



A strategy for monitoring and evaluating massive open online courses



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ABSTRACT

We argue that the complex, innovative and adaptive nature of Massive Open Online Course (MOOC) initiatives poses particular challenges to monitoring and evaluation, in that any evaluation strategy will need to follow a systems approach. This article aims to guide organizations implementing MOOCs through a series of steps to assist them in developing a strategy to monitor, improve, and judge the merit of their initiatives. We describe how we operationalise our strategy by first defining the different layers of interacting agents in a given MOOC system. We then tailor our approach to these different layers. Specifically, a two-pronged approach was developed, where we suggest that individual projects be assessed through performance monitoring; assessment criteria for which would be defined at the outset to include coverage, participation, quality and student achievement. In contrast, the success of an overall initiative should be considered within a more adaptive, emergent evaluation inquiry framework. We present the inquiry framework we developed for MOOC initiatives, and show how this framework might be used to develop evaluation questions and an assessment methodology. We also define the more fixed indicators and measures for project performance monitoring. Our strategy is described as it was developed to inform the evaluation of a MOOC initiative at the University of Cape Town (UCT), South Africa.

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1. Introduction

Since 2012 there has been a rapid rise in interest in Massive Open Online Courses (MOOCs); a form of online education. MOOCs are characterised by an absence of formal entrance requirements, free participation, content delivered entirely online and a design aimed at supporting thousands of learners (Barnes, 2013). Although the first course recognised as a MOOC is credited to the University of Manitoba in 2008 (Mackness, Mak, & Williams, 2010), large public interest grew from an open online course in artificial intelligence created by Stanford University and MIT professors in the 2011/2012 academic year. This course attracted over 160 000 learners from more than 190 countries. The success of this MOOC led to a number of initiatives in the United States (Mahraj, 2012), that resulted in the establishment of Coursera,

Udacity and edX platforms to service the production and delivery of MOOCs (Pappano, 2012).

Ten months after its formation in January 2012, Coursera was offering courses from 33 of the biggest names in United States postsecondary education and reaching over 1.7 million participants (Pappano, 2012). Early 2013 saw the launch of the FutureLearn platform by the Open University in the United Kingdom which began forming partnerships with an expanding global community of MOOC initiators from the UK, European, Asian, Middle Eastern, African and Australasian institutions of higher learning.

With such rapid growth came calls for caution. Critics were quick to point out the poor completion rates of these initiatives – typically below 10% of signups (DeBoer, Ho, Stump, & Breslow, 2014; Sharrock, 2015). Seemingly no sustainable business models have emerged for how courses might be kept free while at the same time generating enough revenue. The exploration of different business models are still in an ‘experimental stage’ (Korn & Levitz, 2013).

A study of MOOCs offered by 66 institutions in the United States identified six common goals (Hollands & Tirthali, 2014). These were (1) extending the reach of the institution and access to

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education; (2) building and maintaining brand; (3) improving economics by lowering costs or increasing revenues; (4) improving educational outcomes for MOOC participants and on-campus students; (5) innovation in teaching and learning; and (6) conducting research on teaching and learning. The study found that few MOOCs had delivered on these six goals for a number of reasons. Because most MOOC participants were already highly educated, and completion rates were so low – the evidence suggested that MOOCs were falling far short of “democratizing” education. None of the 66 institutions interviewed had generated income from MOOCs, and indeed only 5% of institutions suggested that this was a viable goal. It was also apparent that progress in using MOOCs to improve teaching and learning was being impeded by difficulty in using the platform data and lack of clarity regarding regulations applicable to the participants and their data. The report concluded that MOOCs are currently not contributing significantly to the development of personalised and adaptive learning, and that clearly defined metrics and evaluation strategies are urgently needed. For example, the impact of MOOCs on university brand was not possible to assess due to a lack of metrics defined in this area. Furthermore, because the actual impact on educational outcomes and innovation was not being documented in any rigorous fashion, in most cases it was unclear whether these goals had been achieved. This assessment captures the spirit of a rapidly developing body of literature which has now shifted towards a discourse of ‘growing MOOC scepticism’ (Sharrock, 2015) as well as a general sense of frustration at the seeming inability of most research institutions to turn the vast datasets of MOOC analytics into meaningful research about how MOOCs might promote learning (Reich, 2015).

How then might the debate around the value of MOOCs be moved forward? The first step is to recognise that to some extent the early critiques of MOOCs – as a mode of course delivery and form of learning – have now been overtaken. In part this is because there are now established MOOC platforms with millions of learners having registered for one or more courses. There is also a large and diverse range of courses available, developed by universities around the world. MOOCs are now part of a much more complex context. The earlier narrowly focused critiques typically involved comparisons of indices such as completion rates with conventional courses that were not necessarily relevant to the MOOC context. As universities are experimenting with MOOC variants there is a need to monitor and evaluate these larger projects and strategies. There is growing literature that seeks to better understand the value of MOOC projects for a university as opposed to evaluating a single course or mode of delivery. This broader focus requires that a clear strategy for evaluating MOOC initiatives be defined at the project outset. The purpose of this article is thus to describe the development of an evaluation strategy for MOOCs and its application within a higher education institution.

2. What has been done in the way of evaluating MOOC strategy?

How might one frame evaluating a university’s MOOC strategy? A natural first step would be to review the literature on evaluating online learning strategy, upon which MOOC evaluation theory and practice are likely informed. While much has been written on assessment in online learning, far less has addressed the measuring of key issues of process and outcomes such as how well an online learning initiative has been implemented, or whether it has delivered on its mandate to bring about positive change for institutions or learners (e.g. Benigno & Trentin, 2000; Graham, Cagiltay, Byung-Ro, Craner, & Duffy, 2001). For example, a review of the emerging literature on MOOCs reveals an emphasis on describing the structural and functional components that define

successful projects. Hollands and Tirthali (2014) present an overview of common goals or objectives of MOOC initiatives from the perspective of the implementing agents. Similarly, there have been efforts to define the phases of a MOOC life cycle (e.g., design, publication, use and auditing), informing efforts to improve project management (Santos, Boticario, & Perez-Marin, 2014). Others investigated the manner in which participants might give, and receive, feedback on the quality of their experience (Spector, 2014) along with the technical characteristics of high quality MOOCs (Mahraj, 2012; Santos et al., 2014). Conceptual frameworks have been proposed to help institutions formulate their strategic project management response to an enterprise (Marshall, 2013). Learning analytics has been applied to study key MOOC activities or types of interactions that are most likely to result in learning (DeBoer et al., 2014; Kop & Carrol, 2011; Mackness et al., 2010).

While this literature is concerned with our broad questions, none constitute what we regarded as an evaluation strategy. Here, we define an evaluation strategy as the sum of all the evaluation approaches applied to a program, project or initiative; where an evaluation approach is defined as ‘a specific process for doing monitoring and evaluation, generally accompanied by a series of steps or guidance’ (Stem, Margoluis, Salafsky, & Brown, 2005; p. 306). It is this ‘series of steps or guidance’ that our paper aims to provide.

3. What challenges do we face in a MOOCs evaluation?

The literature makes clear that any evaluation strategy would need to recognise that MOOC initiatives are *complex*. By complex, we mean characterised by unpredictable outcomes, both in terms of the individual learning outcomes of participants as well as the emergent outcomes within the institutions responsible for the broader MOOC initiative. For the former, learning is unpredictable because it emerges through the interconnections and engagements of the MOOC participants. For the latter, outcomes are emergent because the ultimate success of an initiative will result from the way in which implementing organisations, agents or even participants themselves interact with the MOOC in unpredictable ways.

The complexity includes how MOOC courses and platforms are designed and conceptualised. Assumptions about how people learn in this context may be quite different from academics’ experiences in conventional courses or curricula. The connectivist theory of learning, which sees knowledge as a set of connections with learning taking place in the formation of these connections, provides a frame for describing learning in some MOOC contexts (Ebben & Murphy, 2014). It may be argued that for MOOCs ‘There is not a body of knowledge to be transferred from educator to learner in a linear fashion. Instead knowledge is distributed across the Web and people’s engagement with it constitutes learning’ (Kop, Fournier, & Mak, 2011; p. 20).

Within a typical MOOC, very different and unpredictable actions may play out between agents. Individual agents, such as MOOC learners, are free to decide how to engage based on their expectations and experiences. Subgroups may emerge for example based on those inclined to participate and those less inclined, and these subgroups may find each other in forums or social media, and reinforce particular forms of participation. The nature, size, endurance and cohesion of these subgroups is likely to play a role not only in the type of learning each individual agent experiences through the MOOC, but also in the perceived success of the project from the implementing institution’s perspective. Therefore each subgroup that emerges is likely to experience a different set of outcomes; and given that we do not know what groups will emerge in advance, we cannot necessarily anticipate these outcomes. The emergent nature of this kind of system is antithetical to linear causal logic.

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