Chapter 1
The Many Guises of MOOCs

Abstract Massive open online courses (MOOCs) often are viewed as synonymous with innovation and openness. In this chapter, we trace their origins and varied manifestations and the ways they are understood. We interrogate the wide-ranging uses and interpretations of the terms massive, open and course, and how these terms are represented in different types of MOOCs. We then identify contradictions associated with MOOC excitement. Despite the initial agenda of MOOCs to open up access to education, it is seen that they tend to attract people with university education. Rather than offering scaffolds that support people who are not able to act as autonomous learners, MOOCs often are designed to be used by people who are already able to learn. Like traditional education systems, MOOCs usually require learners to conform to expected norms, rather than freeing learners to chart their own pathways. These norms sustain the traditional hierarchy between the expert teacher and novice learner (Ross et al. 2014). A particularly troubling feature of MOOCs is that, as supports are becoming automated and technology-based, this power structure is becoming less visible, since it is embedded within the algorithms and analytics that underpin MOOCs.

1.1 Introducing MOOCs

For many readers, MOOCs—massive, open, online courses—need no introduction. The term is generally associated with innovation, openness and democratisation of learning. The term 'MOOC' was first coined in 2008 when it was used to describe the 'Connectivism and Connective Knowledge (CCK08)' course offered by the University of Manitoba in Canada, which attracted over 2200 participants globally (Mackness et al. 2010). The term had entered common parlance by 2012. Indeed, such was the hype around MOOCs that The New York Times pronounced 2012 as 'The Year of the MOOC'.

The excitement surrounding MOOCs is in their potential to open up access to education and allow millions of people around the world to engage in learning. The original idea was that learners could choose how they want to learn and decide their own learning outcomes. Learning is scaffolded by experts, by fellow MOOC learners,

A. Littlejohn and N. Hood, *Reconceptualising Learning in the Digital Age*,
SpringerBriefs in Open and Distance Education,
https://doi.org/10.1007/978-981-10-8893-3_1

by digital content and analytics-based systems, blurring the distinction between the teacher and the learner and between the human and technology-based supports.

MOOCs have become an industry in their own right. Organisations have been founded to offer MOOCs to millions of learners worldwide. ClassCentral,[1] a website aggregating data and information on MOOCs, listed 30 MOOC providers in 2017. These providers partner with over 700 universities around the world to offer MOOCs. It is estimated that around 58 million students had signed up for at least one MOOC by the end of 2016, with 23 million registering in an MOOC for the first time that year (Shah 2016). It is important to note here that these colossal numbers do not support any specific understanding about the outcomes of these people who signed up for these MOOCs. There is no discussion as to whether the 23 million refers to discrete individuals or 1 million individuals each signing up for 23 MOOCs. Nor is there evidence around how many of the people who enrolled actually participated or learned in each MOOC. Yet, even around 2008–2012, when the evidence of whether and how participants learn in an MOOC was limited, there was large-scale investment in platform and course development.

Despite the phenomenal growth in MOOC numbers and participants, MOOCs are somewhat inconsistent in how they are defined and changeable in the ways they are realised, as will become clear over the course of this book. Over the past 6 years, their purpose, forms and modes of operation have shifted to the extent that the suitability of the acronym is now questionable.

The intention of this book is to examine claims that MOOCs have a disruptive and democratising influence over higher education. However, the effects of MOOCs on education are not as straightforward as they might seem at first glance. An analysis of the literature points to a number of tensions that characterise MOOCs. First, they appear to advantage the [learning] elite, rather than acting as an equaliser. Second, they tend to reproduce traditional formal education, rather than disrupt these. Third, they often are designed for those who can learn, rather than opening access for those who cannot. Fourth, even when learners have the ability to learn autonomously, they often are expected to conform to course norms, rather than determining their own learning strategies and pathways. Fifth, MOOCs are conceived as social networks that allow learners to learn through dialogue with others. MOOCs also tend to be regulated by algorithms and metrics that are based on conventional education, rather than on future-facing forms of learning and these may not be appropriate for open, distance education. Finally, the view of MOOCs as a product for the consumer learner may overly simplify the complex, transformational processes that underscore learning. Over the next five chapters, we describe these tensions and their impact on education. These tensions also underpin in countless areas of open, online learning, so the analysis in this book is applicable to a much wider context of open, online learning than MOOCs. Many of the issues raised in this book are not restricted to MOOCS and have much wider applicability.

We begin with an overview of the rudimentary precepts that define MOOCs and to examine their historical origins in distance learning initiatives and more recently online learning.

[1] ClassCentral https://www.class-central.com/.

1.2 MOOC Dimensions

The words that make up the acronym MOOC highlight the fundamental, or at least initially intended, dimensions of an MOOC; that is, they are online courses that facilitate open access to learning at scale (McAuley et al. 2010). MOOCs, at least theoretically, allow anyone with a device and Internet connection, no matter his or her background, prior experience or current context, to access learning opportunities free of charge. The learning experience of an MOOC is designed to provide learners with the flexibility and freedom to chart their own learning journey and to engage in ways that best enable them to reach their personally determined goals. However, the interpretation and employment of the four dimensions of the acronym are not consistent, resulting in considerable variation in purpose, design, learning opportunities and access among different MOOC providers and individual MOOCs. Indeed, their variable employment is influenced and shaped by the different forces and contexts that are shaping MOOCs and changing paradigms and approaches in education in learning. A theme that will be returned to in this chapter and throughout the book.

MOOCs are diversifying. There is increasing diversity both in the variation of MOOC platforms and in the types of learning opportunities on offer (Anderson 2013). The original MOOCs were developed by educationalists using rudimentary tools and platforms (Milligan et al. 2013). These MOOCs were funded through small-scale projects and often staffed by educators volunteering their time and labour. The leap from informal business arrangements to larger scale commercial enterprises took place around 2011–12 when three US-based platform providers opened up: Udacity (www.udacity.com), formed as a for-profit educational organisation, Coursera (www.coursera.com), a spin-out from Stanford University and edX, funded by Harvard University and Massachusetts Institute of Technology (MIT). The UK Government, keen to be seen at the forefront of online learning innovation, founded FutureLearn (www.futureLearn.com) in December 2012, as a for-profit company wholly owned by The Open University.

Since these early platforms were introduced, a variety of online learning providers have turned their attention to MOOCs as the 'next big thing', offering opportunity for pioneering ventures, including the Europe-based Iversity (*iversity*.org) and Australasian platforms Open2Study and OpenLearning. Non-Western MOOC providers are growing in dominance, with the China-based XuetangX (www.xuetangx.com/global) now the third largest MOOC provider by registered users.

MOOCs are viewed as a blossoming industry. However, despite the millions of learners participating, it has been challenging to identify robust business models to fund MOOCs, particularly when courses are offered free of charge to learners. An early commercial model was based around partnerships with universities and other organisations providing course materials and funding MOOC platform providers to run each MOOC. However, this is expensive for universities and the return on investment is difficult to calculate. Therefore, after an initial rush to be seen to be producing and running MOOCs, some universities began to scale back their investment, possibly because of the limited evidence of return on investment.

New commercial models have been introduced. An increasing number of MOOCs now have credentials and certification as a way to generate income. MOOC learners learn for free but pay a premium for a course certificate. The US MOOC provider Coursera is a leader in this form of income generation. Coursera introduced a 'Signature Track' in 2013, where learners who completed a course were offered an assessment and the possibility of a course certificate for a fee of $49 (USD). It has been estimated that the introduction of certificates generated $8–$12 million in revenue for Coursera in 2014 (Shah 2014), though these figures are difficult to verify. Coursera[2] has since expanded this model as 'Specialisations', a sequence of four to six MOOCs linked by a project or series of tasks that learners must complete in order to earn a certificate. The fee for the certificate ranges from $300 to $600 (USD), depending on the number and cost of the constituent courses, generating the potential for significant revenue.

US-based MOOC provider, Udacity uses a different model. Udacity offers fee-based Nanodegrees, which in 2017 cost $200 per month over 10 months, with a total cost to each learner of $2000 (USD). Udacity also offers college credit and degree programmes. For example, a Masters in Computer Science is offered online through a partnership with Georgia Tech. In 2017, 4000 students were enrolled in the Masters course. Partnerships with universities offer platform providers opportunity to introduce diverse ways to offer course credit, for example through formal accreditation or micro-credentialing.

These examples illustrate how the economic pressures around who funds MOOCs and how these are funded are pushing MOOC designs from their original position of being open access and free of charge towards for-fee, closed, online courses that mimic distance education courses offered by universities. Coursera, edX, Udacity and FutureLearn all now offer courses that are only available to those who pay, challenging notions that 'openness' means 'no cost' and 'access for all'. The platform providers argue that some courses provide a less expensive and more flexible alternative to participating in campus-based degree courses. For example, from 2017, FutureLearn and Deakin University offer full MOOC-based degree courses at a much lower cost compared with studying full-time at Deakin.

Some MOOC platform providers are expanding their business by focusing on the lucrative professional learning and business-to-business market, which has seen MOOC providers partner with companies to create specific courses for their employees. The professional learning area offers the potential for new business streams. For example, Coursera is experimenting with a revenue-generating recruiting service which uses data analytics to connect students with 'positions that match their skills and interests'. Companies are charged a fee for an 'introduction' to a student and the revenue is shared with the university offering the course. The MOOC platform providers are likely to experiment with these and other analytics-based forms of revenue generation to sustain their business.

[2]How does Coursera Make Money. Blogpost available from: https://www.edsurge.com/news/2014-10-15-how-does-coursera-make-money.

The practical reality of business models, and the balancing act between costs and benefits that educational institutions have to perform to ensure MOOC sustainability creates tension with the need to open up education to a larger number of learners who need to learn continually throughout their lives. On the one hand, content and accreditation increasingly are viewed by institutions as products that can be sold to student consumers. Course products can be developed, offered and sold in an accountable way. On the other hand, opening up learning requires MOOC participants to behave as active learners. Making sure everyone is able to learn and measuring whether they can is more difficult than simply selling products. Both these positions are viewed as transformative, yet each requires a distinct plan of action. The simplicity of creating and delivering course materials can be more alluring than the complex process of making sure everyone can learn autonomously. There is a danger in overly simplifying how we comprehend and measure 'learning', particularly if swathes of the population are unable to take advantage of the new opportunities for learning that MOOCs offer. However, education sectors have in the past focused effort on advancing those who are already advantaged and MOOCs are rooted in the heritage of education.

1.3 The Origins of MOOCs

MOOCs frequently are positioned as newcomers to, and potential game-changers in, the education world. However, their origins may be traced back over one hundred years to early distance learning enterprises, and more recently to the open education initiatives which arose in the early 2000s. MOOCs have been positioned as hybrids of previous attempts at online distance education, combining early approaches to online distance learning with the scale and potential of open courseware and OER (Gillani and Eynon 2014).

In many ways, MOOCs represent a fresh incarnation of distance learning, which originated in the nineteenth century as correspondence courses using the postal system, and later utilised radio and television broadcasts, and more recently online learning. The first recorded instance of distance learning comes from Boston in 1728, when Caleb Phillips advertised private correspondence courses in the *Boston Gazette*. Correspondence education then expanded extensively throughout the nineteenth century.

The University of London became the first university to offer distance learning degrees in 1858, with several other universities, including the Universities of Oxford and Cambridge in the United Kingdom and Illinois, Wesleyan University and the University of Chicago, offering various extension services in the second half of the nineteenth century. In 1969, the Open University, UK, became the first institution to deliver only distance learning—a model that soon spread to other countries, including Canada, Spain, Germany and Hong Kong. The Open University also pioneered admission without qualifications and the concept of degrees awarded through modular coursework. Students at the Open University engaged with a range of learn-

ing media, including specially produced textbooks, radio and later TV programmes broadcast by the British Broadcasting Corporation (BBC), videotapes and in-time computer-based learning.

The advent of the Internet enabled the development of new mechanisms for the dissemination and transmission of content, as well as new open education opportunities, such as open courseware, and open educational resources (OER). In 2001, MIT launched MIT OpenCourseWare, an initiative to put all its educational materials from its undergraduate and postgraduate courses online, allowing anyone to access and use the materials free of charge. OER similarly respond to notions of expiating access to educational resources and knowledge. OER may be conceptualised as:

> Digitised materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research. OER includes learning content, software tools to develop, use, and distribute content, and implementation resources such as open licences. (OECD 2007, p. 10)

The Cape Town Open Education Declaration (2008, available from http://www.capetowndeclaration.org), a founding document of the OER movement, suggests that open education has the potential to 'empower educators to benefit from the best ideas of their colleagues' and to adopt 'new approaches to assessment, accreditation and collaborative learning'. While OER aim to open up access to information and knowledge, a key criticism is that these resources tend to retain the idea of disseminating and broadcasting information as text or video-based resources, rather than drawing on the affordances of the Internet to support learning through active collaboration and knowledge building. This tendency to view educational resources as information to be broadcast has expanded into MOOCs.

MOOCs have the potential to combine notions of distance learning initiatives with open education opportunities, utilising the affordances of the Internet and digital technologies to provide learning opportunities that are open to all, free of charge and regardless of prior experiences and current context. As such, they represent a continuation and combining of existing trends and practices in education. However, the binary view of an MOOC, first as a set of content resources disseminated via the Internet and, second, as an online space for learners to interact as they create knowledge, makes it difficult to conceptualise what it means to be an MOOC.

1.4 Conceptualising What It Means to Be MOOC

The term MOOC is increasingly employed as a catchall phrase to denote a wide range of online learning opportunities. The combinations of technology, pedagogical frameworks and instructional designs vary considerably between individual MOOCs, making it challenging to conceptualise exactly what is meant by the term. Early MOOCs tended, with varying degrees of success, to reproduce offline models of teaching and learning, focusing on the organisation, presentation and dissemination of course material, while drawing on the Internet to open up these opportunities

to a wider audience (Margaryan et al. 2015). This model imitates earlier forms of distance learning, where text-based or video-based course materials were distributed to students using postal services. The idea here is that 'learning' (as a noun) comprises materials that can be 'delivered' to students. Other models position 'learning' as a verb. These models utilise the opportunities presented by the Internet and digital technologies and combine these with new pedagogical approaches and the flexibility of OER to design learning experiences where students actively engage in learning activities. What is clear is that there is no single model for MOOC designs.

There have been numerous attempts to develop typologies of MOOCs (Department for Business, Innovation and Skills 2013), and it increasingly is recognised that any attempt at categorisation must embrace multiplicity, acknowledging the diversity and often nuanced distinctions that can be made between MOOC designs, purposes, pedagogical approaches and learners. There have been calls to abandon the MOOC acronym altogether in favour of new titles, which more accurately capture the particular design and purposes of specific courses (Bayne and Ross 2014). MOOCs have been described using a variety of different terms, including 'DOCCs: Distributed Open Collaborative Course' (Jaschik 2013), 'POOCs: Participatory Open Online Course' (Daniel 2012) and 'BOOCS: Big (or Boutique) Open Online Course' (Hickey 2013; Tattersall 2013). MOOCs are not always open and are sometimes available as 'SPOCs: Small Private Online Course' (Hashmi 2013) which may be closed courses available for specific clients, such as corporate training for companies,

In other words, the term 'MOOC' is used to describe a wide range of different types of online learning. The diversity of structure, purpose and designs of MOOCs makes the term of limited use in indicating the educational and learning experiences that MOOCs offer. As will be explored throughout this book, the specific nature and composition of individual MOOCs are profoundly shaped and ultimately the product of their platform and platform provider, designers and instructors, and the participants, who each bring their own frames of reference and contextual frameworks. Furthermore, many of the ideas raised throughout this book in relation to learning, the roles of learners and those responsible for designing and offering the learning, and the structures governing MOOCs are relevant not just to MOOCs but also to online education more generally.

While the concepts and discussion may broadly be relevant to many forms of online education and learning, given that MOOCs serve as the case study for exploring the concepts in this book, it is necessary to explore in greater detail the complexities and variations in design and purpose in MOOCs. The following section will unpack the ways in which the four dimensions of an MOOC—massive, open, online and course—have been variously interpreted and implemented as well as the various theoretical conceptions of MOOCs and how these shape perceptions of their role, the nature of learning and the agency afforded to the different players within them—learners, teachers or instructors, institutional providers, instructional designers and the platforms themselves.

1.5 Shifting Meanings: What Do Massive, Open, Online and Course Really Mean?

While the four words that make up the acronym MOOC collectively work to enhance a democratising agenda, their meanings have become increasingly varied and in certain cases distorted from their original intentions.

1.6 Massive

Massive typically is used in the context of MOOCs to reference the large number of users who can participate in an MOOC. Early discussions of MOOCs focused on the hundreds of thousands of learners signing up for a single MOOC. In this sense, it is closely connected to notions of 'open' and the potential for anyone to access learning opportunities.

The use of the term massive, and the extent to which it accurately represents the reality of MOOCs, has been challenged on a number of grounds. Perhaps most obviously, critics have challenged notions of massive given estimates that fewer than 10% of learners complete a course (Jordan 2015). This suggests that while MOOCs can accommodate large numbers of learners, they have not yet managed to provide consistently high-quality learning opportunities at this scale. Furthermore, the predominance of well-educated, males studying in MOOCs (Zhenghao et al. 2015) has led to questioning around the ability of MOOCs to provide learning opportunities to diverse participants or to truly open up access to education opportunities.

The large number of learners signing up for MOOCs prompts the questions: What does it mean to provide learning on a mass scale? And which pedagogies are effectively able to scale? (Downes 2013; Grover et al. 2013). Ferguson and Sharples (2014, p. 98) suggest that to date 'learning through mass public media is limited in its effectiveness, and successful large-scale online education is expensive to produce and deliver'. Establishing reliably sound pedagogical and instructional design models for disseminating and facilitating learning opportunities at scale to potentially diverse audiences remain elusive. Downes (2013) suggests that consideration must be given not only to the question of content dissemination but also to support meaningful interactions between learners.

Before the advent of MOOCs, Tyler (1993) warned that content 'delivery' cannot exist in isolation from the activities that students engage within in order to learn. Thus, the value of content is related only to the use and interpretation of content in specific contexts. Selwyn (2016) has expanded on Tyler's thesis to suggest that the mass customisation of learning through large, digital systems has led to the primary concern of how to deliver predetermined content to students, with often little 'regard to individuals' relationships with others, and 'the social and political contexts in which they learn and act' (p. 146). That is, MOOCs inadvertently have led to a

dehumanisation of teaching and learning and that their success is reliant on finding a way to incorporate and ensure the human element.

This dehumanisation of the learning experience runs counter to the notion of the learner at the centre and the learner determining what and how best they learn. Research has consistently identified solely online learning to be less effective than either blended or offline equivalents (Bettinger and Loeb 2017; Couch et al. 2014; Figlio et al. 2013; Xu and Jaggers 2014). As Dillenbourg et al. (2013) have argued 'massive scale can sometimes be best achieved by aggregating a massive number of small learning cohorts, again highlighting the importance of small group dynamics and the importance of scale-down'. Similarly, the founder of Khan Academy (khanacademy.org), an online learning platform which provides access to videos and mastery-based, sequential learning activities (arguably not an MOOC but certainly fulfilling the criteria for massive, open and online), Sal Khan, argues that the power of the model he has created is not in the online provision of content but rather in the shift in offline pedagogy that the online content provides. That is, having access to high-quality online content and structured learning activities allows teachers to develop more innovative, active, personalised and community-oriented learning activities in the physical classroom setting.

Despite the instructional design and pedagogical challenges associated with online learning at a massive scale, the massive reach of MOOCs does represent a significant opportunity in education. Social interaction is a critical component of learning, but becomes problematic when massive numbers of learners outstrip the numbers tutors. Learners are unlikely to receive tutor feedback; however, Ferguson and Sharples (2014) suggest that, at their best, MOOCs offer learners access to support from a wide range of other learners and facilitate the development of culturally diverse perspectives. The importance of the social aspects of learning and the ability of MOOCs to facilitate this have led to a social learning movement, which lobbies for MOOCs to be designed around social interactions.

1.7 Open

Open education is not a new phenomenon. It first was associated with open universities worldwide and more recently with the broader open movement in education, which among other dimensions incorporates Open Educational Resources (OER) and Open CourseWare (OCW). These are resources freely available to everyone with Internet access, which is an important proposition for many people worldwide. Only 6.7% of the world's 7.4 billion people hold a college or university degree (Barro and Lee 2010). Therefore, OCW, OER, MOOCs and whatever form they may evolve into are important, particularly in developing countries where participation in higher education is low.

'Open' has multiple meanings in relation to MOOCs. It may refer to access; anyone, no matter his or her background, prior experience or current context may enrol in an MOOC (McAuley et al. 2010). Open can also refer to cost; that is, in theory,

MOOCs are available free of charge. Free education was a principle that underpinned the development of the MOOC concept, though in practice many MOOCs are not free of charge (Fischer et al. 2014). The third meaning of open relates to the open nature of knowledge acquisition in an MOOC, including the employment of open educational resources (OER) or Open CourseWare (OCW) which is available under a Creative Commons licence that allows various levels of use (Caswell et al. 2008). The fourth meaning is around knowledge production and the opportunity for the remixing and reuse of resources developed during an MOOC by the instructors and by the learners themselves to create new knowledge (Milligan et al. 2013).

It has been argued that with the rising cost of higher education, the increasing demand for access to higher education and the growing need for people to engage in learning throughout their lives in order to update their knowledge and skills, open education provides a means for reducing economic, geographic and social barriers to participation. In this context, Wilton and Hilton (2009) position openness as a 'prerequisite to changes institutions of higher education need to make in order to remain relevant to the society in which they exist'.

The original notions of openness in MOOCs, where education is free of charge and courses are open to anyone, are being challenged. MOOCs are not always free of charge. MOOC providers have been experimenting with a variety of business models and pricing plans for MOOCs. These include paying for certification, to sit a proctored exam, to receive course credit or to work towards a degree. Providers have recognised the potential of appealing to the lucrative employment market and the willingness of individuals to pay for learning opportunities that lead to greater employability. For example, as mentioned earlier, while MOOC platform providers continue to make most courses and materials available for free, learners may pay for specific services such as certification or closed MOOC-based degree courses. So MOOCs are not always open to anyone. Coursera has found that when money changes hands, completion rate rises sixfold, from approximately 10 to 60% (Onah et al. 2014). It further is not simply the cost that is potentially restricting access but also the time it takes to engage in learning activities.

The current open access model, which allows anyone to enrol in an MOOC, is also being challenged by research showing that not all learners have the necessary autonomy, dispositions or skills to engage fully in an MOOC (Milligan et al. 2013). While notions of the empowered individual and of learner-centred engagement provide alluring visions of what a utopian education system could be, the reality is more complicated. As will be explored in more detail in Chaps. 2 and 3, many learners do not have the extant capability to navigate the informal, largely self-directed nature of learning in MOOCs and the lack of support and interpersonal connections. Increasingly questions are being asked about the balance between effectiveness and openness in MOOCs, questions that will be returned to in chap. 4.

1.8 Online

The online aspect of MOOCs is gradually being blurred, as MOOCs are being used in conjunction with or to supplement in-person school and university classes (Bates 2014; Bruff et al. 2013; Caulfield et al. 2013; Firmin et al. 2014; Holotescu et al. 2014), expanding their scope to include blended learning contexts. In a review of the evidence surrounding the integration of MOOCs into offline learning contexts, Israel (2015) determined that while the blended approach leads to comparable achievement outcomes to traditional classroom settings, their use tended to be associated with lower levels of learner satisfaction. Downes (2013) suggests that for an online course to qualify as an MOOC no required element of the course should have to take place in a specific physical location.

While the online nature of learning in MOOCs is pivotal to their ability to open up learning to ever greater numbers of learners, there are also payoffs, which are often downplayed or disregarded. Selwyn (2016, p. 30) asks the following questions of digital technology:

> Just why should digital education be any more successful in overcoming educational inequality and disadvantage than previous interventions and reforms? Why should the latest digital education be capable of overcoming entrenched patterns of disparity and disadvantage? What is it that makes people believe that digital education will be different?

Selwyn goes on to suggest that there is a:

> Notable dehumanization of the acts of learning and teaching that might be associated with digital education …. current arrangements of digital education often have little to say with regard to individuals' relationships with others, and the social and political contexts in which they learn and act. There is clearly a need to bring the human element of education into technology. (Selwyn 2016, p. 146)

Too often MOOCs are positioned as an autonomous, decontextualised learning activity with little or no connection to the everyday lives and contexts of the learners. However, as will be explored in Chap. 2, the learners' offline context is pivotal to their engagement in and ultimate experience of any online learning activity.

1.9 Course

Downes (2013) suggests three criteria that must be met for an MOOC to be categorised as a course: (1) it is bounded by a start and end date; (2) it is cohered by a common theme or discourse; and (3) it is a progression of ordered events. While MOOCs typically are bounded, this may manifest in different ways. MOOCs initially started as structured courses, designed to parallel in-person, formal learning, such as university classes, with start and end dates. However, an increasing number of MOOCs are not constrained by specific start or end dates (Shah 2015), facilitating a more flexible, self-paced model, which enables learners to complete a course at

their own pace. The length of courses also varies, with some constructed as a series of shorter modules, which may be taken independently or added together to form a longer learning experience.

The structure and degree of conformity in patterns of engagement vary substantially among MOOCs. Conole (2013) suggests that participation can range from completely informal, with learners having the autonomy and flexibility to determine and chart their own learning journey, to engagement in a formal course, which operates in a similar manner to offline formal education. Reich (2013) has questioned whether an MOOC is a textbook (a transmitter of static content) or a course because of the conflicts that exist around confined timing and structured versus self-directed learning, the tension between skills-based or content-based objectives, and whether certification is included (or indeed achieved by learners).

Rather than focusing on issues of structured versus unstructured and informal versus formal learning, Siemens (2012) argues that the real tension in how MOOCs are conceived is between the transmission model and the construction model of knowledge and learning. Siemens suggests that rather than being viewed as a course, MOOCs should be conceptualised as a platform on which individual learners construct and ultimately define their own learning.

These different conceptions of each of the terms, massive, open, online and course, reflect the different ideologies and perspectives that drive the expansion of MOOCs. The next section examines various ways these different perspectives have been considered.

1.10 MOOC Ideologies

Various MOOC ideologies can be seen in action, when looking at different MOOC designs, learning activities and formats. Numerous typologies have been developed in the literature, as an attempt to classify these different perspectives (Fig. 1.1). These typologies represent an attempt to capture and classify the manner and presentation of MOOCs.

MOOCs represent a multiplicity of perspectives and plurality of approaches, which means that their value is not always transparent. Examples of these different types of MOOCs are described below.

The early MOOC developers, particularly those who were not experienced in designing for distance learning, designed MOOCs by replicating classroom-based learning. These MOOCs were typified as ‘xMOOCs’, differentiating them from the earlier ‘cMOOCs’, which were based on a ‘connectivist’ (networked) approach to learning. xMOOCs are characterised by learners following a linear pathway through course materials reminiscent of campus-based teaching. These materials include video-based lectures, texts and online, test, based forums, designed to replicate classroom discussions.

cMOOCs vs xMOOCs

- Connectivist MOOCs, or *cMOOCs,* are based on principles of constructivist pedagogy. Materials are generated by and through interactions and collaborations between MOOC participants. The course is designed to function as a network, which is able to intake and process new information or resources and adapt to these inputs to produce remixable and repurposable materials and knowledge.

- Instructivist MOOCs, or *xMOOCs* focus on more behaviorist models of learning and pedagogy. Information is primarily transmitted from provider to learners, often through short video lecturers, rather than being co-constructed. Learners participate largely autonomously and independently, with limited opportunities (no requirement) to interact.

Lane's (2012) 3 part typology

- *Network* MOOCs align with cMOOCs.
- *Content* MOOCs align with xMOOCs
- *Task* MOOCs are focused on problem-based learning, which draws on real world contexts and emphasises application of learning in practice. Skills are demonstrated to learners in a range of presentation formats, combining both instructivist and constructivist principles.

Clark (2013) – 8 part MOOC taxonomy

- *1 Transfer MOOCs* – existing classroom lectures are transferred to a MOOC
- *2 Made MOOCs* – videos, interactive materials and activities are made exclusively for a MOOC
- *3 Synch MOOCs* – have a fixed start and end date
- *4 Asynch MOOCs* –do not have fixed start and end dates, enabling flexibility in engagement and submission
- *5 Adaptive MOOCs* –provide personalised learning experiences, based on dynamic assessment and data gathering during the course
- *6 Group MOOCs* – focus on collaboration in small groups
- *7 Connectivist MOOCs* – information generated and transformed through interpersonal connections across a network of peers
- *8 Mini MOOCs* – are shorter courses, that are less time intensive and attract fewer learners

Importantly, these 8 types within the Clarke Typology are not mutually exclusive.

Fig. 1.1 Common typologies of MOOCs

The earliest Harvard edX MOOCs were designed as xMOOCs, Transfer MOOCs (Clarke Typology) or Content MOOCs (Lane Typology). These courses intentionally were designed to mimic the Harvard on-campus experience (Vale and Littlejohn

2014). For example, Quantitative Methods in Clinical and Public Health Research (PH207X) was designed in 2012 around a campus-based course to teach learners the basic principles of biostatistics and epidemiology, including outcomes measurement, study design options and survey techniques. The Harvard faculty had little experience of distance learning and decided to transfer sections of the face-to-face course onto the edX platform by filming video lecture sequences interspersed with pictorial or interactive illustrations and online articles.

In reality, the MOOC experience is very different from learning on the Harvard campus. Crucially, the sociocultural experience of learning with other students and with the Harvard Faculty is missing. In an attempt to reduce this deficit in their learning some of the PH207X, students used social media tools, such as meetup.com, to self-organise into face-to-face study groups. A meetup in Bangalore drew over 100 MOOC students.

Informal meetups in geographically distributed locations are sometimes designed into an MOOC. For example, the Coursera MOOC, A Life of Happiness and Fulfillment, offered by the Indian School of Business (www.coursera.org/learn/happiness) had meetups designed and orchestrated by the instructor and supplemented by a Facebook group organised by the students. These meetups were reminiscent of distance learning 'summer schools', where students and faculty learning at a distance have the opportunity to interact. In most cases, MOOC faculty are unable to join these meetings, because of the large number and geographic dispersion of these gatherings.

The view of an MOOC as being equivalent to a campus-based course is problematic for learners in countries, such as India or Malaysia, where governments view MOOCs as a way to scale up the higher education system. These governments need to open up education on a massive scale. While MOOCs can open up access to high-quality education for people who have limited options, there should be recognition that learning in an MOOC is qualitatively different from learning on a campus.

These differences in where and how learners and tutors interact illustrate a distinction between online and face-to-face learning. Online learning does not replicate learning while physically present (Selwyn 2014). It offers a distinct experience with potential advantages of distance, time and forms of interaction, but does not provide the same sociocultural experience as learning face-to-face with others. People are not embedded within a learning community in the same way.

Some MOOCs have been designed around communities of people with a shared interest, rather than based on predefined objectives. For example, #PHONAR (phonar.org) is an open, online photography course where learners interact with experts who help them develop online portfolios of photographic images. Learners have to be proactive, taking responsibility for building and nurturing connections with peers and experts and to source resources to support their learning. The decentralised nature of the Internet provides an ideal environment to support the development of an open and participatory culture of knowledge building through collaboration, participation and engagement. In PHONAR, each student sets out personalised learning goals, and the course topics tend to be emergent and responsive to the immediate needs of the learners, rather than pre-prescribed. This approach is different from most MOOCs,

where the curriculum and objectives and course content tend to be predefined by the course provider.

Other examples of online courses based around learning communities include crowdsourcing platforms or virtual laboratories where people gather and upload data to a shared platform (Wiggins and Crowston 2011). An example is iSpot (ispot.org.uk), where nature lovers are encouraged to engage in participatory learning by gathering and sharing data on flora and fauna. Active learning opportunities are generated as enthusiasts upload data and experts offer feedback. iSpot is part of OPAL—Open Air Laboratories—an initiative of Imperial College London and The Open University in the UK which aims to encourage people to explore, study, enjoy and protect their local environment. iSpot is not a course in the conventional sense, but it is massive, open and online. Other citizen science, crowdsourcing environments include Galaxy Zoo (www.galaxyzoo.com), where enthusiasts assist professional scientists in the morphological classification of large numbers of galaxies.

MOOCs have been designed around the free flow of data and knowledge. For example, Introduction to Datascience, an MOOC run by the University of Washington and Coursera, focused on learners learning data science by creating and sharing codes. This type of course design is particularly useful for professional development because professionals can learn through engaging in real work tasks, for example, creating code needed for a work task.

Another MOOC that supported the development and exchange of professional knowledge was the Evidence-Based Midwifery Practice MOOC (www.moocformidwives.com) which was led by Midwifery academics in Australia and Denmark in April and May 2015. Midwives located in different countries were encouraged to exchange ideas about how their practice fitted within their diverse geographic and cultural contexts. Professional learning is a growth area for MOOC development, possibly because professionals are likely to have developed ability to engage actively in learning, requiring less support than less experienced learners.

As MOOC designs evolved, some courses were based around and run synchronously with political events. Examples include The Scottish Independence MOOC, run by the University of Edinburgh and FutureLearn in 2014 and the European Culture and Politics MOOC, run by the University of Groningen and FutureLearn in 2016. These MOOCs encouraged participants to consider the implications of Scottish Independence and the impact of Britain leaving the European Union, respectively.

Future MOOCs are likely to make more use of data analytics, virtual reality, simulation and gaming environments. For example, 3D virtual reality (VR) or gaming environments afford students opportunity to collaborate in simulations. Virtual reality is helpful in subjects where visualisation is important, such as molecular modelling in chemistry or building design in architecture. VR supports learning in professional contexts where experimentation in simulated real-life scenarios supports learning, such as nursing or business.

Although VR and gaming are used in these subject areas, there are few examples of MOOCs that are based on VR, gaming and simulations. This possibly is because of the expertise required as well as time limitations for MOOC developers. How-

ever, these technologies are on the horizon for integration into MOOCs. Platform providers are experimenting with integrating gaming environments with the MOOC platforms to allow MOOC learners to experience simulations. One example is the EADVENTURE platform, developed by the Universidad Complutense de Madrid to allow non-technical users, including tutors and learners, to create and modify games that can be integrated into the edX platform (Freire et al. 2014).

This section has illustrated the multiple belief systems that underpin MOOCs. These ideologies lead to different approaches that do not always produce the intended outcomes. This book aims to interrogate these belief systems and investigate some of the unplanned, or unseen, consequences.

1.11 The Ambitions of This Book

In this book, we attempt to set out a broad and balanced view of massive open online courses, with a particular focus on questioning the extent to which MOOCs are a disruptive and democratising force in education. This results in an extended focus on the nature and processes of learning in MOOCs and the roles, actions and ontogenies of learners—both as a collective and as individuals.

Chapter 2 introduces the tension in MOOCs between their ability to exponentially increase the number of learners accessing educational opportunities and their ability to provide equal opportunities and outcomes to all those learners. We argue that the majority of MOOCs are designed to be used by people who are already able to learn, thereby excluding learners who are less prepared to learn independently and without direct tutor support. The corollary of this argument is that without taking action to ensure everyone has the ability to engage with and benefit from this expansion of learning opportunities, we will not democratise learning

Chapters 3 and 4 build on Chap. 2 to explore how the emphasis on the individual as active and autonomous learner sometimes conflicts with the expectation that learners conform to accepted norms. This expectation that learners conform to accepted 'ways of being' in an MOOC isolates those who plan their own pathway. We develop a new typology of learner types, which an individual may move between depending on their motivations. We argue that given the centrality of the learner to charting their own engagement and determining their own outcomes, MOOCs must move beyond their current focus on traditional educational approaches and outcomes. This requires the utilisation of sophistical algorithms and analytics that incorporate a human element to ensure learning is not simply scaffolded by course materials and rudimentary analytics, but that there is always a tutor, expert or peer the student can learn with.

Chapter 5 explores notions of quality in MOOCs. It questions whether the current, predominantly traditional metrics and measures are suited to the nature of learning in MOOCs. We argue that the increased reliance on data analytics is skewing how we view quality in MOOCs and that data around learner engagement and interaction has to be interpreted in new ways that are consistent with the new ways of learning in MOOCs, rather than being based on conventional online learning.

Chapter 6 examines the broader societal dimensions fueling the expansion of MOOCs, exploring a tension between the perspective of an MOOC as a set of products (content and credentials) on sale to students with the notion of an MOOC as a means of exchanging knowledge and transforming the learner.

This chapter illustrated that the term 'MOOC' is being used to describe almost any form of online learning. Consequently, many of the ideas raised throughout this book will be applicable not only to MOOCs but also to online learning in general. The MOOC, therefore, operates as a form of educational case study and a backdrop or context against which to position the research and ideas that are pivotal to understanding the changing educational landscape. We hope this critique can stimulate the thinking and debate around MOOCs and online learning.

Acknowledgements The authors wish to thank Vasudha Chaudhari of The Open University for comments and for proofing this chapter.

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