loss in the general higher education marketplace. Respondents indicated that the prototype was a tool to learn about online pedagogy and a platform for learning from student experiences. Additionally the prototype serves as a certain diversification strategy into mass online learning and for positive positioning in this initial time of change and heightened competition in the marketplace. Overall it is about building capabilities, learning about processes and planning for future value models.

In UoE the first wave of MOOCs attracted a sustained interest even within a full spectrum of conflicting attitudes towards the unknown territory of MOOCs. In terms of benefits, the perceived non-monetary return on investment seems substantial and the project was viewed as a huge success. It attracted a higher than expected student interest and university stakeholders started receiving the benefits they were hoping to receive, justifying their initial engagement with the concept. Additionally the project at its current life cycle was appropriately supported and financed, and difficulties were overcome successfully. Socially MOOCs are starting to deliver the value they were set to deliver and the market is ready for them (See “Factors contributing to the viability of MOOCs” in Chapter 1), but there are plenty of institutional complications.

While the hopeful stakeholders are evaluating post-project and strategically embedding MOOCs, the views on sustainability of MOOC in UoE and in general disclosed what people need for MOOCs to actually survive. By and large some of these elements like organisational support and incentivisation were discussed in the literature. While more specific ones depend on the nature of Higher Education.

Despite the University efforts to promote distance online learning, the idea of teaching for free to open masses remains an issue for some, as it does not coincide with the most tangible activity of all – research and publications. Those are the two factors which most affect rankings for both the university (research) and the individual (citations).

First, Universities are structurally rigid, mechanistic organisations with centralised power and devolved management, with limited faculty freedom. The absence of adhocratic, organic, flexible structures, readily reacting to "events" and adapting to constantly changing environments (Mintzberg, 1979, 2003*)* more suitable for innovative practices and projects (as seen in Google Inc.), can be a hindrance for those wanting to concentrate more on their MOOCs. This was confirmed by interviews. The conclusion is therefore to adapt the existing conditions towards MOOC requirements, since the organisational nature as a whole is likely to remain broadly as is.

Such adaptation could take the form of resource modeling, which has not been considered for future MOOCs yet, and not many interviewees at school level thought MOOCs were strategically embedded in the organisation. The pilot MOOC project did not incur much structural modification and none is planned in the near future, due to the fact that MOOCs in their current life cycle are viewed as supportive of existing taught programs. However, there are attempts to turn educational initiatives such as MOOCs into business cases and further development towards the market for career and professional development are being considered. Within these plans Schools recognise the need for the workload model and that proper awarded resourcing needs to be part of the model. Schools are starting to embrace the effect of new distance education developments with the introduction of steering groups. It is seen as an institutional responsibility, not an individual one.

The current model, outlined in Chapter 4, is too reliant on volunteers. The enthusiasm of these early adopters of mass education helped sustaining their activities despite aggressive timelines. The studied case suggests that a business model will need to emerge in order to at least cover the costs of these MOOCs, without discouraging their consumers or their providers. This might suggest keeping the core of MOOCs free and following one or more of the 'free' models outlined in the literature review. Research continues into the value completion in terms of credit, how MOOCs align with policies and regulations (Yuan and Powell, 2013), and notably into financing and revenue generation. Free models assume no survival without subsidisation, funding or other financing such as from advertising. The assumption for now is that such free models may need to become for fee and 'freemium' models where synergies are created by blending MOOCs, online and campus programs.

McAuley et al. (2010) in the “MOOC model for digital practice” highlights that finding a workable combination between over-instructing and failure to scaffold are challenges that MOOC facilitators must confront regularly in their social contract with participants. The complexities of participatory capital are a present reality in ICT. This also came up in interviews, discussed in Chapter 5, however the extent of the difficulty depended on the expertise of the provider in social networking.

The incentivisation of content providers is important for sustainability of University MOOCs as a non-profit project (see De Langen, 2011 and the discussion in Chapter 2). The literature states such incentivisation can involve layers of groups – Heads of Departments, Colleges and faculty members, while the level of complexity of this process depends on levels of engagement. However, diminishing enthusiasm and expectations are anticipated, as in many innovative practices, once participants become accustomed to it. The reliance on individual enthusiasm, personal interest and commitment is high, as in innovative education. For the University the task of encouraging academic teams to develop short online courses within a supportive environment means consideration of all-round facilitator needs and incentivising all sorts of people, which as the literature suggests can only be possible by meeting their institutional needs.

In the academic community the full spectrum of both critical and positive views shows plenty of trepidation and reluctance to embrace MOOCs caused by the uncertainty of the early stages of MOOCs. Although clearly the success of the first MOOCs is positively turning around attitudes, it may not be sustainable. The challenge for institutional leaders is to sustain interest in learning from what motivates current participants.

It was apparent that most motivations were altruistic, and as in any free economy, the population of positive reputational economies overgrew the need to make hard money. However it is unclear how much of this was correlated to the fact that most did not believe that MOOCs are set to make big money, or that they will increase their earning power. One professor stated that one day of consultancy would earn more than his MOOC ever could. As a counter-example, there was a member of staff for who rated the importance of a profit share from MOOCs as 8 out of 10. It could be concluded that many MOOC providers aren’t particularly interested in turning a profit for themselves, however they do not wish for others to make a profit from their work. Therefore, while

happy to provide a MOOC for free, they are not keen to provide a MOOC which makes a large profit and they receive no share or only a small share, such as their basic salary.

Although the majority of academic instructors are driven by enthusiasm and philanthropies, there was a growing concern regarding proper recognition of MOOC time and effort. Barriers to future MOOC development were researched, and a clear trend was noted as in the workload issue and conflict of MOOCs with other teaching and research activities. Interestingly, perception of the other barrier - the technical limitation of the Coursera platform - was varying widely from 'no problems' to 'massively limiting'. This however depended on the level of technical expertise in social networking platforms of MOOC instructors and thus level of expectations. This raises questions of future partnership and inter-dependencies between MOOCs and MOOCs platform providers, and further research is needed on what kind of partnerships within the business model creates best results.

An important consideration for sustainable practices is in MOOC instructor team selection intricacy. Research showed how much more difficult the process was for the team who was not completely committed to this project, and the amount of work invested from the management just to instil some level of understanding of the topic. There was a contrasting perception of participants even described as 'remarkably ignorant about the topic' and 'chaotic'.

Another great benefit of learning about this project is recognition of the content creation process. The truth was that one could not repurpose existing course material into anything like a MOOC, and purpose built materials had to be created from scratch. To accommodate such a time investment, institutional support is extremely important for academics with already fully-loaded timetables. A MOOC may require less time the second and subsequent years it is run and it is surely possible to repurpose the material created for the first year of a MOOC for its subsequent years. Although the instructors were really called upon to spend a lot of their academic time on running their MOOC, that time may be something of an investment as the MOOC can be re-run in subsequent years with little additional effort.

With a clear lack of criticism of MOOCs within the constraints of this research, the criticism appears to be pointing to the way MOOCs are implanted administratively rather than the concept or impact

itself. It seems that the University could be already losing good potential new MOOC instructors. As to the question of whether faculty will, with stature, confidence and teaching experience, go outside the institution to offer a MOOC, the current proposed financing models do not provide instructor compensation. Therefore more attention therefore needs to be paid to what teachers want, and what barriers there are to sustain their interest in developing MOOCs, once the University has set a target for the number of MOOCs they need, as in the short term the novelty of MOOCs itself in effect creates interest, in longer term more solid incentivisation might be needed. The conclusion is that organisations need to support an innovative pedagogy from within.

In the experimental phase of MOOCs during which this research was conducted, the model for MOOCs was, and still is, evolving quickly. Very little profit has been garnered from the provision of MOOCs, either from platform or content providers, whether institutional or private. The motivations in this early stage have been driven by a desire to innovate, experiment and not to be left behind. This has meant that MOOCs so far have provided substantial non-monetary value creation. However, it is unclear that such non-monetary value creation is sustainable in the long-term. For example, as MOOCs become more entrenched in higher education, the ability to innovate declines.

CHAPTER 7

CONCLUSIONS

The literature shows that the University courses have now reached the state of fungibility. The fungibility of University courses suggests that MOOCs might really shift the commoditised market of post-secondary education. Given such influence, it was important to study MOOCs at the nascent stage as first prototypes provide valuable knowledge about the people interested in teaching a MOOC and institutions facing the challenge of keeping up with mass education development.

The main purpose of this research was to generate new knowledge and explain a new phenomenon, while exploring sustainable practices within an institution offering such a phenomenon. Specific focus on course instructor stakeholder group pointed out potential problems when MOOCs are scaled and refinanced.

Some interesting results have emerged in the course of the research clearly indicating the most important needs of the instructors and the fact that the organisation currently fails to provide them in full. Instructors require resources, including their own time, in order to create quality content for MOOCs. That time requirement may or may not diminish in subsequent years as material created in the first year can be re-used, but activities such as the social networking side of running the MOOC cannot.

The running of the MOOCs was somewhat reliant upon the enthusiasm of the instructors. Diminishing enthusiasm in the future courses puts something of a potential cap on the number of MOOCs which could be run, although it is likely that that cap is higher than the cap imposed by the University in order to remain sustainable, if the University's predictions about their self-imposed cap are correct.

In terms of motivation, it was found that instructors do not appear to be highly motivated by monetary rewards. Another interesting result was that the presence of motivation by increased

reputation was to a degree linked to those instructors who already enjoyed relatively high levels of academic visibility and reputation.

Long-term sustainability relies on stakeholders perceiving a continuing value. As the initial-phase non-monetary values decrease, MOOCs will require a new business model which creates new value, which may be monetary or not. Rigid university systems may need to adapt to incorporate MOOCs as a part of a higher education programme of studies.

This research has confirmed that in their current life-cycle MOOCs are inherently free and universally accessible. However, this research has also clarified the weakness of the current business model, which is deemed unsustainable by the instructors and sustainable by the University only with a cap on the number of MOOCs run. While most stakeholders were ready to invest and work under the most aggressive time-scales, shifting their entire attention towards their MOOCs because of the heightened interest in the social and pedagogical experimentation, this would change with the change in perception of MOOC value.

7.1. Limitations

Although the naturalistic ontology approach was successful in allowing studying people behaviours in an innovative project, the key limitations are:

- The studied project was in its initial highly experimental phase which is difficult to generalise.
- Although the dissertation was focusing on the MOOC organisation and MOOC instructors only, the sample did not cover the full range of departments with varying interests.
- Face to face interviews were conducted while the courses were still running at a somewhat hectic time for participants, knowing how it could have affected the results in advance would have led to modification of the time of interviews, which this research was highly reliant on.
- The research was only carried out in one institution with a limited sample of detailed interviews. It would have been fascinating to explore conjectures between different institutions not only in the wider UK but also in the US and other places, given the cultural differences and differences in attitude to academic time.

- Knowing what is known now of priorities within MOOCs and OER, this project would have been approached initially with a different focus on how organisation and instructors can support each other within the existing adopted model for MOOCs with less of a financial focus.

CHAPTER 8

RECOMMENDATIONS

This chapter aims to provide clear recommendations on realistic problems that MOOC institutions and facilitators may have. The recommendations presented here result directly from the findings of this research presented in Chapter 5.

8.1. Recommendations for institutions

Within the constraints of traditional Universities and due to the nature of academic activities, committing heavily to a MOOC, despite the perceived pronounced benefits, may not be possible without some sort of timetable change. Given the perception of the MOOC as an academic time drain in terms of development, production, refinements and delivery load, the research based advice is for institutions facilitating or considering MOOCs to consider the following:

- Appropriate recognition of instructor effort
- Workload implications consideration
- Proper incentivisation capitalising on MOOC motives and benefits in accordance with the subject area.

The recommendation is therefore to adapt the existing conditions towards MOOC requirements, since the organisational nature as a whole is likely to remain broadly as is, and to incentify groups. In order to do that it is critical to recognise the cost-benefit process within academic teams and departments to ensure the benefits outweigh the costs.

Another important consideration for sustainable practices is in MOOC instructor team selection intricacy. Research showed how much more difficult the process was for the team who was not completely committed to this project, and the amount of work invested from the management just to instil some level of understanding of the project.

8.1.1. Attracting and keeping leading MOOC instructors

The nature of the concept assumes any individual academic can theoretically create a MOOC. While institutions can co-ordinate such projects, faculty who voluntarily share their product are the key force behind the project success. Wiley (2006) pointed out that when it comes to sustaining the OER initiatives, the central idea seems to be incentivising the participants, and clearly understanding the goals of such project. Currently there are real concerns amongst academic members who are giving a serious thought to providing their MOOCs in the future. If the University is planning a strategic integration of MOOCs or business case propositions, the structure has to be changed. Such adaptation could take the form of resource modeling, and new types of value rich business models.

Research activity is still considered the highest in value in academia. Research output is still the main determinant of career progression and academic success. Teaching is often perceived as a collateral non value-add activity and teaching a MOOC is likely to be considered in the same vein. Another incentive is an easy mechanism for creating content and putting it online, or at least getting sufficient support from media officers and MOOC platform support officers. Administrative hassle could not entertain a busy faculty member.

Ultimately what a potential MOOC instructor is looking for is:

- Structural modification in recognition of MOOC workload
- Easy, minimum hassle, content creation and upload process
- Tangible benefits of either student number increase or research publications promotion
- Ultimate workload reduction via integrating MOOCs with on-campus teaching

Otherwise instructors “would rather write research papers than get involved with a MOOC” (Faculty Member, Appendix 6.30.), and institutions need to take into account such statements.

A parallel can be drawn between the above and the factors suggested by Wiley (2006) that should increase an OER project’s chances of long-term survival, listed as simplifying the media format for

adaptation and re-use, enhancing IT support, and finding non-monetary incentives to engage faculty.

8.2. Learnings from the UoE

The positive drivers of these early examples may represent typical consequences for online learning developments, which makes it worth highlighting the measures that actually worked well at this first round initiative:

- Departments facilitating the MOOC academics were incentivised well with financial de-risking
- Quick action from the leaders spurring MOOCs
- Academics were well motivated and guided under relatively good conditions
- Vigilant strategic planning was in place and steering groups were initiated quickly
- MOOCs in UoE are not seen in isolation, but as one aspect of a radical new approach to learning
- The University understands the complexity of required resources and a viable business model search is on.

8.3. Recommendations for the UoE

Innovative initiatives are difficult to manage, as they usually entail a degree of technical, resources, market and organisational uncertainty. While this initial bout of enthusiasm, typical for positive disruptive innovation practices, may drive sustainability, one should be vigilant for resource modeling for future projects.

It is obvious from the results of this research that continuing with MOOCs in the long term is a complex issue that requires multi-level considerations in the area of institutional capabilities, financial leverage, needs of faculty and incentivisation methods. In UoE there is a danger of losing good potential academic instructors, as people simply would not be able to find time to create a

MOOC. Sending a call into the academic community might have worked in the first round, but is clearly not sustainable in the long term. There will be a heavy need for MOOC TA support to make the social element and course team feedback elements of the MOOC work at the scale of the number of participants involved, if the popularity of MOOCs grows.

8.4. Future research

This experimental stage cannot be entirely conclusive for future frameworks. A conceptual model should be developed, based on the conclusions of the value network models in other educational sectors before more definitive conclusions can be drawn.

There is a clear lack of systematic research in emerging MOOC models and detailed observation of real-world MOOC projects. The exploration of new phenomena in this observational and analytical way may help the researcher's need for better understanding, may test the feasibility of a more extensive study, or determine the best methods to be used in a subsequent study. It may also be of use to the management to aid development of future MOOC strategies.

In terms of the provider side, further research on sustainability and facilitator workload should be conducted to determine the cost and effectiveness of MOOCs across various institutions. This would help with finding ways of integrating and institutionalising MOOCs. Evaluation of internal processes and post-project, qualitative, critical reflection and quantitative research would be valuable for understanding institutional implications in running MOOCs.

A study of the second year and subsequent years of providing MOOCs in UoE is critical to the long-term understanding of the sustainability of MOOCs. It is essential to assess the change in time required for MOOC creation. Presumably, the time variations would be caused by the amount of material re-used and/or needing updating when courses are re-run.

More feasibility studies are required on how MOOCs can be integrated in universities on a sustainable, workable level, as a business case with clear outcomes and return on investment.

As for the wider community, further research into the consumer side of MOOCs is required as little is known about the student behaviour, student experiences and how MOOCs can be improved. Moreover, the true value of MOOCs for learners is still to be uncovered. The credibility of courses, and certificates, the contribution of MOOCs to the effect on general knowledge and welfare, the reasons for learners to use MOOC-materials and what are the results, the list is large. Just as online retail can generate vast amounts of data on consumer behaviour and benefit greatly from it, data-mining from MOOCs can paint a picture of what the behaviour of the 'learner of the future' may be like.

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APPENDICES

Appendix 1

UoE MOOCs Development Timeline

13 - 16/3/12	Principal visits California and meets various parties including Coursera
21/3/12	Initial agreement between the University of Edinburgh (UoE) and Coursera
21/3/12	Initial legal discussions begin between the UoE and Coursera's legal representatives.
21/3/12	UoE Governors agree a short-list of possible MOOCs
28/3/12	Principal raises MOOCs at the Academic Strategy Group
30/3/12	MOOCs support requirements are discussed
5/4/12	Accessibility issues in the contract are addressed
17/4/12	Initial planning of how to record videos - decision made to setup dedicated recording space.
26/4/12	Initial 4 MOOCs agreed (Education, Critical Thinking, Informatics, Astrobiology)
26/4/12	Media Producer Leader is established (specifying the new recording studio and recording the promo videos)
1/5/12	Philosophy team interested in developing a MOOC
2/5/12	Skype chat between Daphne Koller, Coursera, and the UoE MOOCs team and the course teams. This session was the first opportunity for everyone to ask how the MOOCs would work in practice.
7/6/12	Contract between UoE and Coursera is agreed.
7/6/12	UoE MOOCs team make first contact with the Coursera technical support team.
8/6/12	MOOCs Paper presented to Knowledge Strategy Committee (KSC)
12/6/12	First MOOCs team meeting.

13/6/12	The MOOCs course teams begin to debate the Course Development Agreement, Monetisation Options and Instructor Agreement.
15/6/12	MOOCs course teams start developing their landing page that will be available from the Coursera website.
25/6/12	Daphne Koller gives a seminar at the UoE. This generates a lot of interest and the event attracts approx. 100 people.
26/6/12	Equine Nutrition MOOC agreed.
28/6/12	Contract between UoE and Coursera is signed by The Principal and Daphne Koller.
4/7/12	UoE MOOCs website is agreed (www.ed.ac.uk/moocs)
16/7/12	Press launch for the new Coursera partners, which includes the UoE.
16/7/12	Next few weeks are filled with various press interviews.
18/7/12	9,000 students are signed up for the six UoE MOOCs.
19/7/12	MOOCs course teams are asked to define who will tutor their MOOC and how much time this will take.
23/7/12	32,000 students are signed up for the six UoE MOOCs.
25/7/12	MOOCs teams given access to their class pages on the Course website.
31/7/12	Initial discussions between Coursera and UoE regarding Course Development Agreement (including course duration, income split)
3/8/12	Discussions begin regarding the certificates that will be available for UoE MOOCs.
8/8/12	E-learning and Digital Cultures MOOC team author an article on the pedagogical challenges of developing a MOOC.
12/8/12	MOOCs team meeting.
13/8/12	Amended text in the Course Development Agreement agreed; this text pertains to the University having main responsibility for providing necessary accommodations.

3/9/12	90,000 students signed up for the six UoE MOOCs.
12/9/12	MOOCs team meeting.
1/10/12	Coursera discuss potential content licensing of one MOOC with UoE.
8/10/12	Paper presented to Principal's Strategy Group (PSG). The group were very supportive of the initiative.
9/10/12	MOOCs team meeting.
October–November	Teams are recording their content. A recording studio is set up. Video recording/ preparation of lecture material for the first 6 Coursera courses is taking place.
2 weeks before 18/01/13	Lecture content upload: videos, powerpoint presentations, video scripts or transcripts, reading materials and additional content links uploaded and published to the Coursera platform.
28/01/13	Edinburgh MOOC sites officially go live (with teaching content) on Monday 28th January at midday (GMT)

Adapted from the document created by MOOC @ Edinburgh group.

Appendix 2

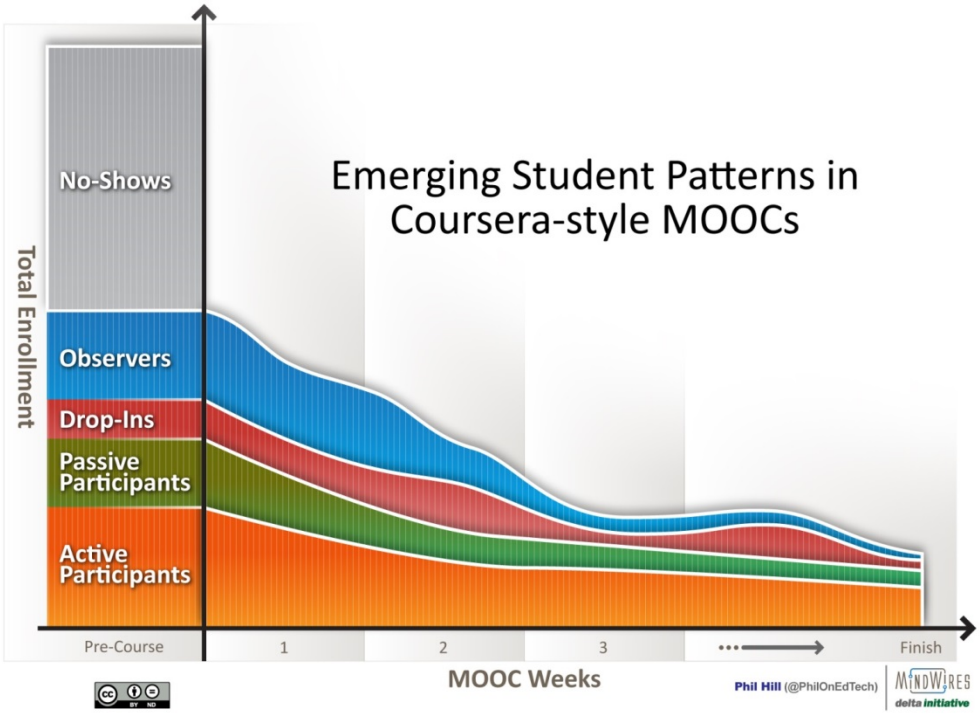
Round 1 MOOCs Expenditure

Costs of 6 MOOCs:

Category	Total Spend
Staff	46,235
Video Costs	44,326
Equipment	25,122
Teaching Assistants	19,565
Misc: media/press costs, travel expenses and management time costs	114,752
TOTAL	**250,000**

Appendix 3

Graphical depiction of low completion rates in comparison to initial enrolment numbers.



Source: Hill, P. (2013). Emerging Student Patterns in MOOCs: A (Revised) Graphical View, http://mfeldstein.com/emerging-student-patterns-in-moocs-a-revised-graphical-view/, accessed on 04/04/13.

Appendix 4

4.1. Key facts about Coursera

- Coursera's enrolment counter passed 3.7 million in June 2013.
- High-profile University partners
- A mixture of scientific/quantitative and humanities subjects
- Current completion rates for Coursera MOOCs is about 10% (Winter 2013)
- Coursera provides a core template for all courses, with flexibility of additional channels and functionalities for specific courses
- Value-add services include learning design and faculty development work
- A commercial company, funded by Venture Capitalists with $22m in funding (August 2012) and is following the Google and Facebook model - offering a service free to users, with the aim of developing revenue streams from large numbers of visitors.
- There are several proposed monetisation options with the focus on completion certificates for learners (~100 USD)
- Strategic aim of scaling, growing and multiplying university partners of the right calibre while continuing building up the platform and improving functionality.

4.2. Possible Company Monetisation Strategies of Coursera

Eight potential business models (Daniel, 2013):

- Certification (students pay for a badge or certificate)
- Secure assessments (students pay to have their examinations invigilated (proctored))
- Employee recruitment (companies pay for access to student performance records)
- Applicant screening (employers/universities pay for access to records to screen applicants)
- Human tutoring or assignment marking (for which students pay)
- Selling the MOOC platform to enterprises to use in their own training courses
- Sponsorships (3rd party sponsors of courses)
- Tuition fees.

Appendix 5

Table 3. Instructor motives for engaging with MOOCs and benefits from such.

Response	Interviewee
"To give opportunity to some people to have access to high quality Higher Education for free."	MOOC Instructor, Appendix 6.35.
"Knowledge transfer", "outreach", "getting the technology known".	MOOC Instructor, Appendix 6.2.
"It's fun to do."	MOOC Potential Instructor, Appendix 6.31.
"Helping the students to decide what they want to study".	MOOC Instructor, Appendix 6.3.
"I like trying new things, it's a new way of teaching and learning and different from traditional on campus course. I was interested to find out how it could work, and again because I do believe that Higher Education should be free for everyone."	MOOC Instructor, Appendix 6.4.
"MOOC provides a valuable recruitment tool, gives a flavour of the department, lowering access barrier, MOOC compliments not replaces traditional campus based education."	MOOC School Manager, Appendix 6.32.
"Recruitment - all the students who sign up for this course might think Edinburgh is a great place to come and study and might consider philosophy courses. We could increase our UG intake by this."	MOOC Academic Manager, Appendix 6.33.
"Would help with developing a PG e-learning program. Start with something more modest, more measurable. We thought we'd set this up as a trial to see how it would pan out before we embark on a bigger, more ambitious, risky task."	MOOC Academic Manager, Appendix 6.34.
"Somebody sooner or later would do a MOOC in this subject and I think I would benefit from being first, plus it's better to be me, as there are a lot of uncertainties in the field of software modeling and I understand them better."	MOOC Potential Instructor, Appendix 6.5.

“The broad range of industries that people discuss on the forum is a good indication of success. Relevance to other areas, seeking solutions of new problems emerging in the discussion, that’s exactly what we wanted.”	MOOC Instructor, Appendix 6.6.

Appendix 6

Finding interview quotations

Appendix 6.1: Interview 2, 45:05 – 45:07.

Appendix 6.2: Interview 2, 13:24 – 13:28.

Appendix 6.3: Interview 5, 12:51 – 12.54.

Appendix 6.4: Interview 4, 02:25 – 02:35.

Appendix 6.5: Interview 6, no recording was allowed.

Appendix 6.6: Interview 2, 12:39 – 12:45.

Appendix 6.7: E-mail correspondence, 10/02/13.

Appendix 6.8: Interview 5, 05:05 – 05:08.

Appendix 6.9: Interview 5, 05:50 – 06:20.

Appendix 6.10: Interview 5, 35:17 – 36:02.

Appendix 6.11: Interview 3, 08:02 – 08:19.

Appendix 6.12: Written document, the Briefing for the First Minister of Scotland "Why did the University decide to develop these courses?" (2012) by UoE Knowledge Management group.

Appendix 6.13: Interview 5, 09:40 – 10:02.

Appendix 6.14: Interview 5, 10:30 – 10:38.

Appendix 6.15: Personal conversation, 01/04/13.

Appendix 6.16: Interview 5, 09:05 – 09:08

Appendix 6.17: Interview 5, 47:34 – 48:10

Appendix 6.18: Interview 5, 34:02 – 34:05

Appendix 6.19: Interview 3, 07:50 – 07:59

Appendix 6.20: Personal conversation, 15/01/13.

Appendix 6.21: Interview 4, 55:27 – 56:47.

Appendix 6.22: Interview 2, 45:22 – 45:25.

Appendix 6.23: Interview 2, 27:58 – 28:00.

Appendix 6.24: Interview 4, 12:09 – 12:11.

Appendix 6.25: Interview 2, 34:15 – 34:25.

Appendix 6.26: Interview 6, no recording was allowed.

Appendix 6.27: Interview 6, no recording was allowed.

Appendix 6.28: Interview 1, 08:58 – 09:05.

Appendix 6.29: Interview 6, no recording was allowed.

Appendix 6.30: Personal conversation, 20/05/13.

Appendix 6.31: Interview 6, no recording was allowed.

Appendix 6.32: Interview 1, 21:20 – 21: 34.

Appendix 6.33: Interview 3, 05: 48 – 05:55.

Appendix 6.34: Interview 3, 06:19 – 06:39.

Appendix 6.35: Interview 4, 01:06 – 01:17.

Appendix 6.36: Interview 4, 25:50 – 26:08.

Please note, one of the interviews was not recorded due to a request from interviewee, and one was only partially recorded. Full recordings of transcripts may be available by request to author.