

Massive Open Online Courses (MOOCs) for professional development

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Title: Massive Open Online Courses (MOOCs) for professional development: meeting the needs and expectations of physical education teachers and youth sport coaches

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Background

Professional development (PD) in a range of occupations has become increasingly digitised. Numerous digital courses are available, with evidence that social media, blogs and apps are increasingly being used for PD. Yet despite clear benefits, there is little robust evidence on the characteristics of digital PD that impact positively on learning and practice, particularly for physical education (PE) teachers and youth sport coaches. This paper provides new insights into the characteristics of effective PD in the context of a complex digital landscape.

Purpose

While advocated as an innovative genre from which to optimise learners' proclivity for sharing, curiosity and discovery, little is known about how professional learners respond to Massive Open Online Courses (MOOCs) courses to inform their practice. The purpose of this study was to understand how participants responded to the learning design of two Massive Open Online Courses (n=13,104 from 155 countries) in the fields of physical education and youth sport coaching.

Methods

Drawing from a mixed methodology, data were generated from semi-structured interviews (n=27) and online survey methods (n=66) with participants across both Massive Open Online Courses (MOOCs).

Findings

New data offer insights into the features of course design that practitioners found positive in promoting engagement. It was apparent in the data for example, that four features were influential: establishing relevance, facilitating bridging, designing for personalisation, and building community. Constructed themes reflect how participants organised and negotiated MOOC experiences, and illuminate the ways in which they navigated and used course content. Evidence from this study provides insights into the ways in which digital genre for PD might be structured to facilitate engagement, and presents broader challenges to the ways in which pedagogy is conceptualised and practiced online.

Conclusions

The refined focus on digital genre as a form of social action in this study seeks to ensure that learners needs can be met in a complex and ever-changing PD digital landscape. In this regard, a more nuanced approach is required that helps explicate the cognitive tools that participants engage as they organise their learning experiences on digital platforms, and how this aligns with their expectations and needs of online PD.

Keywords: MOOCs, digital learning, professional development, learning design, genre

Introduction

In the last decade, professional development (PD) in a range of occupations has become increasingly digitised. Numerous digital courses are available, with evidence that social media, blogs and apps are increasingly being used for PD (Greenhow & Lewin, 2016). The key advantages of a digital approach to PD are: (i) can be delivered at mass scale; (ii) learning can be mobile, accessible and personalised; (iii) autonomous and self-motivated learning is promoted; (iv) participants can have relative autonomy without the arbitration of a centralised authority; (v) can be cost effective (Anders, 2015; Greenhow & Lewin, 2016; Sharples, 2015). Yet despite clear benefits, there is little robust evidence on the characteristics of digital PD that impact positively on learning and practice (Greenhow & Askari, 2017), particularly for physical education (PE) teachers and youth sport coaches (Cushion & Townsend, 2018; Author, 2019, 2014). To date, evidence has been limited to one-off short duration intervention studies, where data have been collected from small sample sizes, in singular professional and/or international contexts, and over limited and isolated time frames (Cushion & Townsend, 2018). We therefore know very little about whether digital PD is ‘effective’, leading to a situation where PD designers are ill-equipped to design digital PD that can meet the professional needs of teachers and coaches.

Massive Open Online Courses (MOOCs) are advocated as an innovative platform from which to optimise contemporary learners’ proclivity for sharing, curiosity and discovery in mass-user network spaces (Anders, 2015). Categorized as an open educational platform, MOOCs

1 consist of freely available digital resources, that can be used/reused for teaching and research
2 (Tseng, et al., 2019). It is through networked interactions that MOOCs seek to connect
3 individuals and resources, and encourage the development of shared perspectives on jointly
4 perceived problems, topics or challenges (Conole, 2016). In this way, MOOCs have been
5 designed to optimise the ‘network effects’ of learning (Anders, 2015), by giving participants
6 the capacity to self-regulate their learning by choosing what, when and how they engage with
7 course content. As many Universities and organisations continue to invest resources in
8 delivering MOOCs, understanding participants online learning experiences becomes critically
9 important (Margaryan *et al.*, 2015). However, uncertainty remains in understanding the
10 relationship between digital content and professional practice, particularly in the MOOC
11 context of scale, access, variety of ages, experiences, cultures, and learning dispositions
12 (Greenhow & Askai 2017; Bali, 2014).

14 **Conceptual and Theoretical Background**

15 A review of the MOOC literature identifies two distinct design frameworks (Bozkurt &
16 Keefer, 2018). First, eXtended MOOCs (xMOOCs), are courses that appear to be grounded in
17 cognitive-behavioural science and primarily based on short, lecture type videos (between 2
18 and 4 minutes), in addition to readings, problem-based scenarios, quizzes and assignments. In
19 this design, the focus is on content-based training distributed at scale (Conole, 2016). Second,
20 connectivist MOOCs (cMOOCs) are informed by socio-constructivist perspectives, and based
21 on four design principles: learner autonomy, diversity, openness, and interactivity (Downes,
22 2008). In cMOOCs, learning is an outcome of arrangements of collaboration between
23 participants, so that the interactions between educator, content, and learner autonomy develop
24 and extend course content (Bali, *et al.*, 2015; Hew & Cheung, 2014; Bell, 2011). The key
25 difference between these two different designs is that in xMOOCs, the application appears to

1 be centred on knowledge transfer (i.e. between educator and learner), while in cMOOCs,
2 knowledge is conceived as a process of construction through increasing levels of participant
3 collaboration.

4
5 The growth of MOOCs has been accompanied by critical debate to the extent to which
6 existing learning theories are helpful in explaining collaborative learning online (Kop & Hill,
7 2008). While some researchers have argued that existing theories, such as Vygotsky's (1987)
8 social constructivism, are sufficient in accounting for the relationship between internal and
9 external knowledge in an online environment (Kerr, 2007), others suggest that in an era of
10 significant information growth, knowing is not solely located in language and logic, but in the
11 connections of actions and experiences of practice (Downes, 2008; Bozkurt & Keefer, 2018).
12 It is in this context that Siemens (2004) coined the term 'connectivism' to understand patterns
13 of online engagement where knowledge is socially-negotiated and relationally-constructed. A
14 connectivist learning approach highlights how control shifts from educator to increasingly
15 autonomous learners (Goldie, 2016). Examples from the MOOC literature include:
16 participant's learning perceptions (Saadatmand & Kumpulainen, 2014), individual
17 experiences (Tschofen & Mackness, 2012), actions of engagement (Milligan *et al.*, 2013),
18 and online participatory learning cultures (Bozkurt & Keefer, 2018).

19
20 While the application of connectivism in the MOOC literature is prevalent (Bozkurt &
21 Keefer, 2018; Crosslin, 2016), it has been argued that the theoretical positioning of
22 connectivism is weak. Clarà & Barberà (2014), for instance, claim that connectivism has a
23 number of psychological and epistemological problems: first, a failure to explain how
24 knowledge develops over time, one of the key ambitions of effective PD (Author et al., 2017)
25 and second, an under-conceptualisation of learning interactions and collaborations where
26 learning is presented as a 'simple' process of learners' interacting with network connections

1 and nodes. However, contemporary theories of learning describe a more vigorous process of
2 decision making, perception, and interpretation (Biesta, 2015; Kop & Hill, 2008). It is
3 reasonable therefore, that in the context of MOOCs, a more dynamic and iterative lens from
4 which to illuminate the ways in which digital experiences facilitate user engagement is
5 needed (Bozkurt & Keefer, 2018).

6
7 MOOCs have been referred to as an educational genre that are reflective of the enthusiasm
8 for social and digital technologies in learning design more widely (Ghazali & Nordin, 2018).
9 The term genre describes a distinctive type of literary composition or convention that users
10 can expect to experience (Sæbø, 2011), and has recently been used to understand how digital
11 technologies can convey information to their users in engaging and intelligible ways (Drew,
12 2017). Grounded in the seminal work of Miller (1984), and her argument for rhetorical action
13 rather than a linguistic focus, genre as a form of social action (i.e. agreed conventions of use)
14 is characterised by multiply methods from which to examine patterns of shared meaning in
15 the production and interaction of communication (e.g. structural, textual, critical, comparative
16 and visual analysis (Tardy & Swales, 1984)). Such methods move beyond Frow's (2014)
17 provocative question of whether genre is, "*just a label for certain regularities of use?*" (p.11),
18 and foreground the pragmatic and research application of genres in terms social action
19 (Miller & Kelly, 2016). Appearing to draw from the work of Giddens's (1984) concept of
20 structuration where users both enact and reproduce community, genres offer an interpretation
21 of how digital context shapes user actions, while at the same time highlighting the social
22 actions of users themselves within a specific context. It is, in the context of MOOCs, that
23 genre analysis provides a lens from which to understand how users generate, navigate and
24 consume content on the platform. Notably, to date, much of what is written about digital PD
25 is guided by a focus on platform/mediums, with analysis based on how individuals respond to

pre-determined capabilities (Miller 2017). Given the challenges and limitations of understanding learner behaviours of online learners (Van Laer & Elen, J. 2018) a focus on genres offers a more nuanced picture for MOOC design, and impact from a user perspective. It was in this context that the purpose of this paper was to examine how participants responded to the learning design of two novel and innovative MOOCs (Physical Education and Sport Coaching) for professional development. In addition, the paper provides evidence-based insights into the operation of pedagogy in digital/online contexts, and the structural forms that enable and constrain digital pedagogies.

Research Design

A mixed method case study design was adopted to provide a contextually grounded, holistic and detailed account (Hodge & Sharpe, 2016) of the types of digital content that practitioners engaged with, learnt from, and used to inform their practices, and the information that they disregarded and/or had limited impact. For the purposes of this article, the ‘case’ was defined at the level of a single MOOC.

MOOC Design

There were two MOOC case studies in total; one designed for teachers: [Masked for Peer Review, n=6554]; and one designed for coaches: [Masked for Peer Review, n=6550]. The two courses shared a number of characteristics: (a) Both MOOCs were hosted on the X [Masked for Peer Review] platform and developed and led by a team of academics at the UNIVERSITY X [Masked for Peer Review]; (b) MOOC subject matter was selected and developed from the [Masked for Peer Review] team’s evidence-based research in the relevant discipline and wider contemporary international research; (c) MOOC delivery was underpinned by evidence on effective PD in PE and youth sport coaching; (d) The MOOCs

shared a common format in that each MOOC took place over 3 weeks and within each week there were four individual blocks of subject matter. For example, blocks of subject matter included: models-based-practice, touching in physical education, and designing for creativity in [Masked for Peer Review]. Each block of subject matter included a video and two or more of the following activities: a discussion board, a structured reflection, and a task for practitioners to trial, develop and test in their context; (e) content and follow up activities were produced by an educational technologist at [Masked for Peer Review] and on the [Masked for Peer Review] platform.

Beyond this commonality the MOOC cases were different. The PE MOOC case was focused on physical education, and this course ran on two separate occasions: [Masked for Peer Review] (PE MOOC 1) and [Masked for Peer Review] (PE MOOC 2). In this course, content was communicated to participants by the X [Masked for Peer Review] research team and 22 international academics and practitioners, and through videos or within discussion tasks. The PE MOOC included study groups, where practitioners were assigned to a specific study group in a separate space from the subject matter and were given weekly discussion tasks. Each study group was led by an international academic or practitioner. The Coaching MOOC case focused on youth sport coaching, and was developed and delivered in collaboration with a national sports organisation. This MOOC ran once in [Masked for Peer Review]. The subject matter was communicated by the [Masked for Peer Review] research team, 7 professional coaches within the national organisation, 4 international researchers and practitioners, and through videos. Video content was developed from footage made available by the professional organisation, particularly of young athletes participating in training sessions or competition.

In total, 13,104 individuals, from 155 different countries, enrolled onto the MOOCs (PE MOOC¹ n=4469; PE MOOC² n=2085; Coaching MOOC n=6550). Table 1 provides details of the participant demographics which were obtained from pre-course questionnaires (10% completion rate). Case study 1 (PE MOOCs 1 and 2) had a similar number of males (42%) and female (58%) respondents compared to case study 2 (coaching) which had a majority of male participants (87%). Across both case studies, participants were aged between 18 and 65 years, with most participants (~27%) aged between 36-45 years. Participants reported a range of educational levels up to PhD level, with 27% having university degrees. Similarly, participants identified with 22 different professional sectors, with the highest number (~50%) from the teaching and education sector.

Table 1: *Participant Demographics*

	Case Study 1: PE MOOC		Case 2: Coaching MOOC
	MOOC ¹ n=4669	MOOC ² n=2085	MOOC ³ n=6550
Gender			
Female	N= 2802 (60%)	N= 1064 (51%)	N=851 (13%)
Male	N= 1867(40%)	N= 980 (47%)	N=5699 (87%)
Other		N=41 (2%)	
Age	%	%	%
<18	0	1	<1
18-25	12	17	15
26-35	29	3	3
36-45	26	27	20
46-55	17	14	16
56-65	11	7	6
>65	3	3	3
unknown	2	0	14
Highest Qualification			
Apprenticeship	0	0	1
Less than secondary	2	1	2
Professional	6	6	8
Secondary	10	12	16
Tertiary	5	6	10
University Degree	46	48	35
PhD	7	6	1
Masters	23	22	15
Unknown	0	0	13
Profession			
Finance/banking/accountancy	2	2	4
Armed forces/emergency services	<1	1	2
Business	3	2	4
Charities/voluntary work	2	2	3
Creative arts and culture	3	1	3
Employment	<1	1	<1
Energy and Utilities	0	0	0
Engineering and manufacturing	2	2	7
Environment and agriculture	2	1	1
Health and social care	9	9	4
Hospitality, tourism and sport	4	5	7
Information technology	2	3	5
Law	2	1	1
Marketing and Advertising	1	1	1
Media and Publishing	<1	1	2
Property & Construction	<1	1	3
Public Sector	1	2	4
Recruitment and PR	2	1	1
Retail and Sales	2	4	2
Science & Pharmaceuticals	2	1	1
Teaching and Education	51	50	26
Transportation and Logistics	1	1	3
Unknown	9	8	17

Location			
Top 5 countries reported (%)	UK: 16 US: 2 India: 2 Egypt: 2 Mexico: 1	UK: 35 Egypt: 5 Australia: 4 Egypt: 4 US: 4	UK: 64 China: 10 US: 6 Egypt: 4 Ireland: 3

Data Collection

Data collection took place with 93 individuals (m=71; f=22) who participated in the MOOCs. Following university ethical approval, a purposeful and criterion sampling method was used for recruitment by asking participants who engaged with the MOOCs to complete a feedback form that included an expression of interest in being involved in the research. Purposeful sampling occurred through the selection of a sample that included: participants of the three MOOCs, a diverse age range, variance in international contexts, and individuals who held different qualifications or experience within the field of physical education and/or sport coaching. Not all participants agreed to participate and the sample is representative of secondary purposeful sampling.

Online Survey

The survey aimed to determine participants' learning and engagement during the MOOCs, and involved 66 participants (m=50; f=16; age 16-65) from both the PE (n=38) and coaching MOOCs (n=28). Survey participants varied in their professional qualifications (post graduate degree and/or PhD n=21; university degree n=29; secondary school n=8; professional qualifications n=5, unknown n= 3). The survey contained 38 items. Closed questions inquired about course content and its application to practice, how course structure facilitated (or not) collaboration amongst participants, the sequencing of activities in terms of progression, factors leading to success, barriers to learning online, and what participants hoped to achieve from engaging with the MOOCs. Open questions invited participants to consider what aspects of course content and platform functionality (e.g. discussion boards) were found to be

interesting, stimulating (or uninspiring) and applicable to practice. Informed online consent was provided by the participants prior to beginning the survey.

Interviews

Interviews aimed to provide an in-depth understanding of participants' responses to the MOOCs, and involved 27 participants (m=21; f=5), split between PE MOOCs (n=16) and Sport Coaching MOOC (n=11). Interview participants were from a range of countries (n=11), with the majority of participants from the UK (n=15). Elicitation and semi-structured interview techniques were adopted, prompting participants to reflect on their experiences of the MOOCs and to provide a consistent approach to questions, while offering flexibility to generate further and in-depth data (Sparkes & Smith, 2013). Prior to the interview, and following informed consent, participants were sent an overview of the different subject matter within each week of the MOOC. Similar to the survey, the semi-structured questions were structured around the following topics: (i) professional background; (ii) reasons for engagement; (iii) subject matter; (iv) MOOC design; and (v) delivery mechanisms of subject matter. Interviews were led by an independent researcher from the *** team [masked for review] who had not been involved in the design or delivery of the MOOC. This approach was taken to reduce some of the obvious bias in the interview process if the course designers were involved. All interviews took place online, using video conferencing software, and lasted between 14 - 44 minutes (average duration, 27 minutes).

Analysis

Study analysis took place in two overarching phases. Phase 1 involved organising data sets, and calculating mean percentages from survey data to provide an overarching understanding of MOOC experiences. Phase 2 focused on MOOC experiences and how and why

1 participants engaged and used MOOC resources in the context of practice. Drawing on
2 Charmaz's (2008) constructivist version of Grounded Theory to organise qualitative data
3 (e.g. coding, constant comparison), interviews were transcribed and analysed independently
4 by the research team using open and focused coding. Across both forms of coding, a process
5 of 'constant comparison' (Glaser & Strauss, 1967) was used in order to compare data across
6 sets, data with categories, and categories with constructed themes to decide a best-fit
7 scenario. While constructed themes illuminated participants experiences, the relationships
8 between concepts that shaped engagement needed to be located within a theoretical
9 framework (Miller, 1984). In moving analysis from description to abstraction, the analytical
10 work of genre theory was used to support analysis and interpretation of findings.

12 **Validity**

13 A relativist approach was used to guide validity and determine quality (Burke 2016). In
14 applying a relativist approach, and following the recent work of Smith and McGannon
15 (2018), universal criteria for judging the quality of research are not applied (e.g.
16 dependability, confirmability). Instead, criteria are selected from an ongoing list of
17 characterising traits that relate to the context of the research (Smith and McGannonn 2018).
18 The following criteria were selected as representations of quality and validity within this
19 research: the worthiness of the topic; the significant contribution of the work; width, that is,
20 the comprehensiveness of evidence and the use of multiple and numerous data sources from a
21 wide and international sample of participants; and credibility, through the authors' familiarity
22 with digital PD, as well as the rigorous analytical process involving grounded theory
23 techniques. As part of a list of characterising traits for enhancing the quality of this work, this
24 study also aimed for internal coherence in the purpose, methods and results.

Findings

In table 2, data are presented that describe the number of ‘Joiners’ who initially signed up across all 3 MOOCS. Data then illustrate different levels of course engagement through the duration of the MOOCs by learners (joiners who visited the course once it had started); active learners (learners who mark off activities completed); and number of ‘steps’ or levels of activities completed by learners. The final dimension of engagement was categorised as social learners and captures the number of learners who posted comments on discussion boards.

Table 2: Course Engagement Measures

	PE ²	PE ¹	Coaching
Joiners	2,085	4,669	6,550
Leavers	129 (6.2%)	181 (3.9%)	126 (1.9%)
Learners	1,107 (53.1%)	1,709 (36.6%)	4,738 (72.3%)
Active Learners	775 (70.0%)	1,359 (79.5%)	3,352 (70.7%)
Social Learners	457 (41.3%)	841 (49.2%)	1,122 (23.7%)
Learners with ≥50% step completion	265 (23.9%)	445 (26.0%)	1,409 (29.7%)
Learners with ≥90% step completion	202 (18.2%)	325 (19.0%)	1,127 (23.8%)

Data from the study reflect findings from the wider MOOC literature concerning a steep decline of learner participation across the duration of the courses (Conole, 2016). While relatively low completion rates were anticipated, a significant feature across all 3 MOOCS were the levels of social engagement (41.3% (PE¹), 49.2% (PE²) and 23.7% (Coaching)) that exceeded comparisons to other MOOC courses (7.9%, Vivian *et al.*, 2014). Data suggest strategies to facilitate a sense of connectivity and community through study groups,

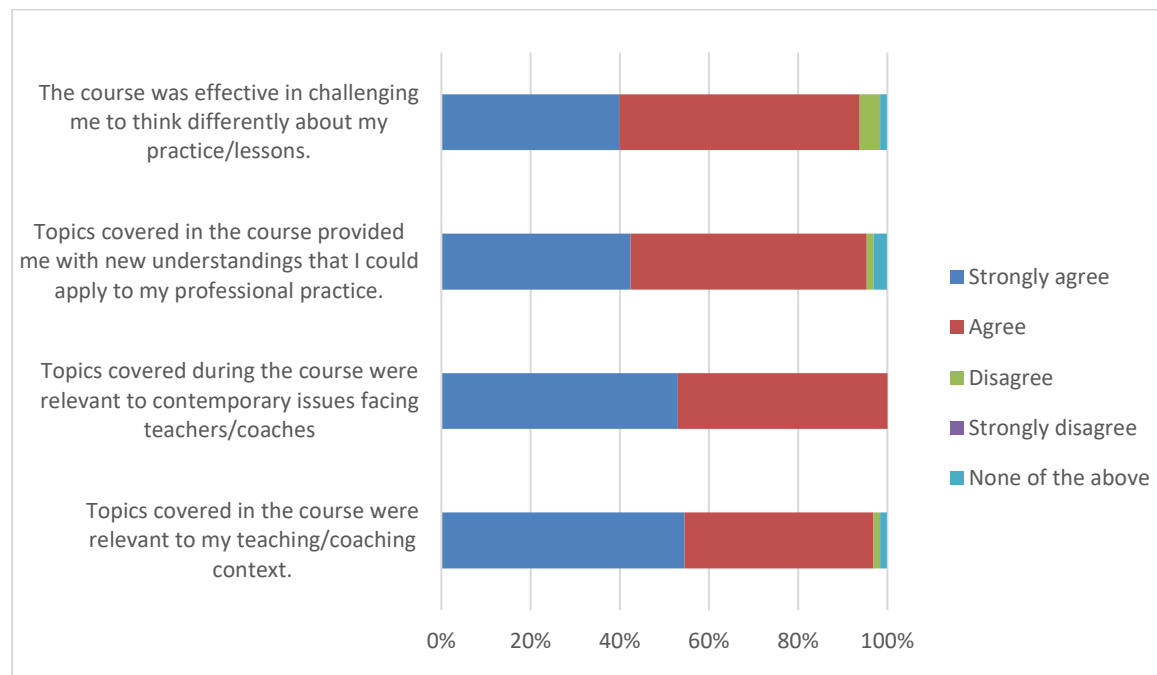
discussion boards, Padlets and Google Hangouts in the PE MOOCs for example, were particularly effective in promoting increased interactions between participants.

In the following section, survey and interview data are reported within overlapping themes to demonstrate the ways in which participants experienced the two courses. To illustrate the dynamic engagement between participants and the MOOC courses, gerunds were used in constructed themes to reflect how participants organised and negotiated their MOOC experiences. Quantitative data and direct participant quotes are provided and these have been selected to offer clear illustrations of key points. The source of interview data is provided in brackets after each quote.

Establishing Relevance

In the context of sustaining engagement, data indicated that for many participants MOOC content had been successful in demonstrating clear relevance to professional needs (Figure 1).

Figure 1: *Relevance of the MOOCs to professional needs*



Data generated from interviews added further depth and explanation of key findings relating to establishing relevance, and refer to how engagement was influenced by the types of learning experiences that built on learners' prior knowledge and experience. Initial, however, engagement was an outcome of the perceived credibility of the courses. Participants indicated how the courses had caught their attention because of markers of credibility: associated with university delivery, high profile academics, and collaboration with a national sports organisation;

It felt credible because it was associated with the university to be honest so that was quite nice... [Masked for Review] and university were two quite big badges that meant it was credible (Coach).

You had high profile people in the PE world and I think when you can manage to secure and get people like that involved it obviously raises the profile of the course (Teacher PE).

1 Building on the profile of the courses, data revealed how practitioners engaged with and used
2 content that aligned with existing knowledge, current practices, and previous PD experiences.

3 There was apparent enthusiasm when content affirmed the effectiveness and/or
4 appropriateness of the practitioners' existing teaching or coaching practices. As participants
5 observed, "it was re-affirming a lot of the stuff I had learnt along the way" [PE teacher];
6 "reaffirmation that we are doing the right thing" [Coach], and for one coach, while the
7 content was not new, the research behind the content was valued in underscoring practice;

8 It's perhaps backed up something that I kind of intuitively knew. It's maybe given me
9 a bit of research or reason behind what I do, so I'm able to articulate it clearer and be
10 able to justify what I do better, rather than just thinking that it works [Coach].

11
12
13 In designing the MOOCs, we were mindful to situate participants' learning in authentic
14 practical experiences and within a supportive (collaborative) framework; For example, both
15 teachers and coaches stressed the importance of "real life" content, while cautious of
16 presenting "shiny environments";

17 One school talked about how they'd implemented the [model], slowly transforming
18 and really changing their approach to PE, but they were realistic that it takes
19 time... That was good to hear, so the theory actually being translated into the
20 department, how it worked, what were the benefits (Teacher PE).

21
22 You had case studies and people who had been on that pathway and learning. It was
23 sort of real life, rather than sometimes you can get this lovely, shiny environment,
24 "This is what I've done and this word". It's people saying "tried this, I've done that.
25 This is how I've come to this." Which again, it adds to that real-life element of
26 sometimes we're not always going to get it 100% right. (Coach)
27

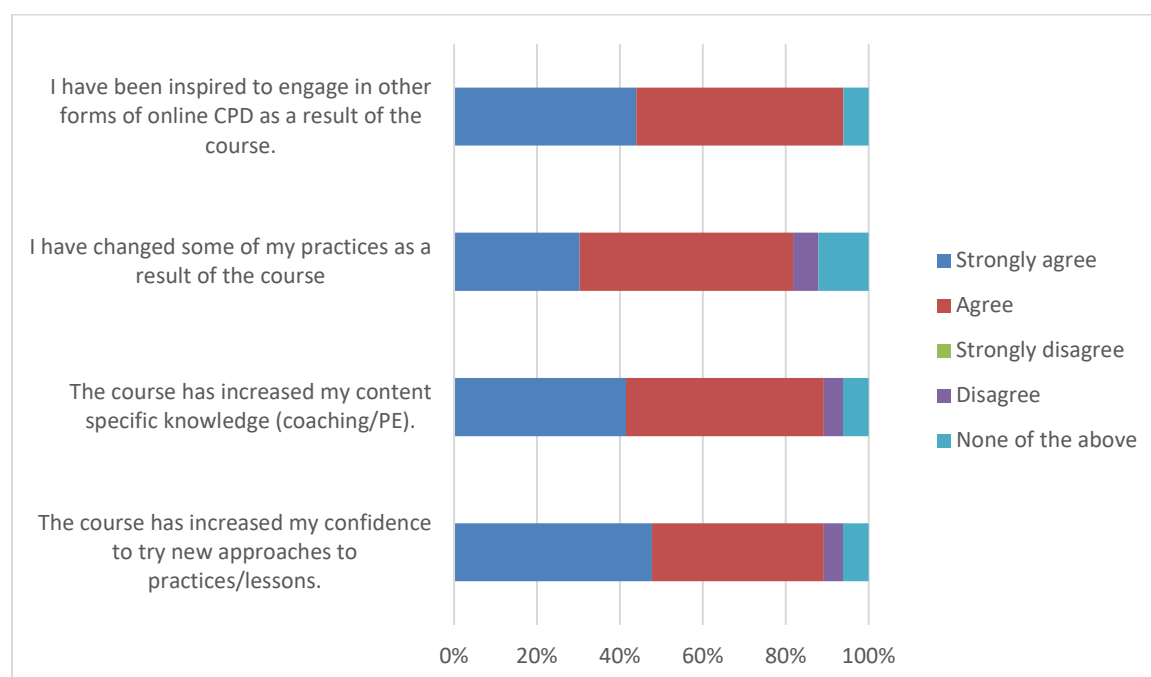
28 Sustained engagement was influenced by opportunities that provided transition of knowledge
29 from digital environment to other practice settings. These findings are not surprising.
30 Findings across the study highlighted how professional learning was about change in
31 practice, recognising that a substantial proportion of learning in relation to change occurs in
32 the context of use. In this study, participants valued authentic critical inquiry and peer group
33 reflections in the construction of relevant knowledge. In turn, it was the perceived credibility

of MOOC designers (e.g. Governing Body / University accredited) and credibility of content that contributed to initial and sustained engagement for many course completers.

Facilitating Bridging

Critical in any professional development activity, are the mechanisms that facilitate or bridge transitioning of course content to practice. As one practitioner described, bridging refers to “how I can take what’s in the programme [MOOC]..... and try it on Saturday mornings” (Coach). It was apparent in survey data, for example, how certain activities encouraged practitioners to revisit their practices, enhance confidence by trying something new, and inspired them to engage with more PD (Figure 2).

Figure 2: Impact of the MOOCs on professional learning



Interview data identified the importance of course to practice relevance. As two PE teachers observed, “It was very easy to apply it to what I do in practical terms” (PE teacher) and “there were lots of good pieces that I took away from it and have used in my teaching” (PE

teacher). The delivery of content, for example, by both researcher and expert practitioner groups (e.g. Google Hangout) was one method that was highly valued by participants. In the following extracts, participants discuss MOOC design in terms of practice;

The research was designed to be applied, and I think that was spot on. It wasn't in the language of journal articles, where sometimes you might have to read it a few times to understand what the message is, and then they were supported by what practitioners were actually doing (Coach)

It was a good balance, because you had your practitioners who would be delivering it, but then you'd also have researchers who would give you the explanation. So, it was almost a theoretical study behind the reasons why you used the particular approach. I found that quite useful (Teacher PE).

Further evidence of the need to bridge theory and practice effectively came from content that practitioners reported had difficulty engaging with. For some participants, specific videos were not delivered in an accessible format. For example, "that was so academic that video, I had to go back and watch it a couple of times...it would have been good to come on and talk with some examples" (PE Teacher). In other cases, the video-based examples in the coaching MOOC were reported to lack application: "some of them were too high level for my players, for what I train" (Coach); "you could see they were all from academies¹... and it would have been good to see proper grass roots **** (masked for review), where you have got kids struggling to control properly (Coach).

The key message from data, was the importance of good course design that was cognisant of the need to bridge research and practice in sustaining engagement. For one teacher, the use of humour and 'real life' experiences were particularly powerful in bridging new knowledge;

I really enjoyed a lot of the humour...It didn't feel life. "Okay, there's the camera, and you're going to talk" You know, it wasn't dry. It was actually them being you know, real people and real instructors... and telling us their stories. So, it was very authentic (Teacher PE).

¹ masked for review

What might be concluded, is that evidence generated through this theme highlight the importance of digital environments that are focused on the interactive and dynamic construction of pedagogical content.

Designing for personalisation

Rather than suggesting a form of 'learning style' (Littlejohn et al., 2015), findings suggested how personalising the MOOC experience was clearly context dependent, influenced not only by learner dispositions, but also by factors associated with MOOC design. For instance, practitioners reported how the MOOCs were accessible because learning was self-paced and autonomy supported through a range of formats and activities. For example,

It was quite accessible because you can go at it at your own pace as well, and it was quite self-explanatory. It was broken down to just the right amount...there was a good balance between videos, articles, written text... When you were going at your own pace, if you wanted to go, for example, a week ahead just to see what is happening next week, it would allow you do that. There are a lot of courses where you wouldn't be able to do that. And it's also good that you have a bigger window, so although its three weeks and four hours per week... you could do it over 6 weeks. (PE teacher).

The ability to self-pace enabled practitioners to engage with the content at appropriate times, and in different locations. The flexibility to choose when to learn, combined with a recommended structure for the frequency and depth of participation supported practitioner engagement. In particular, practitioners reported how engagement was supported because the MOOCs were designed in a way that promoted autonomous learning. For example, one teacher commented how,

Its more personal. You're on your own and you can think about it, and you can stop it and rewind it, or you can go back on something... It's not like you go onto a course and you're sitting there and you can't rewind what the person said... You might go out and forget half the stuff, but you have it there, in front of you. For me, it worked pretty well. (PE teacher).

1 In the context of MOOCs, this theme illustrated the importance of effective design and
2 functionality that facilitated learner autonomy. For one coach, the ability to revisit material at
3 any time was a clear strength;

4 Everything was right there. You could download the videos. I still have the videos.
5 Sometimes I go back and watch the videos. It's the full package. (Coach)
6

7 Designing for personalisation refers to the way in which participants perceived course content
8 and social interactions with others as tailored to their individual learning needs. Small study
9 groups in the first PE MOOC course were identified as a particularly effective context in
10 which personalised content existed.

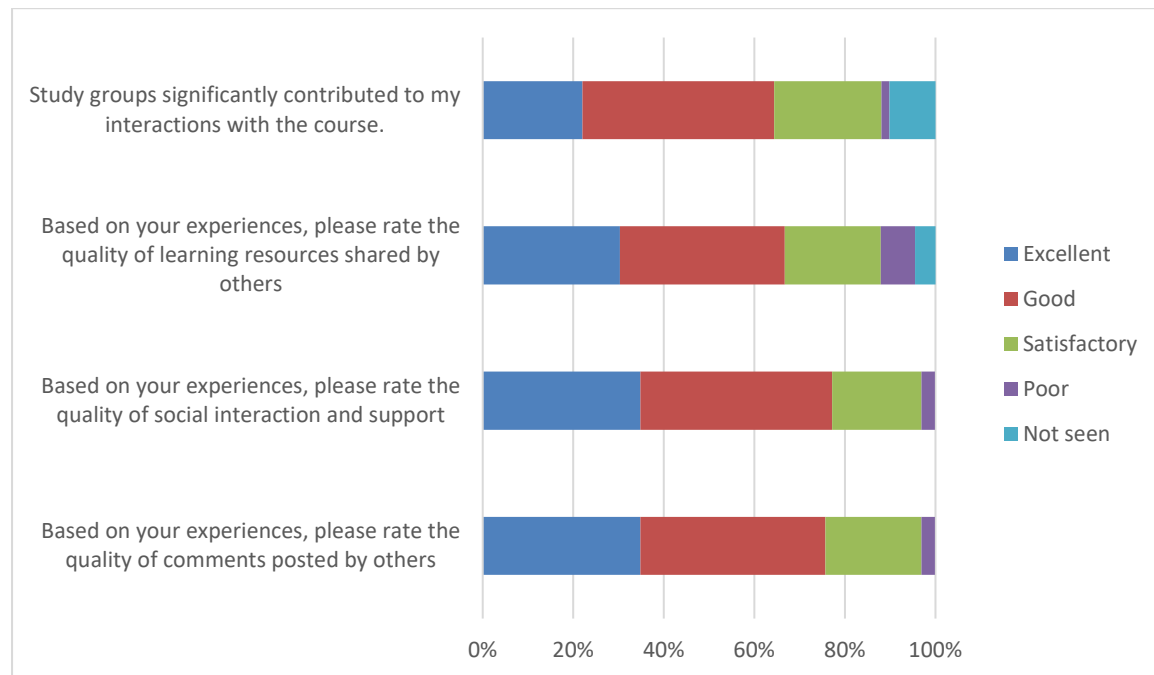
11 **Building community**

12 At the heart of our MOOC design, was the notion of community. Although terms such as
13 participation, engagement, and involvement has been used interchangeably to capture
14 characteristics of community activity (Thomson et al., 2020), in this study we found it more
15 valuable to conceive community in more dynamic terms (i.e. action, acceptance, belonging).
16 So, we used community as a way of thinking about design and the social configurations in
17 which engagement with activities were defined as worth pursuing and participation
18 recognisable in developing professional competence. The aim was to design activities that
19 would require participants to collaborate with each other, but also externally (e.g. work
20 colleagues). As one coach commented;

21 The topic piqued my interest and it was easy to do, I could do it on my own timeline.
22 And we actually did it with a group of about 10 or 15 friends. And we would talk
23 about it. Some days we would sit in the office and do it together. Some days we did it
24 individually, but then we'd always come back to it... I thought the delivery of it was
25 good and it gave us change to put into practice what we'd learn, or what we'd discuss
26 in the chatrooms prior. (Coach).
27
28
29

In the survey (Fig 3), data indicated how interactions in discussion boards could influence engagement, particularly where the quality of interactions and material accessed with other participants were reported to be significant.

Figure 3: *Social interaction through the MOOC courses*



The importance of discussion boards as a collaborative space, was also supported in interview data, were two teachers commented positively about their interactions with others;

A big plus for me was that you were able to interact with other learners, so you could see what they were suggesting. You could communicate with each other to come up with suggestions yourself and ask a question within the online course, and you'd get an answer sort of thing (Teacher PE).

Opportunities to talk to other teachers and share ideas. The google hangout was really cool, I enjoyed the opportunity to listen to discussions and ask questions in real time. I also started a professional Twitter profile because of the MOOC and have a much more active interest in pursuing online PD opportunities, connecting with other teachers to share ideas and regularly trying to update my practice (Teacher PE)

Data also demonstrated how participants interacted with other practitioners in different ways, and differing intensities. Some avoided the discussion boards, while others chose to engage

by either observing comments or only making a few comments to meet MOOC course recommendations for learning. For example:

I'm sure a lot of people didn't contribute to that [discussion boards]. I'm sure people read them, and felt "I don't want to put myself out there". You know there is a guy in our office that chose not to write on the discussion board... people learn in different ways. (Coach)

People were just offering a sentence here and there to abide by the requirement, rather than be engaged in the conversation (PE teacher)

There were times where I found myself just adding a comment to fulfil the requirement of that module (Coach).

Due to the differing levels of engagement with discussion boards, practitioners reported that some of the discussions lacked depth, and failed to support their learning. For example,

The discussions were good in terms of learning from other people... but in terms of actually engaging in conversation and challenging yourself, I don't know if you can do that in a discussion group when you don't know the people. (PE teacher).

This theme illustrates how content design attempted to encourage the 'sharing' of experiences, beliefs and opinions across the discussion boards in the hope of developing the features of what Swales (1990) called, a discourse community. Data, however, reported that the quality of the social interactions was a key barrier in the development of sustainable community interactions.

In summary, findings showed how learning and engagement was positively impacted when MOOC digital environments: are accessible and relevant to all learners; promote reflection and inquiry; allow for interactions with learners and tutors; include applied learning tasks; and provide opportunities for personalised learning.

Discussion

This study provides evidence about the ways in which teachers and coaches experienced MOOCs for PD. Data is provided on the key features of course design that impacted learner

engagement: (i) establishing relevance: (ii) facilitating bridging; (iii) designing for personalisation, and (iv) building community. Set in the context of the wider PD literature, these findings mirror what we already know about ‘effective’ PD (see Author et al., 2017; Cushion & Townsend, 2018). Indeed, much has been written about relevance, autonomy, interactions and application in PD (see Author *et al.*, 2017). However, the conceptual and methodological approaches that have informed this study (e.g. genre), contribute to knowledge about digital PD in terms of research and practice. The significance is that it adds new concepts and tools that enable us to understand, investigate and evaluate PD in a complex digital landscape, and that have the potential to be transformative in research and practice design. It is in this context, that we frame our discussion.

In the context of Miller’s (1984) conceptual description of rhetorical genre, user engagement as demonstrated in the findings, was something that was constructed from convention. Described by Carliner & Boswodd (2004) as the expectations that users bring to a specific experience, convention, or ‘style of use’, was constituted at the interplay between the capabilities of the digital platform to generate engagement and knowledge, and the social, cognitive, and affective processes that orientate users to particular digital spaces and/or online social practices (Lomborg, 2017). It was apparent, for instance, that there were two overarching styles of use in relation to the two courses: (i) active learning uses; and (ii) social learning uses. Active learning uses were associated with individualised actions, and focused on how participants might use content in their professional contexts. For example, active learning was particularly apparent within the themes of ‘facilitating bridging’ and ‘designing for personalisation’. In these themes it was evident that participants wanted to develop new practices (i.e. purposes of engagement), and where the tasks and the self-paced format of MOOC activities promoted different forms of social action, such as, applying, reflecting,

1 trialling, observing, and practicing. Social Learning Uses were associated with more
2 interactive actions, and focused on how participants interacted with the pre-determined
3 content and other participants in order to determine that their past, current and potential
4 future practices were credible. Social Learning uses were apparent within the themes,
5 ‘establishing relevance’ and ‘building community’. In these themes it was evident that
6 participants wanted to re-affirm their practices (i.e. purposes), and where knowledge
7 presented from different perspectives and from different types of professionals promoted
8 different forms of action, such as social comparison, social capital, collaborating, sharing or
9 lurking. From a professional development perspective, an understanding of styles of use
10 generates important questions for MOOC design; how and when do users expect to be
11 presented with content, how does the functionality of the online platform support users
12 navigate content, and when and how is content structured and text presented to capture the
13 attention of users? Such questions are particularly important for digital designers in
14 constructing patterns of use that are coherent and meaningful to participants, and in so doing,
15 create online experiences that meet user expectations.

16
17 In taking analysis further, a broader view of genre highlights how form and use are reflective
18 of social, cultural and historical contexts (Tardy & Swales, 2014). In this study, for example,
19 it was helpful to consider how digital context shaped user actions, while highlighting the
20 social actions of users themselves within the MOOCs. For Miller (1984), rhetorical genres
21 move analysis beyond form and style of use, and instead, seeks to identify relationships
22 between form, context, action and purpose in understanding engagement (Miller, 1984). This
23 framework is particularly insightful when mapped against the constructed themes from the
24 study; form (designing), context (relevance), action (bridging) and purpose (community). For
25 instance, at a foundation level, genre develop within a social context (e.g. culture of

professional development), and with a communicative purpose (e.g. MOOC participants expectations of the actions and behaviours of fellow course participants). At the same time, genre both shape and are shaped by the communities and context in which they are located (Kjellberg, 2014). For Swales (1990), the importance of context is described in his use of the term discourse community, in which its members have a common goal, mechanisms for facilitating participatory action, and opportunities to share knowledge and experience. An outcome of these interactions is the development of agreed actions, so that users recognise a situation and respond with a common or conventional form (Tardy & Swales, 2014). In this study, while genres were socially constructed (e.g. tacit agreement of form and style), and organised between multiple cultural ‘learning’ systems (e.g. partnership between University, NGB, masked for review), they represented a form of situated cognitive filtering as participants on the two MOOC courses organised and negotiated their online experiences. This approach reveals much about the actions of participants involved in in the two courses. Indeed, a focus on Miller’s (1984) genre framework offers a means to further investigate and bridge xMOOC and cMOOC design by focusing on the interactions between form, context, action and purpose, rather than focusing on them in silos (Greenhow & Askari, 2017).

The concept of genre as adopted and illustrated in this article provides a means to further organise and extract data to analyse and understand digital professional learning in more detail. Similar to practical epistemological forms of analysis (Andersson et al 2018), genre as an analytical technique create data by identifying social actions involved in online learning. The application of a Miller’s (1984) genre framework, for example, creates an understanding of the relations between producers, content and receivers, while integrating many of the concepts into a framework from which to understand participants experiences on the MOOCs. Although we were unable to examine how specific genres relate to each other (i.e.

genre ecologies, Smart, 2003), future research might ‘zoom in’ (Larsson & Quennerstedt, 2016, p.1) on data related to specific actions to engage with an in-depth analysis of learning. Genre analysis can certainly extend ways of thinking about learning in social digital platforms by moving beyond the use of obvious or common theories that appear to be limited in capturing the richness of digital interactions.

Conclusion

The empirical evidence generated from this study provides a new direction for professional development in digital online environments that is focused on both learning design and research. Examining digital engagement through genres, seeks to ensure that learners needs and expectations can be met in a complex and ever-changing PD digital landscape. As a form of disruptive innovative technology (Flavin, 2012), MOOCs have the potential to transform professional learning by utilizing social, networked digital platforms that support personalised and self-regulated learning (Milligan & Littlejohn, 2014). However, sustained innovation requires strong design choices. Evidence from this study provides insights into the ways in which digital PD might be structured to facilitate learning (i.e. purpose, context, action, and form), and presents broader challenges to the ways in which online pedagogy is conceptualised and practiced. These findings can support researchers, organisations, and individuals responsible for designing PD, and help teacher and coach practitioners to better understand how digital PD can be used to improve and change practice.

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