MOOC Educators: Who They Are And How They Learn

Thesis

MOOC educators: who they are and how they learn

Tina Papathoma

BA Philosophy and Education

MSc Education, Technology and Society

MRes Educational Technology

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'The roots of education are bitter but the fruit is sweet'. **Aristotle**

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Abstract

This study set out to answer the following research questions: who teaches in Massive Open Online Courses (MOOCs) and how do these different educators learn to teach?

To do this, it utilised Tynjälä's theoretical model of Integrative Pedagogy that brings together different elements of professional expertise. To this end, a 'multiple case study' was conducted, with a focus on teaching activities and who is involved in them, as well as on educators' 'processes of knowledge building', and the forms of knowledge they integrate. The data comprised 28 interviews with professionals with teaching responsibilities in seven MOOCs on the subject of History and of Politics on the FutureLearn platform. The seven cases were analysed using different strategies (theoretical propositions, ground-up data, and rival explanations).

The analysis showed that the role of 'educator' is filled not only by those with the titles used by the FutureLearn platform, but also by other professionals who take pedagogical decisions. MOOC teaching activities are diverse, different from face-to-face teaching and it is difficult for them to be carried out by a single individual. Educators in different courses and different universities used diverse models of work practice, each of which had advantages and disadvantages. MOOC educators learned to teach effectively when they had a shared goal, worked in transparent ways and involved interdisciplinary teams in a timely manner.

These findings can help institutions and platforms to design better Continuing Professional Development programmes and, ultimately, more effective MOOC learning journeys. Drawing on this evidence, the original contribution to knowledge of this thesis is a new conceptualisation of who the educators of MOOCs are, developed by uncovering the roles of professionals who carry out teaching on these courses, the wide variety of teaching activities involved and the ways people learn to work towards these.

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1 INTRODUCTION

This PhD thesis investigates teaching in Massive Open Online Courses (MOOCs) and explores who teaches, and how they learn to teach. To this end, the thesis explores the teaching activities that are involved in MOOCs. Many of these teaching activities are different from those in face-to-face courses, so the forms of expert knowledge educators develop, and the processes through which they build knowledge, may be different.

This chapter provides the background and research motivations of the thesis and outlines its main research aims. This is followed by a summary of key definitions used in the thesis and an introduction to the researcher carrying out the study. The chapter concludes by outlining the structure of the thesis.

1.1. Research motivation and background

The proliferation of new technologies and the emergence of the MOOC concept has encouraged universities and educators to respond to these new opportunities and to offer online education, including the introduction of MOOCs of their own. The increasing involvement of universities in MOOCs worldwide (Ferguson, Scanlon, & Harris, 2016) means that it becomes vital for educators to acquire relevant skills and knowledge to enable them to meet the requirements of this new form of teaching. This means that educators' professional development is significant. Although current research on MOOCs provides rich evidence of the perspectives of learners, there is little empirical evidence of the equally important perspectives of educators (Zhu, Sari, & Lee, 2018). This study aims to fill this gap.

Earlier research on educators' perspectives and on how they teach in MOOCs, although quite limited, focuses on the following topics. One is 'academic identity', exploring the ways teaching can be understood (Ross, Sinclair, Knox, Bayne, & Macleod, 2014). Another deals with the roles of educators[1] and learning designers[2] in UK MOOC contexts which reveals the central role of learning

[1] 'Educators' are typically academics of HE with a subject matter expertise

[2] The 'learning designer' role involves adapting, creating and sequencing content and learning outcomes (White & White, 2016)

designers working between academic and managerial tasks (White & White, 2016). A third topic area is concerned with the amount of labour needed in MOOC work which is often invisible and is sometimes considered to be a labour of love[3] (Freund, Kizimchuk, Zapasnik, Esteves, & Mewburn, 2018). Additionally, León-Urrutia, Fielding, & White (2016) examine the challenges and opportunities for PhD students who facilitate MOOCs. Ferguson & Whitelock (2014) investigate the different ways in which lead educators[4] position themselves in MOOCs. Other research focuses on the cast of actors (with different expertise) needed to make MOOCs and the fragmentation of the teacher's role in MOOCs (Buhl, Andreasen, & Pushpanadham, 2018). The motivations and challenges associated with MOOCs have also been examined (Hew & Cheung, 2014). Finally, there is research on views of staff regarding their MOOCs and the influence that MOOCs have in their institutions (León-Urritia, Cobos, & Dickens, 2018).

However, most of this existing research relies on position papers, self-reflections, and small scale-research. This background of research on educators' perspectives shows that empirical evidence is essential. The study of MOOCs is a relatively new area for educators that involves new work practices, with interdisciplinary expertise. This study investigates who teaches in these environments and how they learn to do this. To do this, the evolving theoretical model of Integrative Pedagogy is used. This model brings together key elements of learning and the development of professional expertise (Tynjälä, Häkkinen, & Hämäläinen, 2014). It was initially developed in 2006 when Tynjälä and her colleagues looked at the continuously changing world of work in the context of university students and examined the skills students need in the workplace and whether university education provides those to them (Tynjälä, 2008; Tynjälä, Slotte, Nieminen, Lonka, & Olkinuora, 2006). The aim of the current study and the research questions and the contributions of this thesis are discussed in the following section.

[3] Labour that is tacitly or obliquely acknowledged –may not feel like 'work' even though the cost to the individual worker is real (Freund et al. 2018)

[4] The educator who signs off emails to learners about their course on the FutureLearn platform is known as the 'lead educator'.

1.2. Research aims and questions

The first aim of this research study is to gain an insight into MOOC educators and uncover their roles, and the variety of activities they engage in as they teach in a MOOC, considering these in relation to face-to-face teaching. The second aim is to explore the ways educators learn to teach. The third aim is to develop recommendations on best practices for effective MOOC development as they emerge from the participants' effective practices. To do this, this research addresses the following questions:

- **Who teaches in MOOCs?**
- **How do these different educators learn to teach in MOOCs?**

To answer these two questions, this research employs a multiple case study approach (Yin, 2014), looking at seven MOOCs (cases) available on the FutureLearn MOOC platform. The method adopted to gather data employs online Skype interviews with educators of the seven MOOCs. A pilot interview is conducted before the main interviews to try out the data collection method and to explore the diversity of staff structures.

This research contributes to the body of knowledge about how educators learn new forms of practice, specifically focusing on what sorts of educators teach in a MOOC and how these educators learn new forms of practice. This new knowledge is important because it provides a new conceptualisation of educators in MOOCs and on ways of learning. The focus of this research is on MOOCs. However, some aspects of the findings are applicable to online learning more broadly because most of the participants' prior experience was of face-to-face teaching rather than teaching in online contexts.

This new knowledge comes from analysis of educator interviews in which they discuss topics related to their experience with teaching, the design of the courses, online education, prior MOOC experiences, similarities and differences between previous work practices and the MOOC, and ways of setting up and running their MOOCs. Additionally, a number of questions prompt educators to discuss positive aspects and challenges of working on MOOCs and ways of tackling them, their understanding of how teaching and learning takes place in MOOCs, and how they prepare to work, as well as the changes they need to make in the future in their MOOCs.

1.3. Key terms and definitions

Before proceeding further, it is essential to describe some key terms and definitions related to MOOCs, teaching and educators.

1.3.1. Massive Open Online Courses

The study of MOOCs is a context for *Technology Enhanced Learning* research that has developed rapidly during the past decade. 'A MOOC is an online course with the option of free and open registration, a publicly-shared curriculum and open-ended outcomes while it integrates social networking, accessible online resources and is facilitated by leading practitioners in the field of study' (Mcauley, Stewart, Siemens, & Cormier, 2010). Since this definition was written, the circumstances under which MOOCs are offered have changed. MOOCs are not always free of charge, do not always have open-ended outcomes and can be unfacilitated. Therefore, the definition of a MOOC has shifted from the one above to an online course with a certain curriculum, the option of open registration, which may or may not be facilitated by leading practitioners in the field of study.

MOOC as a term originated in Canada during a Skype chat conversation between Cormier and Siemens about an innovative online course 'Connectivism and Connective Knowledge' that Siemens and Downes were running at the time (Cormier, 2008). MOOCs later gained global media attention with the advent of a MOOC from Stanford University that was launched in 2012 (Pappano, 2012). This Artificial Intelligence Stanford MOOC created by Sebastian Thrun led him to create a for-profit platform (Pappano, 2012). Following this, numerous companies emerged at first to 'democratise education' by opening up access to higher education and by offering free online courses (Dillahunt, Wang, & Teasley, 2014). Currently, MOOC companies are using several strategies, one of which is the monetisation strategy by offering accreditation at a low cost. The first companies that appeared in the US were Coursera, Udacity and EdX, while in the UK, FutureLearn was launched in 2013**.** FutureLearn is the MOOC platform used as a background for the current research, and will be discussed in more detail in the following sections, after introducing different types of MOOC that have been developed in relation to educators' roles.

1.3.2. Types of MOOC

Different types of MOOC provide different roles for educators. The first type of MOOC is known as the cMOOC (Connectivist MOOC). These are based on Siemens' theory of connectivism, where

learners connect through digital networks with peers, experts and knowledge resources in order to learn (Siemens, 2005). In cMOOCs, the learning goals are defined by the learner rather than the instructor, and learning pathways are open and ill-defined (Littlejohn, 2013). Interactions in cMOOCs are initiated by learners and it is emphasised that 'you are teaching while you are learning'.

The second type of MOOC developed is the xMOOC. This type initially tended to employ an instructivist design in which learning goals are predefined by an instructor, learning pathways are structured by environments, and learners have limited interactions with other learners (Littlejohn, 2013). However, as Bayne & Ross, (2014) suggested in their report about MOOC pedagogy from a UK perspective, this distinction is problematic, over-simplifies the categorisation of MOOCs and may misrepresent what happens in these environments. The platforms offering MOOCs may employ slightly different designs and pedagogies. FutureLearn, which takes a social approach to learning, is described in the next section.

1.3.3. The FutureLearn platform

The MOOC FutureLearn platform was founded by The Open University. FutureLearn involves diverse partners which are not only university institutions but also non-university ones, such as the British Library and the British Council as well as other organisations in the industry sector (Ferguson & Sharples, 2014). FutureLearn started offering courses in 2013 and has a social-constructivist pedagogical approach[5] to support social learning - that is, learning happens by interacting with yourself and others through conversations. This platform supports a pedagogic approach based on the Conversational Framework developed by Laurillard (2002) which drew on the work of Gordon Pask (1976). This framework relates to the design of learning technology at the university level to be applied in different subject areas (Sharples, 2005). According to the Conversational Framework, each teaching element should be associated with discussions where learners are able to share information and perspectives (Ferguson & Sharples, 2014). In addition, when a course is designed,

[5] According to social constructivism, all learning takes place within a social context, and learners within a community work together to collaborate and make meaning out of novel information (Vygotsky, 1978). They do this by verbal or written discussions, and as they work together, they find connections between novel information and existing knowledge they have. It is noted here that Vygotsky did not define social constructivism – the definition stems from his work that was translated by Cole and Scribner long after Vygotsky's death.

it is required to take into account the points at which learners are likely to need support, as well as to motivate learners to offer help to others (Ferguson & Sharples, 2014).

The conversational model supports the design of learning rather than instruction (Ferguson & Sharples, 2014). According to this model, educators present concepts with an aim of coordinating action and provoking reflective conversation for learners. Although learners manage their own activities and reflective conversations, an educator has the responsibility to suggest goals and objectives, to generate suitable activities and models to explore, and to facilitate discussions.

1.3.4. Who is involved in MOOC teaching?

Depending on the platform and on the origin of publications, the individuals/professionals officially involved in MOOC teaching take different names/have different roles. The individuals involved in the production and presentation development of FutureLearn (FL) MOOCs, and who are visible to learners in the platform, are: the Educators, the Mentors and the Hosts.

An FL Educator is 'an academic with a specialist knowledge of the course subject' (Coleman, 2016). A subgroup of FL Educators are FL 'Lead Educators', who sign off on emails to learners, give feedback on the course quizzes and present a 'persona' which introduces the course and creates the story around it.

A FL Mentor is 'an academic with a good understanding of the course subject, who can help with guiding discussions'(Coleman, 2016). The term Mentor may have different interpretations in different contexts, one of which was addressed in the research of Liu, Macintyre, & Ferguson, (2012), who explored mentoring in online social learning. The focus in such environments (to which FutureLearn MOOCs are similar) is 'on learning by interactions and connections with and through a person or a learning object which is likely to be informal and unstructured' (p.180)(Liu et al., 2012). In such environments, a 'reflective mentoring' model is relevant. According to this model, mentors focus on developing self-reflection in the mentees (Wong & Premkumar, 2007). The FL Mentor definition is explored in the analysis of the current research in relation to the reflective mentoring model. Additionally, an FL Host is 'a facilitator who understands the FutureLearn platform and can act as a guide to learners' (Coleman, 2016). FL Hosts may chair video discussions involving FL Educators where the latter answer learners' questions.

This study adopts these definitions when talking about FL Educators, FL Mentors, and FL Hosts throughout this thesis. In addition, there is also another category of professionals who support

teaching activities but are not expected to interact with learners directly in a formal capacity (Coleman, 2016): the 'FL Others'. These were coded as 'FL Others' when data analysis was carried out for this thesis. However, the text refers to these professionals using the term 'FL Collaborators', reflecting the work of these people in working with and supporting the FL Educators, FL Mentors and FL Hosts. FL Collaborators include people whose substantive role is learning designer, administrator, or librarian. The term 'FL Collaborator' was coined after analysis of the roles of this type of professionals.

The roles that appear as 'educators' on FutureLearn take different names on other platforms, at other institutions, or in other countries. These include; 'instructors' and 'instructional staff' (Veletsianos & Shepherdson, 2016), 'teachers' (Ross et al., 2014), and 'Subject Matter Experts' (SMEs) (White & White, 2016). The FL 'Mentors' may be described in the literature as 'instructional assistants', 'moderators' or 'facilitators' (Freund et al., 2018; Liyanagunawardena, Alexandar, & Williams, 2013).

The terminology of educators is used inconsistently in the literature, so there is a need to name the people who work in MOOC development. This research uses the term 'educator' to denote a more inclusive role that applies also to professionals related to teaching. The term 'educator' with a lower-case 'e' will be used to refer to any individual involved directly in the process of MOOC teaching and is also used as an umbrella term. Therefore, people involved in providing education on the FutureLearn platform are described generically in this thesis as 'educators', but the terms 'FL Educator', 'FL Mentor' and 'FL Collaborator' are used when referring to specific roles they take on in relation to FutureLearn courses.

1.4. Introducing the researcher

After this introduction to the thesis topic, the researcher is introduced. The researcher employs a social constructivist perspective, which underpins this study ontologically and epistemologically. Her involvement in this topic came after she worked on a research project at The Open University related to the professional learning of a team which was asked to redesign a module. That team was asked to use new ways of producing module content and the project explored how the professional practice of this team changed when there was flexibility in the ways of working together with access to innovative tools for module design. After being involved in this study, the researcher's interest was influenced by the changes in professional practice and the difficulties the module team faced. She then decided to look at the professional practice of educators in MOOCs.

Additionally, MOOCs was a context the researcher studied for her Master of Research dissertation. Moreover, the researcher was intrigued and challenged by her experiences in these courses as a learner. However, taking into account the popularity of research focused on learners' perspectives, the researcher wanted to examine the less explored area of educators' perspectives.

1.5. Thesis structure

Chapter 2 focuses on defining teaching in MOOCs broadly, and considers studies from other contexts that relate to MOOC teaching (including conceptions of teaching that promote and facilitate learning as well as learning design). The chapter also refers to teaching models of distance learning. Research on educators' perspectives in the context of MOOCs is considered, revealing a literature gap which this thesis aims to fill. The chapter closes with a reference to the research questions.

Chapter 3 discusses the theoretical frameworks that were considered when framing the analysis of this research. 'Integrative Pedagogy' (IP), the theoretical model that was selected as the most appropriate for the research questions and design is then discussed. The chapter provides an analysis of its origin in workplace learning literature (i.e. informal learning, expertise and self-regulation as well as professional learning) and considers the components of the IP model.

Chapter 4 includes a discussion of the methodology of this research. It starts by presenting the qualitative research characteristics that frame this research, and indicates the position of the researcher on the acquisition or construction of knowledge. The research questions are presented in relation to the approaches that were considered. The chapter discusses in detail the most appropriate methodology to answer the research questions, and concludes that the most appropriate choice is the multiple case study.

Following this, Chapter 4 indicates the methods of data collection that were considered and focuses on the online semi-structured interviews that matched the research questions and the design. The chapter continues by describing the interview schedule. The ethical considerations of this research follow. The discussion of the chapter continues with the pilot interview, the process of data collection, and in particular, discussion of the sample that was used as well as a reference to the cases and participants, and how access to them was gained.

Chapter 4 on Research Methodology continues with a discussion of the data transcriptions, and the data analysis methods, as well as illustrating the way that the multiple case study analysis will be reported. The chapter finishes by considering the credibility and trustworthiness of this research.

Chapter 5 is an analysis chapter that answers the first research question: who teaches in MOOCs? It starts with participants' roles that appeared in the data structured around the FL terms of the roles of FL Educators and FL Mentors. The study also includes another group of people involved in MOOC teaching who are not officially named on the FL MOOC platform, and are referred to here as FL Collaborators. The chapter goes on to describe the teaching activities involved in MOOCs. The analysis reveals that the activities engaged in by the different roles (FL Educators, FL Mentors and FL Collaborators) vary, and include: securing funding for MOOC development, allocating work across MOOC groups, designing the course, ensuring rights clearance, presenting and editing videos, creating the course on the platform, facilitating learners' discussions, extending educators' role outside the platform, and repurposing MOOCs. The chapter concludes that although participants had primary roles on the teaching activities, it cannot be argued that they were involved only in a single activity. The activities were distributed across different roles and ownership cannot be claimed by a single individual. Moreover, the FutureLearn titles of participants need to be reconsidered under a more inclusive one, namely MOOC educators.

Chapter 6 is the second analysis chapter. It answers the second research question: how do these educators learn to teach? Participants' prior MOOC experience is illuminated. The chapter introduces the reader to their 'processes of knowledge building' (explication, collaboration, problem solving and dealing with uncertainty, reflection and evaluation) and illustrates how the forms of knowledge of the IP model of Tynjälä (theoretical, practical, self-regulative and sociocultural knowledge) were adapted in the MOOC context. The chapter offers an analysis across the seven cases in relation to the processes of knowledge building on their MOOC teaching activities, the forms of knowledge they integrated and the new knowledge they created across the seven cases studied.

Chapter 7 returns to the research intention and aims of the study. The research questions are discussed with a synthesis of the findings of Chapter 5 and 6, taking them back to the literature of Chapter 2 and 3. The theoretical and empirical contributions of the PhD thesis are demonstrated. The chapter goes on with an evaluation of the methodology. Following this, the chapter offers recommendations for effective MOOC development derived from comparison of participants' reports. Limitations of the current research and proposals for further research are discussed. A final conclusion of this thesis closes the chapter.

2 LITERATURE

2.1 Introduction

Massive Open Online Courses (MOOCs) appeared in Higher Education a decade ago and since then a lot of research has been carried out in the area. The existing research has identified the challenges and benefits of these courses, and has particularly focused on learners' perspectives. Published research has considerably neglected educators'[6] perspectives, which are also essential to the potential success of these courses. When educators' standpoints are covered by MOOC research, this is largely in terms of self-reflections of their experiences, position papers or small-scale research. This area is critical for student learning and is not yet understood. Therefore, more in-depth research is needed.

This chapter begins by focusing on giving a broad definition of teaching in MOOCs by referring to literature that considers other types of course. The chapter continues with a reference to teaching models in distance education and indicates the research on educators' perspectives in MOOCs. Following this, the literature gap filled by this research is discussed, and the research questions are addressed and close the chapter.

2.2 Defining teaching in MOOCs

Defining teaching in MOOCs is essential for the first aim of the study (see 1.2) to gain an insight into MOOC educators and their teaching. However, to date, there has been no clear definition of MOOC teaching in the literature.

Teaching may be seen as solely about supporting learning or more broadly involving additional activities. In the current research, MOOC teaching is defined in a broader sense by considering activities that not only support learning but also activities that relate to teaching and its design processes. This decision is also associated with the two aspects of the 'Manifesto for teaching online' of Bayne et al. (2016) which are taken into account to define MOOC teaching. The first one states that 'online teaching should not be downgraded to facilitation' and the second relates to 'the

[6] The term 'educator' with lower-case 'e' is used to refer to any individual involved directly in the process of MOOC teaching as discussed in 1.3.4.

massiveness of MOOCs that brings complexity and diversity' (Bayne et al., 2016). In other words, although in online teaching, the most obvious teaching activity may be the facilitation of a course, it should not be regarded as solely this. There is a whole design process that leads to the facilitation activity. Additionally, in the MOOC context, because the teaching is at scale, the process is more complex and diverse than on other types of course. Therefore, this section provides a broad definition that fits this research.

Traditionally, educators in Higher Education (HE) do not only focus on facilitating learning but also on their responsibilities as teachers/educators, which extend to different areas. For instance, to list only some of lecturers' teaching and activities related to teaching in HE (AGCAS, 2017), they typically split their time between

- delivering lectures, seminars and tutorials
- designing, preparing and developing courses and teaching materials and assessment[7]
- supervising and supporting students
- preparing bids to attract funding
- carrying out administrative tasks
- collaborating with other institutions or participating in staff training activities.

These points indicate that educators or lecturers have a multifaceted role. The current study, therefore, takes this approach and broadly defines MOOC teaching to include the above points, in order to investigate it further. Additionally, these are activities which educators coming to MOOCs are not familiar with (for example MOOCs involve 'learning material' that relates to preparing, editing videos etc.) and this is addressed in the second aim of the study (see 1.2).

The following sections deal with literature that is relevant to MOOC teaching although it was developed in the context of other types of course. This literature deals with teaching conceptions that promote learning and the process of learning design.

[7] Jordan, (2013) discussed earlier that 'Whatever the future of MOOCs, a beneficial side effect is that they are forcing the assessment community to consider appropriate methodologies for assessing huge student numbers and for assessing informal and online learning for the future.' (p. 24)

2.2.1 Conceptions of teaching that promote and/or facilitate learning

A substantial study conducted over 20 years ago investigated conceptions about teaching in HE (Kember, 1997). Kember compared the findings of 13 largely independent qualitative studies from seven countries in a diverse range of institutions. The conceptions of teachers about teaching that emerged from these studies were associated with:

- Teaching as imparting information
- Teaching as transmitting structured knowledge
- Teaching as an interaction between the teacher and the student
- Teaching as facilitating understanding on the part of the student
- Teaching as bringing about conceptual change and intellectual development in the student

According to Kember's (1997) summary, these five conceptions of teaching are associated with two broad orientations. The first two conceptions have a teacher-centred orientation, with the teacher presenting information and seeing the student as a receiver. The third one is a transitional conception, with neither the teacher nor the student in control of the learning process but recognising the importance of the student. The last two conceptions place the student in the centre (student-centred orientation); the teacher has an assisting role and students develop and apply knowledge. In the last conception of 'bringing about conceptual change and intellectual development', the teacher's role is supportive to students' learning. These conceptions are only focused on teaching as promoting learning and they either have the teacher or the student in the centre.

Although this research of Kember goes back over two decades, these conceptions are still relevant in the context of MOOCs. While digital technologies, and MOOCs as a tool in particular, can transform education in the sense of offering open online courses, they do not automatically transform educators' conceptions about teaching. The current study was not designed to look at conceptions of teaching, but some concepts inform the ways that educators teach.

The aim in FutureLearn is for FutureLearn Educators to support the building of knowledge rather than to instruct (Sharples, 2015). This is supported by the learning design of courses, which is discussed in the next section.

2.2.2 Learning design

In this study the definition of learning design[8] follows the definition of Conole, (2013a) which is:

> *'a methodology for enabling teachers/designers to make more informed decisions in how they go about designing, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to whole curriculum level design. A key principle is to help make the design process more explicit and sharable. Learning design as an area of research and development includes both gathering empirical evidence to better understand the design process as well as the development of a range of resource, tools and activities.' (p.7)*

This definition by Conole includes decisions that are relevant to MOOC learning design and distils information that the current study addresses. Learning design is seen as a process. The current research aligns with Conole's definition, as it investigates how educators view the process of learning design and how they make informed decisions by looking at the teaching activities (or learning material) and the teaching conceptions behind these activities. Additionally, the current study investigates 'resources and technologies'. How and whether educators see and think about the 'design' as a problem, and how they develop solutions for the learning design is a kind of professional development for them. This is reflected in Conole's definition of learning design as an area of 'research and development'.

Laurillard (2012) has a similar view to that of Conole (2013) on the 'research and development' aspect of learning design. She notes that 'turning teaching into a design-based research activity is an acknowledgement that teachers need to practise a form of experiential learning themselves' (p.80). So, educators need to design and learn by experience while this contributes to developing learners as an innovative learning community, as Laurillard explains.

[8] The term 'Learning Design' originated in the Netherlands, was much focused on at the technical level and was pedagogically neutral Conole, (2013a)

Learning design is seen as a new field that seeks to develop a descriptive framework for teaching and learning activities and applies to both face-to-face activities and online education (Dalziel et al., 2016). However, although the design of MOOCs is a central activity for educators, they often design courses in similar ways to those in which they design their regular face-to-face courses, or other online courses (Bali, 2014). The current study argues that this happens because 'emerging technologies' in education such as MOOCs are 'not yet fully understood' and 'not yet fully researched or researched in a mature way' (Veletsianos, 2010, p.15) and therefore explores how educators learn about the MOOC platforms that are rapidly developed as a way to offer education.

One of the aspects of learning design is to put the learner first and design 'for learning' (Laurillard, 2012). 'Designing for learning' is also discussed by Beetham & Sharpe (2007) where they explain that learning can never be entirely designed but can be planned in advance and 'designed for'. Learning can be fully defined when the activity is completed (Beetham & Sharpe, 2007) which will happen or not when a learner engages in a task. This is in line with Laurillard's (2012) view. She sees teaching as 'a design science' where teachers have to work out creative and evidence-based ways of improving what they do. Laurillard emphasises the term 'designing for learning' to show that the teacher's focus is on learning. So, it is stressed that 'teaching is about designing' and the purpose is to promote learning through the design. The term 'learning design' also appears in literature as 'instructional design' or 'teaching design' or 'pedagogy design' where teachers create the environment and conditions within which the learners find themselves motivated and enabled to learn. However, the terms do not reflect the importance of the learner, so Laurillard and Beetham & Sharpe suggest using a learner-centred term, 'design for learning'.

Laurillard (2012) consequently adopts a student-centred orientation. The current study also addresses the design practices of educators in relation to their perceptions of where the learner is situated as it emerges from educators' views. Bali (2014) reports that certain MOOCs are designed in ways similar to the educators' face-to-face courses, which risks failing to maximize potential learning for the greatest number of learners, because it means they are not putting the learners' context at the centre of the learning experience.

The current study touches on the ways educators see the design of their courses and whether they take what will be described as conscious or loose approaches. A conscious approach relates to the design as a methodology, a structured process that educators follow which includes making pedagogically informed decisions about the resources they use from the preparation to the run of

the course. A conscious approach also relates to the genre of professionals that get involved in it, whether they are subject matter experts or experts in MOOC design. In contrast, a loose approach is when the design is limited to writing learning material for which it is unclear whether it is pedagogically informed or whether it was thought through in depth. A loose approach may also entail that experts in learning design are not included in the process of MOOC developments.

Resources to support the successful design of FutureLearn courses are provided on the FutureLearn partners' platform (Sharples, 2015). The basic aim of learning design, according to the FutureLearn advice, is to take a systematic approach to designing and planning courses. The framework that Sharples (2015) proposes for learning design was adapted from Cross, (2012). Cross examined the design practice of identifying and articulating the design problem space. The guidelines of Sharples (2015) on the design relate to

- working with the FutureLearn platform structure (i.e. focused on steps, activities and weeks not content, units, modules)
- having an idea who the 'intended' learners are
- starting from a learning objective or a question
- taking into account that every step should contribute to learning
- having a balanced mix of learning activities (videos, discussions, articles etc.)
- supporting a narrative during the course (storytelling)
- designing for conversation (see conversational framework in 1.3.3.)
- celebrating progress (i.e. showing learners how they progress along the course weeks).

These guidelines denote a conscious approach that involve pedagogically informed decisions. Any decision that has an effect on those activities is a pedagogical decision. For example, the production of video relates closely to the narrative (storytelling). The subsequent editing of a video affects the narrative presented, as Law (2017) discusses in the context of filmmaking on the effects of editing on narrative. As construction of a narrative is one of the pedagogical activities listed earlier, it can be said that the process of video production and editing includes pedagogical decisions. Hansch et al. (2015), who researched the role of video in MOOCs through interviewing practitioners involved in educational video production, have identified the need for further research on the effectiveness of video as a pedagogical tool.

This section on the learning design that is seen as a 'science of teaching' and as a process of different activities indicates that the educators' reconceptualization and their roles is needed in the MOOC context. The next section describes teaching models of distance education.

2.3 Teaching models of distance education

This section explores teaching models in distance education, since many of the issues in MOOCs have been explored previously in that context. The model used at The Open University (OU), a university that has pioneered distance education and learning, is 'supported open learning' (Scanlon, McAndrew, & O'Shea, 2015), which has been shown to be sustainable at a large scale (Ferguson & Sharples, 2014). This model combines content provision with tutor support and assessment to guide learners through their programme of study (Scanlon et al., 2015) as well as allowing them 'to work at times and locations convenient to them' (Ferguson & Sharples, 2014). The OU's choice of method relates to its mission to be open, to provide accessible distance education and to operate at scale with courses for thousands of learners (Scanlon et al., 2015). Ferguson & Sharples (2014) explain the challenge of MOOCs in relation to this model in the following quote:

> *'A network of local tutors provides additional support including marking assignments, giving feedback, and offering help to students. Over 200,000 students at The Open University learn by this method, but it is costly to recruit, train and employ the tutorial staff, so the approach is only viable on paid-for courses. Therefore, a central challenge for massive free and open online courses is to develop innovative pedagogy' (p.100).*

Therefore, the model of the OU teaching model reflects MOOC teaching in some aspects, but MOOC teaching is distinctive in that it offers limited support for learners because educators are costly. The MOOCs that this study looks at were not formal courses, although there is currently a strategy to formalise MOOC courses and offer degrees (Bothwell, 2016). This type of course is beyond the scope of the current study.

The OU distance education teaching involves different stages, including the tuition and the tutoring (Price, Richardson, & Jelfs, 2007). Tuition is the syllabus of knowledge which may be impersonal and objective. Tutoring is more subjective and related to the needs of learners. In tutoring, interaction between teacher and learners helps learners to grasp the big picture of a context. Additionally, tuition and tutoring are often undertaken by different actors.

Other models of (formal) teaching online come from Salmon (2003) who developed the 'e-moderating' concept, in which the teacher mediates online environments designed for interaction and collaboration. Salmon focused on online learning that sees 'learners' experience as central to knowledge construction' (p.4) and therefore the role and skills of the e-moderator are important and call for a wide range of expertise (i.e. understanding the online process, technical skills, content expertise etc.). Additionally, Garrison & Anderson, (2003) developed the 'Community of Inquiry' model that describes learning and teaching through three interdependent elements. These elements are the social, cognitive, and teaching presence which allow a contextualised view of online education, in which, the teacher, the learning, and the content are central elements of forming an educational community.

The unbundling of a traditional (face-to-face) faculty role in online education is also emphasised as well as their cost in other research conducted by Neely & Tucker (2010). In traditional settings, an educator is responsible for delivering instruction, developing and maintaining courses, assessing learning outcomes etc. (Neely & Tucker, 2010). However, in a distance-education setting there are diverse roles: course instructors or facilitators, the person who writes the subject matter, the marker, the academic advisor, and the instructional designer (Neely & Tucker, 2010). In the MOOC context, these roles are relevant and reflect the distribution of the diverse teaching activities. In the same vein, teaching MOOCs presents similarities with the tuition and tutoring model of the OU discussed earlier in the sense that it involves a number of professionals (i.e. faculty members in Neely and Tucker's terms) that distribute their teaching.

Teaching in MOOCs involves preparation of tuition (i.e. learning materials) by one professional or a number of them (educators, learning designers etc.). Yet, when a MOOC runs, it is possible that tutoring (OU term), or facilitation, is done by another group of people, the 'facilitators or co-participants' (Ross et al., 2014). Tutoring may be distributed not only to facilitators but also to educators and/or designers who prepare the teaching materials. This distribution of roles may provoke a confusion in the MOOC teaching.

An example of challenges in distributed processes in completing tasks comes from the trial of a free open online course[9] with professional and academic partners. The openED 2.0 project (Aczel et al., 2011) involved seven European organisations that collaboratively created a business course. During this effort the partners authored different sections of the course with the intention of promoting the reuse of content in universities. However, this distribution of tasks related to authoring and facilitating this course was challenging. Authors designing this course rarely commented or changed the content of their colleagues' text. Aczel et al. (2011) highlighted the danger of adopting a distributed process of course design which entails a lack of coherence.

Further, unlike teaching in a face-to-face circumstance or in distance education[10], where the 'tutor support' is clear and they are paid for working a defined number of hours, in the MOOC context, Freund et al. (2018) note that there is the risk of educators being expected to facilitate discussions outside specific schedules as there is a fuzzy boundary between personal and professional levels. In MOOC practice educators are likely to have less time assigned to MOOCs than other distance learning or face-to-face courses. Haggard (2013) noted back in 2013 that what distinguishes a MOOC from conventional online learning in that 'no professional academic time (or virtually none) is allocated to guiding or supporting individual learners' (p.10). This is still the case as the recent study by Freund et al (2018) shows.

As different authors state (Freund et al., 2018; White & White, 2016) a MOOC is developed by a number of actors and there are a number of roles involved in the MOOC experience for educators who are responsible for different teaching activities. On FutureLearn, the platform of the current research, activities that teachers need to complete for MOOC preparation and the running process are also diverse, so it would be difficult for these to be completed by a single professional.

[9] OpenEd was not specified as a MOOC because the term was not popular at the time the project was set up.

[10] At times face-to-face meetings are organised in teaching centres between tutors and learners in distance education

2.4 Educators' perspectives in MOOCs

Supporting the development of educators is one of the priority areas to be used to develop a strategic approach to learning at scale (Ferguson, Scanlon, & Harris, 2016). Currently, existing literature on educators' perspectives focuses on diverse areas, as discussed in the next sections.

2.4.1 Research on teachers' academic identity and their position in MOOCs

During the early stage of the development of MOOC research, Ross et al., (2014) drew on literature related to academic identity to explore the ways teaching can be understood. They found that research on MOOCs does not adequately address the complexity of the role of the teacher. Reflecting on their experience with a Coursera MOOC, they found that current conceptualisations of academic identities of teachers, such as the teacher as a 'distant rock star', a 'co-participant', or as a role of a 'set of automated processes' fail to reflect the complexity of the role of MOOC teachers. However, they did not offer another typology of educators in MOOCs.

As earlier discussed in section 1.3.2, Ross et al. (2014) also criticise current categorizations of teachers rooted in the two forms of MOOC that initially appeared (cMOOCs and xMOOCs) as inadequate, as the MOOC should be studied on its own terms and understood as *'a complex site of knowledge construction that needs further theorizing and discussion (p.59).'*

Similarly, the 'co-participant' typology was utilised in the study of Watolla, (2016), which assumes the participation of both teacher and learner in the teaching and learning process, to reflect on her experience of implementing different teaching methods in a MOOC on the topic of arts management. She highlighted that there is a limited recognition of the role of learners as 'co-creators' of course content. However, she identified that the teaching is 'distributed' between learners and teachers and found that 'distributed teaching' offered perceived benefits to learners. Further, Watolla mentioned the different professionals involved in the teaching (academic director, facilitators, and speakers), showing another dimension of 'distributed teaching among these professionals.

Ross et al. (2014) found their MOOC teaching overwhelming (because of the number of people, ideas, conversations and resources) although it offered a feeling of being in the spotlight. Sometimes they were uncertain about their purpose or felt they were intruding in learners' conversations with their teaching presence while they were also not sure about the level of their responsibility as teachers.

Overall, literature suggests that MOOC learners, designers and teachers are unclear about the meaning of teaching and learning at scale (Ross et al., 2014). The current study sees MOOCs as a multifaceted site of knowledge construction for educators (i.e. designers and teachers), because they are different from other course types that educators of face-to-face courses may be more familiar with. It investigates the practices that educators develop to prepare courses and interprets the ways educators work with their own learning in MOOC contexts. It also examines which activities can be overwhelming or provoke uncertainty in educators' practice. The current research extends the work of Ross et al. (2014) by exploring the ways educators learn to deal with the diverse MOOC activities.

Ross et al. (2014) argued that most MOOC learners and teachers have been educated within formal educational settings, and these contexts inform how current MOOCs are designed and experienced. The current study explores new practices in MOOC teaching in relation to what educators already know. The publication of Ross et al. (2014) also touches on teaching practices, and academic identity in particular, which are affected by the discipline, the institution and the personal. In other words, practices can be influenced by the teaching area, or by the ways an institution asks teachers to approach courses (teacher or learner centred), or by a teacher's personal history and teaching practice.

The complex role of educators was studied from a different perspective in the exploration of the teaching and learning activity within MOOCs in the study of Ferguson & Whitelock, (2014), where they thematically analyse email messages from lead Educators of six FutureLearn MOOCs. The researchers provide some evidence of the multifaceted nature of MOOC education through the different ways in which lead educators position themselves within their MOOCs and the various roles they adopt. The ways educators positioned themselves included: being emotionally engaged or aloof, working as individual or team member, and member of the group working through the course or individual guiding group progress. Another dimension is the degree to which an educator acts as both host and instructor or as fellow learner. The 'fellow learner' element is in line both with the study of Watolla (2016) and the one of Ross et al. (2014).

As the study of Ferguson & Whitelock, (2014) was a preliminary one, the findings of the multifaceted roles of FL Educators in MOOCs are not analysed in great detail and are also limited to one cohort of educators involved in MOOCs (i.e. the lead educators of the FutureLearn platform who are the educators who usually sign off emails to learners about their course). The current study

investigates further these dimensions and especially looks at where people place themselves on the spectrum of being individuals/ team members other than the 'lead'.

2.4.2 The role of educators and related roles involved in MOOCs

The activities involved in MOOCs require educators to get involved in different roles and to work with professionals from different areas of expertise. These requirements are discussed in this section.

A recent empirical, small scale, research study conducted by Buhl, Andreasen, & Pushpanadham (2018), focused on the 'fragmentation' of the teacher role when upscaling the number of learners. The research consisted of only three interviewees with a background in Education. The study found that, in order to operate and implement MOOCs, different professionals from diverse areas of expertise are needed. Specifically, teachers need to have technical skills, to coordinate between specialised areas, and to collaborate with many new actors/experts. Although this was only a small study the necessity for different experts to collaborate is something that the current research builds upon.

Further, another piece of research by White & White (2016) focused on the roles of educators in relation to a cohort of professionals that are closely involved in the MOOC developments: the learning designers. The researchers published a report on one of their three institutional case studies where they explore the consequences of implementing these courses into HE. They argued that learning designers take a central role in the MOOC development within a 'third space' between academic and managerial roles. They emphasised the social and technical power intertwined in the construction and practical use of MOOCs in certain HE settings. At the same time, their analysis showed that there are other peripheral actors (legal, marketing, media production) that are significant in shaping the course design and development process and somewhat dilute the role of educators as known from other type of courses. The study of White & White (2016) has some key similarities with the current research as they both align with this focus on UK contexts and the FutureLearn platform. However, although the key concepts of the role of educators and learning designers are also part of the scope of the current research, the current study also involves more roles involved in the MOOC development: the FutureLearn Mentors as discussed in 1.3.4.

Another piece of research highlighting educators' roles comes from Freund, Kizimchuk, Zapasnik, Esteves, & Mewburn (2018). The researchers discussed the 'satellite staff' who are the 'moderators' (i.e. professionals who facilitate discussions). In addition, they highlighted the instructors (whom

Freund et al. discuss as 'Star teacher') reflections on designing, building and running a MOOC. Their study, like the one by Ross et al. (2014) is based on the self-reflections of the authors about their course 'How to survive your PhD' on the edX platform. The book chapter that presents the study of Freund et al (2018), shows that MOOCs are spaces of invisible, ambiguous, emotional and *hope labour* (i.e. labour offered with the hope there will be some non-monetary return) for the authors.

Freund et al. (2018) stress the complexity of the labour involved in making MOOCs as other researchers did, but focus particularly on the cost for individuals and institutions of making MOOCs open and free. They highlight the benefit for moderators working in these courses that it is a 'learning experience' for them, but they consider the cost in the time spent in this labour. This work is expressed as a 'labour of love' which is 'crucial to keep the digital spaces functioning as useful teaching and learning environments' (p.124). Apart from the challenges, the 'exploited labour' is also a site of innovation, playfulness and pleasure. This book chapter effectively raises questions for higher education workers and managers. The authors question whether the costs for this labour outweigh the benefits and who benefits most from this work.

León-Urrutia, Fielding, & White (2016), also deal in their research with FL Mentors (see the definition in 1.3.4), what Freund et al (2018) previously referred to as 'moderators'. The study by León-Urrutia et al. particularly addresses the challenges and opportunities for PhD students working as FL Mentors. In this qualitative study, they use focus groups to gain insights into PhD students' experiences in MOOCs from various disciplines. Their analysis reveals how FL Mentors develop teaching and digital skills, and how they face challenges related to their digital identity.

The study (León-Urrutia, Fielding, & White, 2016), finds that participating in MOOCs as Mentors generates self-confidence and helps them (mentors) develop certain teaching, digital, and academic skills that can be beneficial for them and their institutions. Moreover, their tasks may enhance their online communication and pedagogical skills. However, the authors also report that there are unclear expectations of performance which echoes the 'uncertainty about the purpose' that Ross et al (2014) found in their study.

Additionally, León-Urrutia et al. (2016) found that FL Mentors exceed the workload for which they are paid, which has some similarity with the study of Freund et al (2018) that discusses the 'invisible' work of moderators. Finally, León-Urrutia et al. (2016) found that FL Mentors are concerned by an unbalanced exposure to the scrutiny of high numbers of unknown people. This reflects the findings

of Ross et al. 2014 of being overwhelmed by the number of people, ideas, conversations and resources in their course.

Apart from León-Urrutia et al. (2016) who looked at the challenges of FL Mentors, Hew & Cheung (2014) reviewed the published literature on instructors' motivations and challenges in the use of MOOCs. The secondary data that these researchers used in their analysis relied on self-report data (i.e. personal reflection) and some survey data. Their findings show that instructors are motivated by a sense of intrigue, by their desire to get some personal (egoistic) rewards or that they are driven by a sense of altruism. On the other hand, Hew & Cheung also identified challenges for instructors in their use of MOOCs. These related to the difficulty in evaluating students' work, having a sense of speaking into a vacuum due to the absence of student immediate feedback, being burdened by the heavy demands of time and money, or by encountering a lack of student participation in online forums.

In line with the challenges identified for instructors in Hew and Cheung's study is the most recent study by León-Urritia, Cobos & Dickens (2018). In this, they discuss the challenges in time and effort of offering videos and creating text for a large number of unknown learners. Educators do not ever get a chance to find out much about the learners, their motivations, and their past experiences. León-Urritia, Cobos & Dickens (2018) discuss the views of staff regarding their MOOCs and the influence that MOOCs have on HE institutions. As Hew & Cheung indicate the 'personal rewards', León-Urritia et al. (2018) point out recognition elements, as their study's participants discussed the need for their institutions to recognize their efforts by reducing their teaching duties as well as promoting the courses so as to remain sustainable. Although the study by León-Urritia et al. (2018) is limited to two universities, the findings show that staff believe that MOOCs will soon become indicators of excellence and therefore, they ask institutions to invest in resources for MOOC purposes.

In the recent qualitative study of León-Urritia et al. (2018) where they conducted their research using 'world café' and interview methods of data collection with British and Spanish university staff, staff had positive attitudes towards their MOOC involvement. They were willing to provide free education and showcase their work while contributing to the digital transformation of their institution by repurposing and reusing digital learning material (León-Urritia et al., 2018). However, the question that remains is how educators learn to be able to contribute to such digital transformation within their institution, and the current research addresses that.

2.4.3 What educators value in MOOCs

In survey research, educators are found to value diverse aspects of MOOCs including student performance, activity patterns and forum behaviour to gauge participation (Stephens-Martinez, Hearst, & Fox, 2014). The results of this survey reflect prior surveys of instructors' values of conventional online courses. The 92 MOOC instructor-participants in the survey had taught on the Coursera, edX or Udacity MOOC platforms. On the other hand, another survey, with experienced professors with relatively little prior experience teaching online, showed that instructors were divided about the purpose of MOOCs (Evans & Myrick, 2015). They found it more challenging to teach online than they would have thought before doing it. The current research takes into account the values and the challenges that MOOC teaching may involve.

2.4.4 Systematic reviews of MOOC research in relation to educators

Finally, several systematic reviews of MOOC research noted the limited literature on educators' stance. In particular, from one of the initial systematic studies to one of the latest, a lack of published research on MOOC facilitators' experience and practices (Liyanagunawardena et al., 2013) is repeatedly identified. This involves the potential benefits of targeting research at MOOC instructors, instructional designers and the entire course development, production and evaluation team (Zhu, Sari, & Lee, 2018). Additionally, Gašević, Kovanović, Joksimović, & Siemens, (2014) also report that little attention has been paid to educators' perspectives, while Veletsianos & Shepherdson, (2016) propose that instructors' motivations, experiences and perceptions are a rich area for future research as is potential investigation of the impact of 'instructional assistants' on learning and support in course delivery. Similarly, Deng & Benckendorff, (2017) highlight that the teaching context is critical to successful student learning and therefore needs to be researched further in the MOOC context. The gaps in the educators' perspective that led to forming the research questions of this PhD study are discussed further in the next section.

2.4.5 Summary

To summarise the section (2.4), the existing research on educators in MOOCs does not paint a consistent picture of what teaching entails in MOOCs and how teaching can be defined. The pieces of research mentioned in the preceding sections touch on different areas and these are: the academic identity of teachers, the role of learning designers, the challenges and opportunities for PhD students working as facilitators, the ways educators position themselves, the invisible labour involved, the fragmentation of the teacher's role, the elements instructors value in MOOCs, the

views of staff regarding their MOOCs and the influence that MOOCs have in their institutions. These areas still leave gaps that are identified in the next section.

2.5 Literature gap in educators' perspectives and research questions

The research in the previous section, as indicated in the numerous systematic reviews, position papers, self-report research or other small scale research, shows a considerable gap related to the ways educators learn to teach and to the complexity of their teaching in MOOCs. Although the existing research has shown that the teaching activities are dealt with by different professionals, there is ambiguity among educators' roles and activities. Therefore, more research in this area is needed. Many of the existing studies are self-reflections on a relatively limited experience and very few carry out detailed analysis of a range of experience. None of the existing literature focuses on the professional learning of educators.

Additionally, the existing empirical research on educators has mainly focused on educators separately (i.e. academics, instructors, teachers) (Buhl et al., 2018; Ferguson et al., 2016; Ross et al., 2014) or solely on professionals who facilitate discussions (Freund et al., 2018; León-Urrutia et al., 2016). Much less empirical research has focused on the combination of the roles of educators and the cohort of learning designers (White & White, 2016). As opposed to the empirical survey studies, attention has been given to surveying the sources that instructors value, their perceptions, motivations and challenges (Evans & Myrick, 2015; Hew & Cheung, 2014; Stephens-Martinez et al., 2014). Also, existing literature does not always specify the MOOC platforms where the research took place.

Empirical research on actors involved in MOOC teaching in the FutureLearn context has started developing with a focus on the learning designer's emerging role (White & White, 2016) and the challenges and opportunities for early-career researchers working on the facilitation of courses (i.e. FL Mentors) (León-Urrutia et al., 2016). However, this research is associated with just one institution. The current research goes beyond that, by focusing on gaining a deeper understanding of a combination of professionals engaging in MOOC teaching as this was broadly defined in 2.2, and investigates educators from different institutions. As already noted in 1.3.4, educators in this research are considered to be, under an inclusive notion, the professionals who are involved in MOOC teaching activities. As the area of MOOC teaching is relatively new for people who work at face-to-face universities, and who are likely to have also been educated in face-to-face courses, it

is worth investigating how they learn to work in MOOC settings. The current study therefore seeks to answer the following research questions:

- **RQ1: Who teaches in MOOCs**?
- **RQ2: How do these different educators learn to teach in MOOCs?**

It cannot be assumed that the role of educators in MOOC environments is the same as their role in a face-to-face or formal online environment. This is because the scale in a MOOC is different. Staff are likely to have less time assigned to MOOCs than to other courses. Learners do not make a financial commitment, so more work is needed to keep them engaged/on board. Moreover, at the design stage of a course, the academic and cultural (e.g. geographical, linguistic) background and learning goals of the learners are unknown to educators. For these reasons, the current research investigates the educators' perspectives, the activities that are involved in teaching in MOOCs and the ways they learn to teach in MOOCs.

In order to answer the research questions, this study considers different theoretical frameworks that could be employed: Cultural Historical Activity Theory (CHAT) and its concept of expansive learning (Engeström, 1987), the Communities of Practice theoretical concept of Wenger, (1998) and the Integrative Pedagogy theoretical model (Tynjälä et al., 2014).

2.6 Summary

The chapter positioned the current research in the literature. It gave a broad definition of MOOC teaching, highlighting conceptions of teaching and learning design. It also discussed teaching models of distance learning. Research on educators' perspectives was considered and the literature gap that this research addresses was set out.

To better understand the ways people learn to teach MOOCs and the processes they use to do this, it is helpful to turn to a conceptual framework that explains and analyses the ways people learn. The next chapter addresses the theoretical frameworks that were considered to frame this research.

3 THEORETICAL FRAMEWORKS

This chapter presents theoretical frameworks that were considered in order to frame MOOC educators' professional learning and explains why Integrative Pedagogy (IP) was chosen as the most appropriate to frame this research. The IP model and its origin in the workplace professional learning literature is then discussed.

The criteria for choosing the theoretical framework were that it should :

- include the individual and socio-cultural element
- be a general framework that would be inclusive to both the teaching profession as well as to other professionals whose background is not in teacher education
- facilitate practicalities such as combining the selected framework with the methodology used.

Three broad conceptual frameworks identified in the literature were considered before choosing 'Integrative Pedagogy' (IP) to analyse how educators learn. Before discussing IP in detail, the other two relevant frameworks are discussed in this section in relation to IP with regards to what they could offer and what they would require to be used in the current study.

3.1 Cultural Historical Activity Theory and Communities of Practice frameworks

Cultural Historical Activity Theory (CHAT) with its concept of expansive learning (Engeström, 1987) has been used to analyse human activities which are complex, socially situated phenomena. An activity system, in the context of CHAT, is used for understanding learning and development of human actions, and consists of connected elements: subject, object, tools, community, rules, and division of labour. In the activity system, there are contradictions which may provoke tensions within the system and may make an impact on the system. The idea of CHAT is that learning and development happen socially. CHAT has been used in Health Care areas and work settings, its use in educational contexts is developing (Nussbaumer, 2012).

CHAT also involves an interventionistic approach, the Change Laboratory method (Engeström, Virkkunen, Helle, Pihlaja, & Poikela, 1996), where the researcher can look at how groups of educators (an activity system) work towards their object (MOOC course) and analyse the different aspects of CHAT (division of labour, roles, rules, community etc.). Activity Systems take shape and are transformed over lengthy periods of time (Engeström, 2005).

The area of MOOCs is not the first priority and central in educators' workload, and for the current study, it was not possible to find educators who could commit to meet at fixed points. CHAT and the Change Laboratory method require meetings at fixed points with subjects, and comparison groups, e.g., groups teaching on the same topic at similar times. It would be insightful to analyse the tensions that educators face as they change their practice and how these new ways of working complement or contradict their past teaching experiences, as Kaatrakoski, Littlejohn, & Hood, (2017) have investigated in the context of Open Educational Resources and practice. However, it was also difficult to find educators who taught MOOCs on the same topic that ran at similar times.

The adoption of certain artefacts/tools to mediate action that CHAT looks at are also present in the framework of Tynjälä and her colleagues (2014), and are investigated in the current study. Another aspect of CHAT, the *division of labour,* is taken into account during the data analysis when looking at how groups work towards MOOC development.

Following this, another conceptual model that was considered was Communities of Practice (CoP). 'Communities of practice, are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly' (Wenger, 1998). The definition of a CoP emphasises the social community as the primary unit of analysis. When people initially join communities, they learn at the periphery (an activity termed 'legitimate peripheral participation'). As they learn at the periphery, they become more competent and gradually get involved in the main processes of a particular community. Learning in a CoP relates to social participation and not to the acquisition of knowledge by individuals. This conceptual model has been used in the field of management and Human Resource Management (Hughes, Jewson, & Unwin, 2013). A drawback from the perspective of the current research is that CoP focuses on social learning, and this research is also interested in individual learning and in how learning can also take place outside communities. The IP model covers social learning and is a more inclusive framework than Wenger's.

The current research used the Integrative Pedagogy model because it draws on individual and collective level of knowledge (Tynjälä & Kallio, 2009) to explain the ways people learn in a more holistic approach. The focus of the current study was on the 'professional roles' of educators, and so a framework that explicitly took that in to account was more appropriate than CHAT or CoP. IP is directly focused on professional learning. Its origin from concepts of workplace learning is discussed in the next section along with its evolution over time.

3.2 The origin of the 'Integrative Pedagogy' theoretical model

The nature of workplace learning has been investigated through different perspectives (individual, group, organisational, networks, regions) and is often not recognised as learning because it tends to be informal. Workplace learning may be framed as 'development' or 'training' as distinct from learning, but the workplace should be considered an environment for learning (Tynjälä, 2008)

Integrative pedagogy (IP) is a theoretical model for bringing together key elements of learning and the development of professional expertise (Tynjälä & Gijbels, 2012). IP is a model that identifies how professional learning takes place and what its different elements are. It thus helps to identify gaps in knowledge development and to find out what elements of learning are missing. It also helps to consider each element of professional knowledge development clearly.

IP is an evolving model that was first developed when Tynjälä et al. (2006) examined the skills graduate students need in the workplace and whether university education provides those to them. They concluded that universities find it challenging to integrate theory and practice. They propose that a way to do this is to incorporate work-based learning in the university education of students through an integrative model combining theoretical with practical and self-regulative knowledge. During the development of the IP framework, Tynjälä amended the framework to draw attention to the development of socio-cultural knowledge (Tynjälä, 2013) [11].

In the work of Tynjälä and her colleagues, the 'university' is seen as a 'formal education' environment while in the context of the current research, the 'university' is seen as the 'workplace of educators' and is considered an environment for the (informal) learning for educators.

The IP model is grounded in Tynjälä and her colleagues' own research. It has been reviewed as an analytical model and applied as a model for creating learning environments (Heikkinen, Tynjälä, &

[11] Tynjälä and her colleagues used and refined the framework. The importance of sociocultural knowledge became increasingly apparent and they added it to the framework. Tynjälä, (2013)also mention the central role of the sociocultural context that promotes or limits professional learning as an additional level of examination in one of her studies. The sociocultural element finds application in empirical research in a later research published in the context of engineering students (Täks, Tynjälä, Toding, Kukemelk, & Venesaar, 2014)

Kiviniemi, 2011[12]), and as a way of designing professional learning or applying it in technology-enhanced learning (Tynjälä, Häkkinen, & Hämäläinen, 2014[13]). Therefore, the current study takes the IP framework as a guide to commence an exploration of its components and to identify gaps in knowledge development of educators. Before discussing in detail the IP model, the components that Tynjälä based it on are reviewed. The concepts that Tynjälä drew upon are 'informal learning', 'expertise', 'self-regulative knowledge' and 'professional knowledge'. The next section starts with a discussion on informal learning.

Tynjälä, (2008) formed IP around workplace learning literature and the nature of workplace learning. Its nature is formal, informal, incidental, social, and experiential. Tynjälä and colleagues (Tynjälä & Gijbels, 2012; Tynjälä et al., 2014; Tynjälä & Kallio, 2009) draw on the ideas of Eraut (2004a) who examines informal learning, on Bereiter & Scardamalia, (1993), who examine the nature of expertise, which they define as a process of progressive problem solving, and on Leinhardt, Young, & Merriman (1995) who examine professional knowledge and especially the relationship between theoretical and practical knowledge.

3.2.1 Informal learning in the workplace

Tynjälä draws on the research of Eraut in workplace learning, which shows that people learn through working and interacting with colleagues (Eraut, 2004b). Characteristics of informal learning identified in Eraut's research are that it is implicit, reactive and deliberative. Implicit indicates that new knowledge and skills are acquired by an individual unconsciously without recognising what has been learned. These knowledge and skills are embedded in performance. Reactive learning is explicit and relates to the conscious and intentional effort to learn, but happens when there is little time to think. It involves near-spontaneous reflection on past experience, noting facts, asking questions and observing the effects of actions (Eraut, 2004b). It also involves recognition of possible future learning opportunities. On the other hand, deliberative learning refers to situations in which

[12] The aim of this action research project was to integrate educational theory and practice in teaching practicum with a view to promote student teachers professional autonomy.

[13] They propose that learning can be enhanced at work not only with existing technologies but with technology that will be created based on the needs of authentic work life. They propose that the IP model can be used as a framework for developing practices that foster holistic professional development

there is a clear work-based goal with learning as a probable by-product. It involves discussion and review of past actions and experiences, engagement in decision making and problem solving (Eraut, 2004b). The current research takes into account these aspects of learning and links them with the IP knowledge elements discussed in detail in the next section.

It is argued in (Eraut, 2004b) that most of the activities mentioned above are a normal part of work and are often not regarded as learning activities, although they may involve learning. This idea of informal learning not being recognised as learning has been also endorsed in other research, mentioning that learning activities constitute a 'submerged iceberg of informal learning' (Livingstone, 1999). Moreover, people learn much more through their work than through formally organized learning events (Eraut 2008). This statement is also supported by (Millingan, 2014) mentioning that 'established training approaches are increasingly ill-suited to the needs of the modern worker' (p.168).

Further, learning and knowledge are discussed on an individual as well as on a social level (Eraut, (2004a). This draws on the social nature of most contexts for learning, the social origins of knowledge that is shared, passed on or developed by groups, networks or communities, and the wide range of cultural practices and products that provide knowledge resources for learning.

Workplace literature on how people learn at work is summarised as follows: *'*by doing the job itself, through co-operating and interacting with colleagues, through working with clients, by tackling challenging and new tasks, by reflecting on and evaluating one's work experiences, through formal education, and through extra-work contexts' (Tynjälä, 2008 p.134). Moreover, Eraut's studies demonstrate that most workplace learning occurs on the job rather than off the job (Eraut, 2004a). However, Eraut, (2004a) describes that recognition of a theory that an individual needs at work can be triggered, when the individual participates in practice and receives feedback on their actions. These are all concepts that are taken into account in the current research in educators' learning practices.

Apart from feedback, individuals often reflect on their practices as well as on the problems they have at work, and the expertise they need to develop. This relates to the concept that Tynjälä and her colleagues took into account to develop the IP model: expertise and self-regulative knowledge.

3.2.2 Expertise and self-regulative knowledge

Tynjälä also draws on the research into expertise and self-regulative knowledge of Bereiter & Scardamalia, (1993). The idea of expertise that Tynjälä uses for IP comes from Bereiter &

Scardamalia, (1993). The researchers discuss expertise as a continual process that it does not happen once and is then completed. Previous studies did not see expertise as a process but rather as a state that has been achieved after years of experience. This meant that an individual would become an expert by accumulating knowledge in a specific domain (Erickson & Smith, 1991).

Bereiter & Scardamalia, (1993) examine expertise as 'progressive problem solving', and not as accumulated knowledge in a specific domain. Progressive problem solving is something that helps one to surpass one's natural abilities. Individuals work on the edge (of their abilities), meet new challenges, solve problems and surpass themselves. Thus, gradually, by solving problems, individuals gain more expertise. Problem solving provides a dynamic element in the growth of all kinds of expert knowledge, and Bereiter and Scardamalia consider that individuals become experts by solving more complex problems. The current research looks at the expertise of educators and the processes that they use to solve problems and become experts. The concept of expertise is relevant because educators may have 'subject matter expertise' but may lack 'MOOC development expertise', and vice versa.

However, as expertise is not only to be seen as individualistic but needs to be seen beyond that level (Bereiter & Scardamalia, 1993), the current study starts from an individual but also focuses on relations between individual skills and the dynamic functioning of workplace communities (Bereiter and Scardamalia,1993), the educators' communities.

Further, Tynjälä used the 'self-regulative' aspect of knowledge in IP that was adapted from Bereiter & Scardamalia (1993). The authors point out that '*self-regulative knowledge may be thought as knowledge that controls the application of other knowledge, thus it is often referred to as 'meta-knowledge' or metacognition'* (p.60). Self-regulation is a complex area that has been documented by different researchers. Zimmerman, (2000) looked at it as a cyclical process of three phases: the forethought phase (goal setting, activation of relevant task performance and planning strategies), the performance phase, and the self-reflection phase. Although the current study does not look in depth at particular phases of self-regulation, it puts emphasis on educators' reflections as a whole.

Bereiter & Scardamalia (1993) argued that self-regulative knowledge is relevant to performance in a domain, and discussed this knowledge being part of the process of expertise, and not knowledge of the domain. For instance, at the right time, it is argued that self-regulative knowledge enables the making of certain decisions by considering something under a broad theoretical perspective. Following this, formal knowledge, as Bereiter & Scardamalia discuss it, is converted to skills when

people solve problems. In addition, Tynjälä (2008) 'translates' Bereiter and Scardamalia and states that the process of integrating the components of expertise of the IP model should be seen as a process of solving problems which is investigated in the current research and in educators' practices.

3.2.3 Professional knowledge

The third concept that Tynjälä drew upon to form the IP model is the work of Leinhardt et al. (1995), who discussed professional knowledge, and specifically, the relationship between practical and theoretical knowledge. Knowledge learned in practice tends to be:

- situational (i.e. an individual learns *in situ*)
- intuitive (i.e. learned informally)
- tacit (i.e. not explicated, abstract).

The knowledge of academy (theoretical knowledge in IP terms), as Leinhardt et al. (1995) discussed it, means acquiring declarative knowledge and conceptual aspects of professional practice, and is demonstrated by reasoning such as labelling, codifying, describing, analysing and justifying. This type of professional knowledge of the university is

- universal: general enough to apply across settings
- formal: consistent and available to all
- explicit: articulation of this knowledge is the goal.

It is significant for individuals to be able to integrate these types of knowledge and produce a holistic professional knowledge where they will be able to transform universal, formal explicit knowledge *in situ* (Leinhardt et al., 1995). However, when professional knowledge as Leinhardt et al. discussed it is taken in the context of MOOCs and educators' learning, it needs to be explicated and translated because educators are not essentially familiar with teaching online. So, although 'knowledge learned in practice' may be relevant to Leinhardt et al., the knowledge of 'academy' is vague. This 'academy' knowledge is translated as knowledge that is structured and articulated in relation to the profession in MOOCs.

Consequently, Tynjälä is guided by these concepts of informal learning, expertise, self-regulation and professional knowledge to form the theoretical model of IP that are discussed in the next section.

3.3 Components of Integrative Pedagogy

Integrative Pedagogy, as mentioned in the previous section, is used as a model to distinguish how professional learning takes place and what the different elements are so that it identifies gaps in knowledge development of educators. Integrative Pedagogy was developed as a tool that would enable the creation of learning environments that integrate four areas of professional expertise (Tynjälä et al., 2014). These basic elements are not to be seen separately but are integrated and/or combined, hence the title of the model. The Integrative Pedagogy model is based on years of research and it has been refined over time. This study uses the 2014 diagram version, which was the most up to date when the study started (see Figure 1).

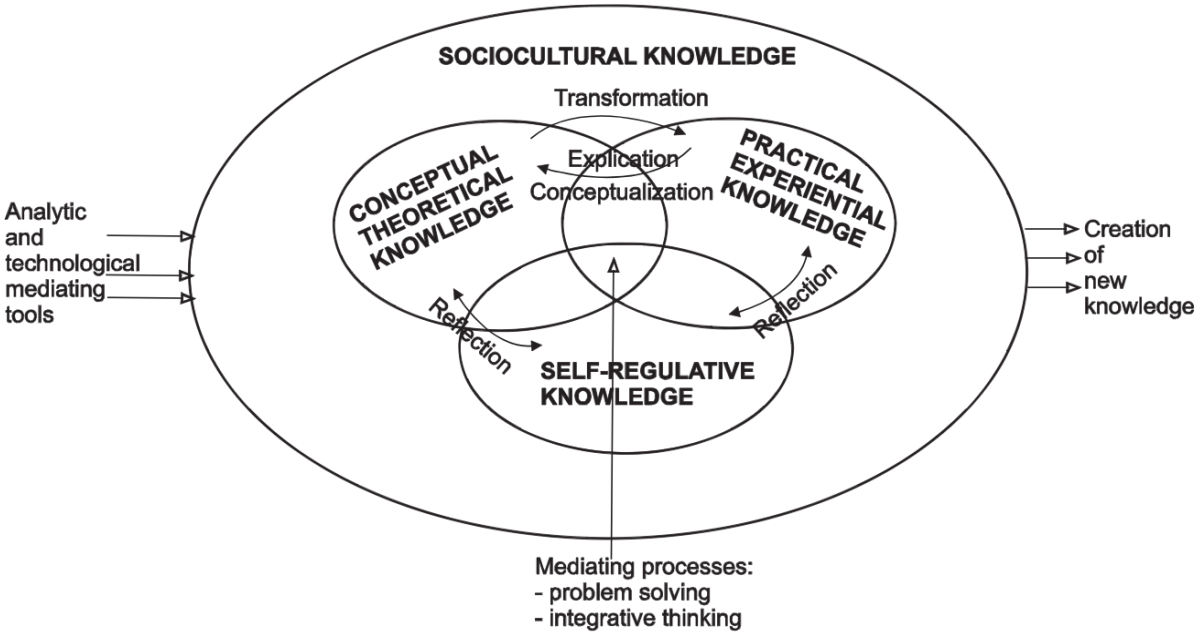

Figure 1 Visualisation/Diagram of Integrative Pedagogy, from Tynjälä et al., (2014) version

The first element of IP is *Conceptual/Theoretical* knowledge (centre left of Figure 1). This is explicit and formal in nature. This type of knowledge, in the context of graduate students where this framework was developed (see 3.2.), concerns types of information that can be explicated in texts or presented by an individual expert to bring deeper understanding to people who need to learn. Theoretical knowledge can be found, for example, in books and lectures (Tynjälä & Gijbels, 2012). This research investigates theoretical knowledge in the MOOC context in a broader sense as knowledge that is structured and can be found in reports or videos.

The second element of IP is *Practical/ Experiential* knowledge (centre right of Figure 1). This type of knowledge is developed from experience and is embedded in skills (Tynjälä & Gijbels, 2012). Practical knowledge is personal, often implicit. It is often not easily explicated, and is sometimes referred to as procedural knowledge which manifests itself in performance (Bereiter & Scardamalia, 1993).

The third element of IP is *Self-Regulative knowledge* which requires the individual's (i.e. professional's) reflection on their own activities (Tynjälä & Gijbels, 2012). This type of knowledge is related to self-knowledge and the regulations of one's activities. Metacognition and self-reflections are expressions of this form of expert knowledge.

The forth element of IP is *Sociocultural knowledge* (centre of Figure 1). This is embedded in social practices, exists in relationships, and 'forms a kind of shell or frame of expertise' (Tynjälä & Gijbels (2012). In Figure 1, the sociocultural element is represented by the largest oval, showing that it frames the different types of knowledge and that it is implicated in every process of the development of professional expertise. Sociocultural knowledge entails cognitive capacities that can be extended by collaborative work in which people share knowledge and transform their ideas (Tynjälä & Gijbels, 2012).

Although Tynjälä associates 'collaborative work' with sociocultural knowledge, she and her colleagues do not clearly define what such work entails. The current study elaborates on the collaborative aspect of Tynjälä and relates it to Dillenbourg's work on collaborative learning. Dillenbourg, (1999) gave a broad definition of 'collaborative learning' that '*refers to a situation in which two or more people learn or attempt to learn something together*'. In the context of this research, the 'two or more people' will be the educators, who 'learn something'. This learning is interpreted as the 'learning broad teaching practices', while 'together' may be interpreted in different forms of interaction: face-to-face or computer mediated, synchronous or asynchronous, frequent in time or infrequent, whether it is a truly joint effort or whether the work is divided in a systematic way.

The different types of knowledge in the IP model are connected by arrows (Figure 1). The labels on these arrows identify the processes that connect these types of knowledge.

- Theoretical knowledge is 'transformed' both to and through practical knowledge, while concepts are explained and explanations conceptualised.

- Reflection is the process that links both theoretical and practical knowledge with self-regulative knowledge.

The connection of theoretical and practical knowledge is crucial in the framework of IP in the context of graduate students (Tynjälä et al., 2006), where it was examined how they evaluated that university education (theoretical) provides them with skills they need in the workplace (practical). However, in the current research, the 'university' is seen as the 'workplace of educators' and is considered an environment for (informal) learning for educators.

Tynjälä and her colleagues argue that the *mediating processes* that sit at the heart of the Integrative Pedagogy model and that support the integration of different forms of expert knowledge are: *problem solving* and *integrative thinking*. Problem solving was described in detail by Bereiter and Scardamalia (1993). They show how formal knowledge ('theoretical knowledge' to use the term employed in the Integrative Pedagogy framework) is converted into skills ('practical knowledge' in IP terms) through problem solving. In the process of solving problems and integrating different forms of knowledge, Tynjälä and colleagues suggest that people need to utilize a form of mature thinking: integrative thinking.

The integration of theoretical, practical, self-regulative and sociocultural types of knowledge requires the use of *mediating tools* (on the left of Figure 1) that can be used to facilitate connections between different kinds of knowledge. *Mediating tools* are any artificial formations[14] that enable individuals to combine the different types of knowledge. They may be physical (technological) tools such as the telephone, or psychological (analytic tools) such as language.

[14] Vygotsky, (1997) called these artificial formations 'psychological tools'. These are social by their nature and not organic or individual devices and are directed toward the mastery of mental processes, one's own or someone else's. Examples of these tools may be language, writing, schemes, diagrams etc.

The outcome of the framework (shown on the right of Figure 1), is the 'creation of new knowledge' as a result of the integration of different types of knowledge. The current study takes forward the concept of 'problem solving' and the symbols of 'reflection', 'explication' and 'conceptualisation' of the IP and explores the gaps of educators' knowledge. It investigates further the processes through which educators build their knowledge on their MOOC teaching activities, the different forms of knowledge they integrate and the new knowledge they create.

The Integrative Pedagogy framework provides a mature model of creating learning environments that is used to support the design of professional learning. In the current research the framework is used to identify how professional learning takes place, and what different types of knowledge are acquired. It thus helps to identify gaps in knowledge development, to investigate whether any types of knowledge are not developed, and to clarify the use of tools and mediating processes in these instances of professional learning. It also helps to consider each element of professional knowledge development clearly. The model is used for the analysis of the current study that is discussed in detail in the next chapter. There is no published criticism of the Integrative Pedagogy framework at the time of writing, but this research found some problematic areas with regards to distinguishing pure examples of the four forms of knowledge. These are addressed in detail in the next chapter in section 4.12 onwards.

3.4 Summary

This chapter considered theoretical concepts to frame this research, and discussed in detail the IP model adopted from the professional learning literature as the most appropriate for the research questions and design. The chapter offered an analysis of the origin of IP from the workplace learning literature, and the components of the IP model and how these were adapted in the current research. The next chapter discusses the research methodology used to answer the research questions that relate to educators. It should be noted once more that the term educator is used as a general term for the professionals that were interviewed and were involved in MOOC teaching activities.

4 RESEARCH METHODOLOGY

4.1 Introduction

This chapter focuses on the methodological approach used in this study and the research method of data collection used to help answer the research questions:

- **Who teaches in MOOCs?**
- **How do these different educators learn to teach in MOOCs?**

In this chapter, it is argued that qualitative methods are better suited to gather data that can help answer these questions. Thus, the chapter starts with a discussion of the qualitative approach. It presents the multiple case study methodology that was implemented among other methodologies, to elicit people's insights and effectively investigate and answer the research questions. It takes a chronological view of the methodological processes that were followed. It presents the data collection method of online interviewing chosen from other methods and highlights the advantages and disadvantages of conducting online interviews. The chapter presents the topics covered during the interviews.

Following this, the ethics that were taken into account in this research are considered. The chapter also indicates how a pilot interview informed the main interviews in the multiple cases. Additionally, it discusses how the process of data collection, how the sample of the cases and the participants were selected, and how access to participants was gained, and describes those in detail. The chapter then describes the process of data transcription and the data analysis methods and indicates how these methods were enacted and how the data were used on a cross-case basis. The chapter closes with a discussion of how the researcher engendered credibility and trustworthiness.

4.2 Qualitative research study and positioning of the researcher

In Chapter 3, it was argued that learning in the workplace, as the literature suggests, often happens during work, in practice, by interacting with colleagues, often informally. Qualitative research 'is interested in uncovering the meaning of a phenomenon for those involved' (Merriam & Tisdell, 2016, p.6). The current research uncovers the meaning for the educators' work on MOOCs. The research is guided by the belief that knowledge is constructed by people, and that researchers are interested in understanding the meaning that people have constructed (Merriam & Tisdell, 2016),

and the final product is 'the interpretation by the researcher of others' views filtered through her own' (Merriam, 1998, p.22).

The focus of this research is on the meaning and understanding that educators made about their own learning on MOOC teaching which is interpreted in Chapters 5, 6 and 7. This meaning is subjective and context dependent, as Twining, Heller, Nussbaum, & Tsai, (2017) suggest. A qualitative approach was chosen in order to explore in depth the views of educators in MOOCs. The qualitative approach serves to obtain their insights about their roles, their teaching activities, and their learning practices in this context which is different from other types of courses. A quantitative method would not serve equally. In short, a quantitative method would serve to find differences in looking at different educators, but it would not serve to find and illuminate meanings related to these differences as the qualitative approach does.

Based on the paradigm or worldview of social constructivism (or interpretivism) that the researcher takes, the complexity of views was investigated (Creswell & Poth, 2017) and this complexity was based on participants' views of the situation that are negotiated socially, through interaction with others. This research has been influenced by the researcher's background and beliefs about learning. Her background is in Education and her belief is that people are active agents in their own knowledge construction, not just passive recipients of knowledge. The idea is that 'reality is not an objective entity; rather, there are multiple interpretations of reality' (Merriam, 1998, p.8). Therefore, taking this philosophical paradigm of social constructivism, the researcher is interested to see how different people make meaning of their own experiences. Furthermore, the researcher's experience then interprets and shapes this research through her own views.

Interest in MOOCs has grown in many universities worldwide (Ferguson et al., 2016), thus there was an intention to explore the phenomenon of MOOC teaching in different institutions. The study explored the teaching activities of the participants involved in teaching in seven MOOCs on the topics of History and Politics, and investigated their experiences in learning how to teach in this context - which was relatively new to them. The researcher considered cases from different organisations to smooth out the organisational differences of diverse universities. The universities were primarily from different parts of the UK, and one outside the UK. Closely related disciplines were chosen to make it easier to compare them.

Detailed discussion of the choice of cases and participants is presented in section 4.10.1. as the methodological processes are presented in a chronological order in this chapter. To conduct this

research, two research approaches were considered to explore the research questions. These are discussed in the next section.

4.3 Research approaches considered

Ethnography was one of the approaches considered appropriate for this qualitative research, with the world view of the researcher that knowledge is socially constructed and with the aforementioned research questions. Ethnography focuses on human society and culture and although culture has been defined in different ways it 'essentially refers to the beliefs, values and attitudes that structure the behaviour patterns of specific groups of people' (Merriam & Tisdell, 2016, p.29). Since ethnographies seek to understand the culture of a group, they usually require long periods in the field, and emphasize details of observational and interview evidence (Merriam & Tisdell, 2016; Yin, 2014). According to Merriam & Tisdell (2016) and Yin (2014), the researcher is expected to get immersed in the site as a participant observer and collect their data. However, there is also the view that the researcher can be a complete observer, have minimal involvement or an insider role (Gold, 1958).

The current study focused on understanding different/diverse groups of educators involved in MOOC teaching. However, observation and immersion in the culture of such groups would be challenging because, as the second research question makes clear, the study needed to look at a number of different educators involved in teaching several MOOCs. Moreover, people who would potentially participate in the study would be academics and educators whose schedules are already tight. MOOCs are not typically part of the official workload of educators and therefore, it was not possible to find educators of different MOOCs who could commit to be observed at fixed points and to coincide with the different phases of their MOOC developments.

In order to gain access to a range of educators from different MOOCs and to keep up with such a study, a very well-structured instrument and protocol were needed. Conducting a multiple case study was considered most appropriate, and this was based primarily on Yin's (2014) approach. As with ethnography, case study research has both advantages and disadvantages. Case studies enable exploring differences and similarities between different participants (Yin, 2014). However, a major critique of case studies is that they are not generalizable. This disadvantage can be addressed by linking the study to a theory so that analytic generalisations can be made. Moreover, studying multiple cases can make a study more rigorous and extend the analysis across cases.

There is potential to do a high-quality case study 'without leaving the telephone or the internet' as Yin (2014) explains. MOOCs are offered by different universities worldwide. Yin's methodological techniques in the design and analysis were used. Earlier versions of Yin's framework were criticised for not acknowledging the value of the intepretivist perspective (Brown, 2008). However, Yin later discussed the epistemological orientations and added the relativist epistemological orientation in addition to the realist orientation that he initially embraced, as discussed in more detail in the next section.

After reviewing another two case study authors (Merriam & Tisdell, 2016; Stake, 1995) who did not articulate detailed procedures to be followed in case study analysis and were very loose in that they intertwined data collection and data analysis. A loose approach would potentially impact the credibility and trustworthiness of the current research and therefore the established approach of Yin, (1984) was found more appropriate. The multiple case study research approach is discussed in detail in the next section.

4.4 Multiple Case Study

A multiple case study methodology was implemented to provide educators' insights on MOOC teaching and effectively investigate and answer the research questions. The methodology of multiple-case study (Yin, 2014) was selected as a way to enable the 'capture of the complexity of one or a few cases and gain an in depth understanding of a situation', based on Yin's definition:

> *'A case study is an empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident' (Yin, 2014).*

In case study research, the components of research design identified by Yin (2014) are:

- The study's questions
- Its propositions, if any
- Its unit(s) of analysis
- The logic linking the data to the propositions
- The criteria for interpreting the findings.

The first of Yin's requirements were the study's questions. So, the case study research approach enabled the researcher to get an understanding of 'who teaches in MOOCs' and to look at 'how different educators involved in teaching learned how to do this'. The second of Yin's requirements is a set of theoretical propositions that can be used and tested. In this case, the elements of Integrative Pedagogy discussed in Chapter 3, 3.3. were used to guide the analysis.

The phenomenon studied was the 'learning of MOOC teaching' and the units of analysis were seven different cases, each a study of a different MOOC and of how the educators associated with that MOOC learned to teach in these environments. The study investigates how these educators learned to teach, what teaching means in the MOOC context, what activities this involves, and who does the teaching. This is necessary because the boundary between conventional teaching and MOOC teaching is not clearly evident (the fourth of Yin's requirements - the logic linking the data to the propositions).

The current study sought to explore seven courses/cases (i.e. multiple case study) and the criteria for interpreting the findings are the comparison of the seven cases to reveal the ways they build knowledge on MOOC teaching and the forms of knowledge they create (the fifth of Yin's requirements). The theoretical framework, thus, provided by Integrative Pedagogy was empirically examined by the study and formed the groundwork for an analytic generalization (Yin, 2014). Yin (2014) suggests that the analytic generalization may be based on corroborating, modifying, rejecting, or advancing theoretical concepts that are referenced in designing a case study. This was the case with IP in the current study. Analytic generalisations can also be grounded in new concepts that arise upon the completion of a case study. This was also the case in this study. The case study approach is also in line with the paradigm of social constructivism/interpretivism. As Yin describes:

> *'This all-encompassing method also can embrace different epistemological orientations—for example, a relativist or interpretivist compared to a realist orientation. […] case study research also can excel in accommodating a relativist*

perspective—acknowledging multiple realities having multiple meanings, with findings that are observer dependent.'[15] *(Yin, 2014).*

Hartley (1994) also notes that case studies are tailor made for exploring new processes or behaviours, or ones which are little understood. The current research sought to shed light on the new processes of teaching within MOOC contexts through the lenses of their educators and is in accordance with Yin's statement above. In order to gather the data, different methods were considered and are discussed in the next section.

4.5 Methods of data collection considered

In order to gather data and answer the research questions, different methods were considered. One of those was through focus groups or group discussions. Focus groups provide a social context within which the phenomenon is experienced and their data is generated though a conversation with others. They also allow participants to hear others' ideas and provide opportunities for reflection. However, focus groups would offer less opportunity for capturing individual perspectives which the second research question explores (i.e. 'how do different educators…') and were not used.

This diversity of people's ideas that would be obtained through focus groups could be achieved in a different way by investigating participants with diverse teaching activities. Examples of these activities were mentioned to potential participants in an introductory email (Appendix 1) and will be discussed further in the next sections.

The other data collection method that was considered was interviewing. Interviews are one of the most frequently used methods of data collection in social sciences as they 'enable participants, to discuss their interpretation of the world in which they live, and to express how they regard situations from their own point of view' (Cohen, Manion, & Morrison, 2018). In the current research, the researcher used a semi-structured interview schedule (see Appendix 3) to allow an in-depth understanding of the educators' experiences on their learning of MOOC teaching. In semi-

[15] Page of the quotes of Yin's reference are not stated as this was an e-Book version

structured situations, the interviewer asks key questions in the same way each time and does some probing for further information (Arthur & Nazroo, 2003). The interviews were conducted online via Skype video calls.

4.6 Online semi-structured interviews

The data collection method used in the current study was online, semi-structured Skype video interviews with participants who were invited to participate in this study. Skype is used in an increasing number of studies and is a free synchronous online service that provides the opportunity for audio and video interviewing (Deakin & Wakefield, 2014; O'Connor & Madge, 2017). O'Connor & Madge (2017), in their literature review of online interviewing, state that research examining the role of Skype as a tool for synchronous interviewing is currently growing. Another way to gather data is through asynchronous online interviews. Email correspondence, that Bampton & Cowton, (2002) call 'e-interviews', is one of those but was not chosen as it could potentially delay the data collection.

Deakin & Wakefield (2014) reflect on their own online interviews and note that 'while potential research populations have become increasingly geographically dispersed, technological advancements and software have made communicating over large distances more feasible' (p.603). The interviews of the current study were conducted online for various reasons. There were practical constraints for the researcher to interview participants that were dispersed in different parts of the UK and the EU, while the cost and the time spend would be immense and restrictive for this research.

The Skype interviews conducted for this research presented both advantages and disadvantages. The advantages were that they offered flexibility for both the researcher and the participants in arranging and conducting interviews. The researcher managed from June to August 2016 to organise and conduct most of the 28 online interviews, scheduling them to fit in with the schedules of busy academics who were dispersed in different parts of the world. It was important to have participants from different institutions and different MOOCs but this meant there were high chances that they would be geographically dispersed. For instance, one of the participants, agreed

to be interviewed at his convenience while on another continent (B7FLEducator[16]), and another participant (D16FLEducator) arranged the interview out of working hours (7 a.m.).

Skype proved a useful tool for this research since participants were familiar with its use. Skype was not used as an alternative to face-to-face interviews, but as an opportunity to interview participants who would otherwise have been excluded (i.e. all universities were located at a distance from the researcher). Video was used during Skype calls, however data analysis did not take the visual elements into account. The video was used for the participants to feel more familiar with the researcher who was unknown to them, and vice versa. There were six universities in the study, so the researcher could not have travelled to all of these sites to gather the data during the time of the PhD, and Skype offered this proximity.

However, there were also some disadvantages associated with the use of Skype as a tool. During a few instances, the call kept cutting off. To resolve this, the researcher or the participant would restart a new Skype call to continue the interview. Apart from that, in some instances there was a lag in the call. To tackle this issue, the researcher explained to the participant that there was some sound delay and both interlocutors would have to wait for each other to finish their sentence. In this study, the lag only added some gaps to the conversation that did not seem to affect the quality of the interviews.

In the few instances that the sound quality was bad, the researcher asked the participant to switch off their camera to increase the bandwidth. As noted above, the video element was used to facilitate the conversation rather than as a route to data collection, so it was appropriate to drop it in cases when it was limiting the conversation. Time lags on Skype interviews may disadvantage a researcher in terms of building rapport (Deakin & Wakefield, 2014). However, the researcher began building rapport long before interviewing the participants by exchanging several emails with information sheets and interview arrangements. Moreover, once the interviewee accepted the interview request, the researcher sent the interview schedule (see Appendix 3) in advance and was available for any questions that the interviewee may have had before the interview.

[16] Descriptions on how participants were coded are given in 5.2.

Furthermore, the aspect of familiarity is important so as to prevent absenteeism (Deakin & Wakefield, 2014). There were no major issues with absenteeism, regardless of the fact that all participants but one were not previously known to the interviewer. In only one instance, a participant did not show up on Skype. Following this incident, the researcher sent email reminders to participants before their scheduled interviews to avoid similar situations. The no-show interview was rescheduled after three email attempts.

Each of the interviews lasted from 17 to 61 minutes (see Appendix 4) with an average duration of 35 min per interview. This reflected the fact that some participants had deeper involvement in their MOOC than others, and thus, more information to share with the researcher. For instance, the interview with A1FLEducator, who was involved in diverse teaching activities, lasted 61 minutes (see Appendix 4). On the other hand, the interview with D17FLMentor lasted 17 minutes and his involvement in teaching activities was limited.

Because of variations in participants' availability, the researcher identified cases and began collecting data at varying points in the MOOCs' schedules. However, all the MOOCs/cases used in this research had at least run once before contacting potential participants. This decision was made on the basis that educators would discuss their stories based on their experience of having already run a MOOC. Appendix 4 shows the exact dates of the data collected. For example, E21FLMentor was interviewed after the second run of the course, while E19FLOther and E20FLEducator were interviewed after the completion of the first run. This was inevitable as the participant postponed the interview multiple times.

The interviews were carried out in English. The interviewees associated with the case from a Spanish university (Case E) were not offered a choice to do the interview in Spanish as the researcher considered that because the course was in English they would feel comfortable to be interviewed in English. The participants used FutureLearn terminology most of the time (FL Educator, FL Mentor). When talking about work to a Spanish colleague, they used terms like 'educator' and 'teacher'. The titles used are discussed in the next Chapter.

Regardless of the challenges, Skype interviews minimized the distance and offered the opportunity to gain a diversity of insights from different MOOCs, institutions and countries. The schedule of the Skype interviews is discussed in the next section.

4.7 Interview schedule

The interview schedule was designed to elicit comments from the interviewees in which they would discuss their activities and how they learned. The interview topics do not mention elements of the IP explicitly as the intention was to prompt discussion in more naturalistic/natural ways. So IP was used as a way to analyse the data rather than as a data collection framework. The interview schedule (Appendix 3) was designed according to the different phases of the MOOC development as shown in the list below:

A. general questions to see where the interviewees were coming from, their experience with teaching, learning design, and online education, and prior MOOC experience
B. similarities and differences between previous work practices and the MOOC
C. ways of setting up and running the MOOC
D. positive aspects of working on the MOOC / problems and how they tackled them
E. their understanding of how teaching and learning takes place in MOOCs
F. how they prepared to work in these new ways in MOOCs
G. experience on MOOCs for credit
H. production and running process of their MOOC in the future, any changes needed.

The methods used for analysing the data are discussed in section 4.12. Before contacting participants involved in MOOC teaching, an ethical clearance was given that is discussed in the next section.

4.8 Ethical considerations

'Qualitative research ethics are not only a question of procedures and protocols to follow for the researcher's legal protection, but also a researcher's position with regards to his/her commitment toward his/her subjects' (Santiago-Delefosse, Gavin, Bruchez, Roux, & Stephen, 2016, p.148). Therefore, in order to ensure that participants were fully informed about the research study, several documents are relevant to this research. The documents include

1. An email to potential participants
2. An information sheet attached to the email with details of the research study
3. The interview schedule
4. Consent form

Interviewees were made aware that the interview would be audio recorded both in the email exchanges with the researcher, in the consent form, and at the beginning of the interview. The researcher was aware that participants would disclose information about their teaching that could potentially cause them professional harm. These risks were mitigated by anonymising all titles of courses, any information that could identify them such as location names, topics etc. Additionally, participants' names were kept confidential. During the interviews, the researcher informed participants again with regards to anonymising all the data and reiterated that their names would be kept confidential.

Some decisions about inclusion of material as data for analysis had ethical dimensions. The first was the element of the researcher as a MOOC participant. The researcher participated in the MOOCs that were studied to gain an understanding of participants' context. However, this information was used to facilitate understanding of the participants' interviews rather than as being used as primary research data. The decision was made for two reasons: this privileged the participants' views and also meant it was possible to analyse data from more interviews in the time available. The second decision involved the inclusion or exclusion of one participant from the dataset. This participant considered themselves to be an educator while the researcher was less certain. In the end, it was decided to include the participant as they were partially involved in some of the teaching activities and again this privileged the participants' views.

Additionally, the researcher sent participants a consent form (in a Word document) where the participants had to type their name. They all returned the informed consent to the researcher via email. Their data were saved and backed up multiple times and are kept private and confidential on a password-protected hard drive for ethical compliance, as Saldaña et al., (2014) suggest. Additionally, the researcher has asked for consent from participants as mentioned in British Educational Research Association (BERA) guidelines (2011) to be able to publish evidence from the interviews while keeping their names confidential (see Appendices).

The procedure followed also adhered to the British Educational Research Association's guidelines. After receiving a favourable opinion for this research from the Research Ethics committee of The Open University (HREC/2016/2302) a pilot interview was conducted, which is discussed in the next section.

4.9 Pilot interview

The interview questions were piloted with one person so that the researcher could get an idea about the order of the interview questions, whether this order flowed well, or if any adjustments were needed. Moreover, the researcher was looking to test the technicalities of recordings.

The pilot participant was an FL lead educator (or 'course leader' as she described herself) of a MOOC offered on FL and had already run their course once. This pilot interview helped the researcher to identify whether there was a flow in the interview schedule. This pilot interview with an individual experienced both in face-to-face and online distance education offered some ideas for the main study. In this pilot interview, there was a reference to terms such as 'an editor' and 'a producer' apart from 'lead educator'. The researcher had only seen the terms 'educator' and 'lead educator' on the Future Learn platform, so the terms 'editor' and 'producer' were different. Therefore, the researcher kept notes about the course structure of educators of this MOOC to compare it with the terminology in future interviews, which will be further discussed in section 5.2. The pilot study offered some hints about the diversity of staff structures and entailed more than trying out data collection methods.

As for the technicalities, this pilot interview was conducted via Skype and gave the opportunity for clarifying some of the interview questions as well as changing their order. The interview recording of the pilot interview was saved and transcribed and a draft analysis of the pilot interview was conducted. This interview lasted 40 minutes. The researcher attempted to use a free Skype recording software named Amolto. While testing this, the call cut off each time the researcher started to record. After three attempts, the researcher stopped using it and recorded the interview with an external recorder. The researcher abandoned the idea of using recording software in the main study after this experience and eventually used two separate devices.

The researcher reflected on the interview questions posed to the participant during this interview. Some of the questions appeared to be repetitive, so they were merged. For example, two questions asking about past and present practice were combined into one. Also, a question asking about the steps an educator followed to do the MOOC was moved to the beginning of the interview. After the pilot study, the cases and the participants of this study are discussed.

4.10 The process of data collection

This section discusses in the first subsection the sample of cases, and participants within the cases, with whom the research was conducted, and in the second subsection how access to participants was gained.

4.10.1 The sample: the cases and the participants

The sample of this study was acquired by what Patton (2002) calls purposeful sampling. In this type of sample, the researcher seeks to discover, understand, and gain insight from a sample from which they can learn the most (Saldaña et al., 2014). A case may be chosen deliberately because of its unique character, thus presenting itself as a rich opportunity and exemplar for a focused study (Saldaña et al., 2014). Therefore, the purposive sampling was determined with some selection criteria. The criteria were: the MOOC platform, the course topics, and their educators (see figure 1).

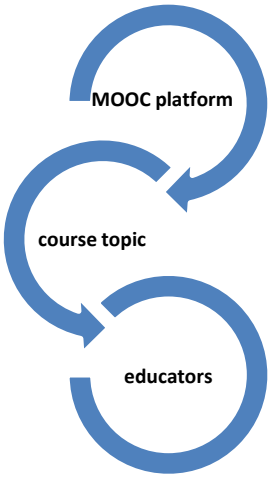

Figure 2 Sample selection process

Initially, the researcher chose the MOOC platform. The top five MOOC platforms in 2016 according to Class central (Shah, 2016) were Coursera, edX, XuetangX, FutureLearn and Udacity. FutureLearn was chosen as the site for this research. It was important to keep the participants comparable so that they could be analysed in depth rather than broadly across platforms, the pedagogical approaches of which may differ. Additionally, FutureLearn was chosen because of the prospect of getting access to participants. Additionally, the 'social' flavour of FutureLearn adds an extra incentive to select it over other platforms. It was expected that in a social platform, such as

FutureLearn, educators may have a central role in the ways they interact with learners (i.e. facilitate the courses) apart from the rest of the teaching activities.

Further, FutureLearn is a for-profit company based in the UK and owned by The Open University where the researcher pursues her PhD study, but by no means has the researcher had any incentive from the platform neither had she been working for it. The researcher is a member of an academic network run in association with FutureLearn, the FutureLearn Academic Network (FLAN). FLAN meets every 4-5 months, typically in a UK location. The researcher took the opportunity to get access to potential participants through an event run by this network.

In the current research the topics of the chosen cases and the discipline of their educators were History and Politics. Examining two related disciplines made it more straightforward to compare the cases and thus strengthen the findings. Moreover, the discipline of social studies has had a precarious relationship with technology (Berson & Balyta, 2004). History and Politics educators are not typically obliged to use digital technologies in their courses, or at least may be less inclined to use digital tools than educators working in science and technology disciplines. Therefore, examining their accounts and ideas could potentially provide deeper insights into differences between face-to-face teaching and teaching at scale than examining disciplines that are rooted in technology (e.g. computer science).

Educators outside technology disciplines need to learn both the technical capabilities, and the pedagogical approaches to MOOCs, whereas those in technology disciplines are more likely just to need to learn the pedagogical approaches to MOOCs. i.e., one group has to overcome two learning hurdles instead of just one. So some of the issues that arise for non-technology participants might not be related to MOOC pedagogy but just to the fact that the technological capacities are new to them.

Single course presentations (runs) formed each case. It would not have been practical to study multiple presentations, because each course may have had more than five presentations, and the researcher was not be able to get access to previous presentations of a course in FutureLearn. However, all cases had run at least once before interviews with their educators were conducted. This decision was made so that participants would base their accounts/views on the same presentation and in turn, the researcher would be able to compare the views of other participants of the same case within that presentation.

As data collection would be based exclusively on interviews, there was an effort to get different viewpoints from participants, hence the way they were selected. When the word 'case' is used in this research, from now on, it refers either to an individual FutureLearn MOOC, or to the set of people who considered they played a part in teaching on that MOOC. Different cases and universities were chosen as well as a case outside the UK. Choosing a non-UK MOOC provided a comparison to the UK context. The focus was primarily on UK contexts, but the non-UK course was selected to explore whether there were profound differences from the UK. Additionally, most of the History and Politics courses on the FutureLearn platform came from UK institutions at the time of choosing the sample.

The final criterion for choosing the sample of educators to be interviewed was that they needed to fall in to one of the following categories of activities (also mentioned in 2.2):

- people involved in the learning design of the MOOC
- people who develop content or assessment for the MOOC
- people who produce videos for the MOOC
- people who facilitate / moderate the learners' discussion
- people who present MOOC videos.

The reason for choosing the criteria above was that this study sought to examine not only people who are doing the work that is visible to learners (i.e. video and text presentation). The study sought to also look at the people who work behind the scenes in areas such as MOOC design and video production. This meant that from the start, the study had a broad definition of who the educators might be. It was not always possible to identify people working in each of these areas in all cases because not all cases had the same course structures. This will be also discussed in Chapter 5 and 6. At least one person in each category in each case, or at least one person in each category across all cases, listed in the bullet points above was found in the entire set of cases. People who were interviewed tended to fall into more than of one of these categories as the teaching activities they were taking up were multifaceted. This overlapping of roles and activities is covered in Chapter 5.

The researcher asked for the contact details of as many people involved in each case as possible. However, people were not always available or did not answer. At the end of the interviews, participants were asked to provide names of colleagues who might provide more insights. So, the purposeful sample was turned to the snowball method discussed in 4.10.2 below. The researcher did not explicitly ask to be pointed to any one set of people identified in the bullet-pointed list

above. Participants did not point the researcher to video producers, so information from this group is limited. Thus, before data collection, there was a loose definition of who the educators were thought to be. However, the data analysis later showed that educators engage in multiple activities.

The participants varied from case to case, and are shown on Table 1 below. Cases A, C and D included FL Educators, FL Mentors and, FL Collaborators (i.e. the participants who had no official FutureLearn title). FL Collaborators identified themselves as 'learning designers', 'MOOC organiser', 'Head of MOOCs' and 'Digital Learning Team Manager' (the case structures can be found in Appendix 6). Cases B and F did not include FL collaborators (such as learning designers), either because the learning design was under the supervision of a FL Educator or because no one involved in this case considered the learning design activity to be relevant to the study. In a few cases, relevant people were not available to participate. For example, Cases F and G involved FL Mentors but these mentors were busy at the time of data collection. Table 1 also indicates the main similarities and differences between the cases and the participants that were interviewed. This diversity was important in terms of looking for similar results (literal replication) and contrasting results (theoretical replication) (Yin, 2014).

Cases	University partners	Universities and non-university partners	Involved FL Educators	Involved FL Mentors	Involved FL Collaborators
A	✓		✓	✓	✓
B	✓		✓		
C	✓		✓	✓	✓
D	✓		✓	✓	✓
E	✓		✓		✓
F		✓	✓		✓
G		✓	✓		✓

Table 1 Similarities and difference between the cases

Cases were chosen on the basis that they would differ significantly but also on the basis that they were sufficiently similar (FutureLearn MOOCs run in the same year on the subject of History or Politics) to merit comparison. Moreover, as Ross et al (2014) suggested, teaching practices are affected by discipline, institution and the personal (see 2.4.1.). The number of Cases was not predefined from the start of the data collection.

To sum up, the criteria of choosing cases and participants that were used in each case were:

- to involve the FL Educators who were always visible on the FL platform and had a common base of the same type of participant (criterion met in all Cases)
- to involve university partners that collaborated with non-university partners working to develop a MOOC (criterion met in Cases F and G). Participants from both the university and the non-university partner were interviewed from Case F. However, interviews for Case G did not involve any participant from the non-university organization[17].
- to compare data from the same establishment and discover whether cases within the same university replicated each other or were different (criterion met in Cases A and C)
- to involve a course that only had a single FL Educator and compare with team taught courses (criterion met in Case E)
- to include a course from a non-UK context (criterion met in Case E).

When these criteria were fulfilled the researcher stopped collecting data and adding more cases. Table 2 below sums up the topic of the Cases, their duration in weeks, the number of times each of them had been presented before data collection took place on the FutureLearn platform, and the number of participants interviewed. Additionally, Table 2 outlines the number and types of participants as these were defined in 1.3.4. The number of participants and the types of participants interviewed was dependent partly on how many people were involved in the courses and partly on how many people responded and were available for interview.

[17] Professionals from the non-university organisation were not officially mentioned on FutureLearn and participants from the university organisation did not direct the researcher to the non-university partner. Interviewing the non-university partner might have given more data to compare with the Case E that included participants of the non-university partner.

Cases	Topic	Duration in weeks	Presentations	Participants	Main roles on FL
A	History	6	4	6	2 FL Educators, 3 FL Mentors, 1 FL Collaborator
B	Politics	3	1	1	1 FL Educator
C	History	4	3	3	1 FL Educator, 1 FL Mentor, 1 FL Collaborator
D	History	6	6	8	6 FL Educators, 1 FL Mentor, 1 FL Collaborator
E	Politics	6	2	3	1 FL Educator,1 FL Mentor,1 FL Collaborator
F	Politics	5	2	3	2 FL Educators, 1 FL Collaborator
G	History	3	3	4	3 FL Educators, 1 FL Collaborator

Table 2 A summary of the cases

For a more detailed discussion of the organisational structures of the cases, figures illustrating each case are available in Appendix 6. It should be made clear at this point that in the next chapter, in section 5.2, the roles of participants mentioned in the last column of Table 2 are analysed in relation to the teaching activities that they were involved in. Section 6.2 illuminates their MOOC experiences. Chapter 6 discusses how the organisational structures reflected the ways participants built knowledge. The next section discusses how access to participants was gained.

4.10.2 How access to participants was gained

After receiving approval by the Research Ethics Committee of The Open University, the researcher ran a query of MOOCs in 'history' in the FL platform, resulting in a list of courses. The historical content they taught was from different periods. After the researcher found the first case (Case A) and the FL Educators[18] who were mentioned on the FL Platform (purposive sampling), she conducted snowball sampling within the cases in order to find potential educators from the already selected participants. In particular, the researcher asked participants to point her to other colleagues of theirs who had been involved in their course (see Appendix 1) with broad 'examples of people who were considered educators' (see Appendix 2). An example of the snowball sampling

[18] These were the Case A, Case D, Case E, Case F, Case G

method (Biernacki & Waldorf, 1981) for gaining access and recruiting participants in this study is shown in figure 3 below. Snowball sampling is used by researchers 'to generate a pool of participants for a research study through referrals made by individuals who share a particular characteristic of research interest with the target population'(Crouse & Lowe, 2018).

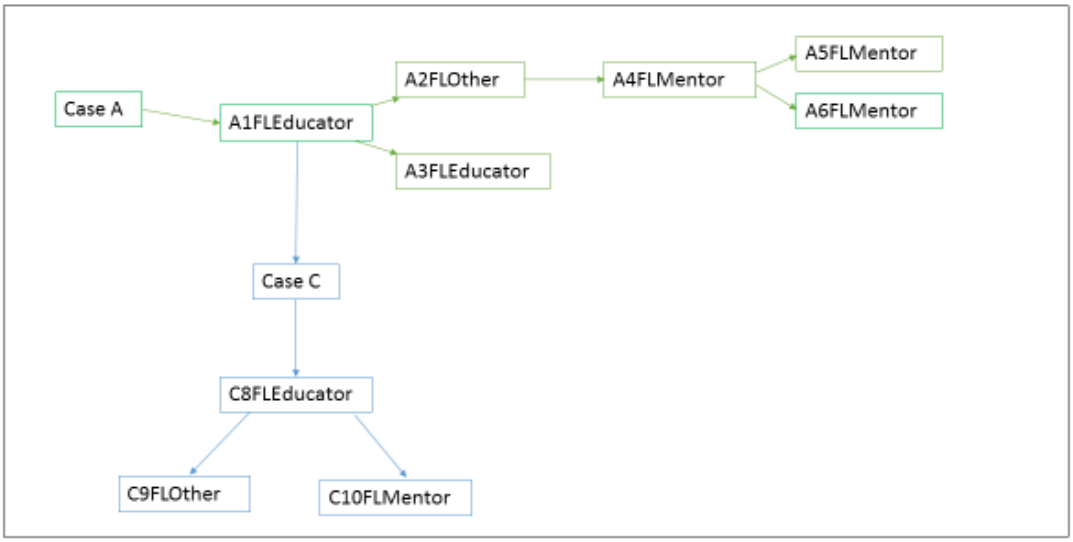

Figure 3 Snowball method for recruiting participants

This figure depicts how from Case A and A1FLEducator, the researcher found more interviewees and moved to study Case C. The researcher initially started with Case A, as A1FLEducator was first to answer an email invitation. A1FLEducator pointed the researcher to two more people from her own course: A2FLOther and A3FLEducator. A2FLOther pointed the researcher to A4FLMentor who also led the researcher to A5FLMentor and A6FLMentor. At the same time, A1FLEducator pointed the researcher to another case, Case C, and C8FLEducator. C8FLEducator introduced the researcher to C9FLOther and C10FLMentor.

The rest of the cases and participants were contacted following the approach outlined above. The researcher sent emails purposively to potential participants, attaching the information sheet about the study (Appendix 1). There was an effort in all cases to get access to people with diverse activities mentioned earlier so that they expose different views about their work and learning practices. Multiple data-gathering sources may enhance triangulation (i.e. the use of at least two different viewpoints though more are better) (Saldaña et al., 2014). This was achieved by examining different

types of participants, different cases, and different but related course topics. This process generated seven cases.

During the email introduction with potential participants, they did not always make clear what their role was, but this was identified during the interview. Participants' ages and genders were not taken into account in this analysis given the limited number of History and Politics-teaching MOOC professionals. However, there were 16 men and 11 women. The age of participants was not asked during the interviews as it was not considered important. What was important was the experience they had in MOOCs as participants and as professionals developing MOOCs. This was explored in the interviews and analysis and is discussed in section 6.2. After interviewing participants, the recorded interviews were transcribed. The data transcription process is discussed in the next section.

4.11 Data transcription

The interview recordings were fully transcribed by the researcher using a simple verbatim transcription approach (McLellan, MacQueen, & Neidig, 2003) where the transcription process focuses on the accuracy of the information content. Although natural speech does not take the form of sentences or paragraphs, restrictions were imposed on it during transcription. Information about gaze, gesture, hesitation, emphasis was not taken into account in the transcriptions. These were set aside as the focus was on an accurate transcription of the words spoken. At the beginning of each interview, the participants were asked to mention their name and the course they were involved in so as to be easily identifiable to the researcher during the transcribing process.

The analysis of the transcribed interviews focused on the content of the discussions with the participants. Thus a full verbatim transcription taking into account emphasis, facial expressions, and pauses was not relevant and, after the initial transcription phase, the researcher checked them for their accuracy and left out background noises, like 'um', 'eh' etc. but without losing or adding any important data.

All interviews were in English and transcribed in English. Most of the participants had English as a first language, apart from the participants in Case E. The transcriptions of these participants were verbatim as well. For example, one of the participants said:

> *'so, I have a very long experience in teaching but these has always been eye to eye [meaning face-to-face] teaching'. E20FLEducator*

The words were left unchanged but the meaning of 'eye to eye' was added by the researcher in square brackets. E20FLEducator meant 'face-to-face' teaching. This is identifiable by the researcher as she also speaks the participant's native language and can interpret the meaning.

In all cases, information that would identify the course, university, organisation or participant, were replaced with the word [hidden] in square brackets. In quotes in this thesis, where information is omitted for clarity, the omission is signalled by an ellipsis in square brackets. The following quotes provide examples of these changes.

> *I'm [name hidden] and actually a teacher at the communication department, film and media, and actually I'm involved in several courses as an organizer in MOOCs in [university name hidden], I'm in charge of MOOCs. [...] I have a supervisory role you could say.' E19FLOther*

> *'The [name of organisation hidden], […] they wanted to produce a MOOC […] so, they put a call out to tender effectively for universities to bid to be their partner. And as my co-educator here, [name of educator hidden] and I already delivered a face to face module on [topic hidden], […] we gave a presentation and they decided that we would be their partner of choice.' F23FLEducator*

The set of guidelines followed can be found in Appendix 7. The researcher familiarised herself with the data and the initial analysis at this transcription stage. When new data repeated what had been expressed in previous data from the interview transcriptions that the researcher did, and in data that was waiting to be transcribed, the researcher stopped collecting more data (data saturation) (Guest, Bunce, & Laura, 2006; Saunders et al., 2017). For instance, in the data, participants' difficulty with handling 'copyright' when they were developing their MOOCs kept coming up (which relates to the concept of theoretical knowledge of Integrative Pedagogy). Another idea that was repeated was that educators found out how a course was developed by getting involved in it (which relates to the Integrative Pedagogy concept of practical knowledge). The format of the interview transcripts was set up to be imported into Nvivo software, enabling the analysis that is discussed in the next section. Nvivo is a qualitative data analysis computer software designed to facilitate research with rich text-based information. Nvivo is intended to help users organise and analyse unstructured data. The researcher can test theories, identify trends and cross-examine information in a multitude of ways using its search engine and query functions (Wikipedia, n.d.). 'Text queries' were helpful to search for specific words across cases that were then grouped together and coded.

4.12 Data analysis methods

The analysis started once the transcriptions were in place and continued until the writing up of this PhD thesis. Data analysis, as Yin explains, consists of examining, categorizing, tabulating, testing, or otherwise recombining evidence to draw empirically based conclusions (Yin, 2014). Therefore, findings that emerged from analysis of the data from the seven cases were combined to draw empirically based conclusions. The interview transcriptions of all the cases described in 4.10.1 were imported into Nvivo. Analysis of the imported data in Nvivo included 'nodes' or more simply 'codes'. Codes are a collection of references about a specific theme or area of interest gathered by 'coding' the interviews. The length of these codes ranged from a sentence to a paragraph at all stages of the data analysis. More than one code could be assigned to the same piece of text because, as the IP framework makes clear, some elements cannot be seen separately (see 3.3). There was no maximum number of codes that could be assigned to the same piece of text but, in practice, no text was assigned more than three codes[19].

The process of analysing the data was carried out assigning codes using three strategies. The codes were used to identify broader themes following Yin's (2014) established case study literature. The strategies involved:

1. Working on the data from the 'ground up'. This strategy related to a system of noticing patterns or some part of the data that suggested useful concepts.
2. Reliance on theoretical propositions. This strategy was used by relying on a theory, the IP framework that guided some of the analysis stages. The strategy contrasted directly with the previous one.
3. Examining plausible rival explanations. This strategy was used to study rival explanations among participants and cases. This strategy was used in combination with the previous two strategies.

The first two strategies were not used at the same time but in sequence. Working with ground-up data contributed to answering the first, and part of the second, research question taking into

[19] This will become clear in chapter 6 when it will be shown how the three forms of knowledge in IP integrate with each other.

account similar patterns of the participants' profiles and teaching activities and comparing them within the cases and across the cases. The comparison was designed to identify rival explanations, hence the use of the third strategy. The reason behind the choice of analysing the ground-up data was to show the variety of teaching activities and people who were involved in the seven different courses, as well as processes of educators' knowledge building. On the other hand, the IP framework was used to answer part of the second research question and thus reliance on theoretical propositions of IP was applied then.

In particular, to answer the first research question (who teaches in MOOCs?) two elements were looked at in depth:

- what teaching means, what it involves in a broad sense (see 2.2)
- who is involved in the different teaching activities.

The 'ground up' strategy contributed to analysing the activities that participants reported as part of their work which related to teaching. Additionally, the broad definition of teaching was taken into account (2.2) and used as a guide for this part of the analysis. The 'text query' function of Nvivo helped in locating themes for this analysis. The word 'teaching' was investigated through an Nvivo query across cases but was not itself particularly mentioned in reference to the MOOC context. However, other words such as 'design' 'write', 'facilitate', 'develop', 'edit', 'video', 'filming' were searched through the 'text query' function of NVivo and coded. These codes were eventually analysed and interpreted as broad 'teaching activities' in the MOOC context of this multiple case study. The detailed analysis follows in Chapter 5.

Additionally, the roles and activities of participants were coded by working again with the 'ground up' data where the entire data set was re-read. The range of profiles of the participants were coded to find:

- How participants discussed their roles
- How participants discussed their colleagues' roles

The data was re-read and Nvivo 'text search queries' involved searching text for the different titles that participants used to refer to their roles (for example 'educator', 'mentor' etc.). The diversity of terms relating to participants' roles that were found in the data is analysed in Chapter 5.

Moving on to the second research question (how do these educators learn to teach in MOOCs?), the analysis relied on the 'theoretical propositions' strategy based on the IP framework. There were two elements to this stage of the analysis

- the forms of knowledge
- the processes of knowledge building.

Initially, the analysis focused on the four forms of knowledge of the IP model (see 3.3.). These were used as codes, as shown on figure 4 below, to relate what participants discussed to IP knowledge forms. This approach reflects a deductive reasoning which started with an understanding of the literature the theoretical framework of IP and moved into analysis of the data (Twining et al., 2017). This process involved showing how the codes of IP knowledge elements were represented in the dataset.

Figure 4 Nvivo Screenshot with forms of knowledge from the initial coding of all cases and their participants

During the analysis of the forms of knowledge, the researcher kept notes and highlighted parts of the data that were closely related to one of these coding categories about the ways the four types of knowledge reflected participants' views. For example, when participants referred to discussions with colleagues on writing course content together and taking decisions related to MOOC development together, a code of 'socio-cultural' knowledge was noted in Nvivo and similar references to this were coded under socio-cultural knowledge. Similarly, when participants mentioned their challenges with copyright law, a code of 'theoretical knowledge' was noted in Nvivo. Additionally, it was made apparent from the evidence that most participants' practices happened on the job, where they acquired skills and practical experience, hence, these were also coded as 'practical knowledge'.

The problem that arose from this coding was that more than one code was assigned to the same piece of text, which indicated that the codes were significantly overlapping with regard to the different types of knowledge (theoretical, practical, self-regulative and sociocultural) that Tynjälä's framework represents as integrated with each other. The researcher reflected on ways to report

the findings and found it challenging to analyse concrete examples of Theoretical, Practical, Self-regulative and Sociocultural knowledge.

In relation to this challenge, the researcher also took advice from Paivi Tynjälä (the email conversations are available upon request), who developed the model of IP with her colleagues. Tynjälä suggested that identifying 'pure' forms of knowledge may not be useful and that analysing the 'mediating processes' through which different forms of knowledge become integrated would be more appropriate in the context of this research. Following this email communication with Tynjälä, the researcher enhanced the perspective of the analysis by looking more closely at 'the processes of knowledge building' in combination with the types of knowledge that were initially coded and analysed. Therefore, the analysis of forms of knowledge was combined with the new analysis of 'processes of knowledge building'. This analysis showed how the forms of knowledge of the IP were integrated through these processes and what new forms of knowledge educators gained.

The researcher then returned to the 'theoretical propositions' strategy and investigated similar patterns of the 'mediating processes' of IP (see 3.3.) such as the 'problem solving' process. The analysis also explored more elements of the IP framework of Tynjälä (see 3.3.): 'explication' and 'reflection'. After exhausting elements relating to the 'mediating processes' of IP that were found in the data, the analysis turned to a 'ground up' strategy in the unique context of participants' views. The analysis was conducted separately in each case, and after that, across all cases to find 'rival explanations' and interpret them. The concept of 'mediating processes' was broadened to 'processes of knowledge building' to reflect the unique context of MOOCs. The term 'mediating processes' in the IP framework is one related to knowledge building, implying mediation of a tool. The term 'processes of knowledge building' is a wider one than 'mediating processes' and is used in the current research to emphasise not only the mediation but also the ways people build knowledge on their teaching that reflects the second research question (i.e. how these different educators learn to teach in MOOCs).

In order to find the 'processes of knowledge building', the researcher re-read the transcripts in NVivo and ran queries to find out automatically, through the text queries in the seven cases, similar patterns that she observed when she read the dataset. She then coded these patterns and analysed them.

To give an example, the way that the theme of 'collaboration'[20] was coded is described. When the researcher was immersed in the dataset, she observed a pattern of 'collaboration' in some cases. So, in order to find whether and how participants 'collaborated' across the seven cases, the researcher ran a text query across NVivo. This text query included words such as 'collaborate', 'meet' 'together' etc. She grouped and coded the patterns/themes of 'collaboration' found across the cases and analysed them. The analysis of the patterns of collaboration and the rest of the 'processes of knowledge building can be found in Chapter 6. This technique was followed across cases and the results were again compared to find commonalities and rival explanations.

To summarise the aspects that were explored in the analysis, these focused on the following:

- The range of the profiles of participants who were involved in teaching activities
- The broad MOOC teaching activities
- The forms of knowledge of IP
- The processes of knowledge building through which educators integrated the forms of knowledge of IP.

Table 3 below encapsulates the two research questions, the analysis strategies used and the origin of the analytic codes that were used to help answer the research questions.

[20] one of the 'processes of knowledge building' discussed in detail in Chapter 6

Which parts of the Research Questions are answered?	**Yin's analysis strategies**	**Where did the analytic codes come from?**
Who teaches?	Ground-up data, Examined plausible rival explanations	Queries about names/titles used to refer to participants' roles
What are the activities that relate to teaching?	Ground up data, Examined plausible rival explanations	Queries about teaching and 'write', 'facilitating', 'developing', 'editing'[21] etc.
What are the processes they use to build knowledge?	Started with theoretical propositions related to mediating processes and looked at ground-up data from the MOOC context, Examined plausible rival explanations	Mediating processes and other elements of IP as discussed in 3.3.
How do they learn? (i.e. how do they integrate different forms of knowledge and create new knowledge?)	Theoretical propositions, Examined plausible rival explanations	IP forms of knowledge

Table 3 Research questions in relation to analytic strategies and analytic codes involved

It was important to investigate how the different participants from the categories FL Educator, FL Mentor and FL Collaborator worked in the seven cases at an individual level and a collective level and compare them both within their case as well as across cases after each case had been analysed separately. The researcher investigated the similarities and the differences across the cases in terms

[21] These words are linked to the definition of 'teaching in MOOCs' that the researcher referred to in section 2. 2.

of types of knowledge and in relation to participants' roles and activities in their MOOCs, and reported those with a technique of 'cross case' synthesis that is discussed in the next section.

4.13 Reporting the multiple case study

Yin (2014) gives specific guidelines on reporting of case studies, which are followed in the current study. Reporting will not include separate chapters devoted to the seven cases. The analysis is reported on a cross-case basis as Yin (2014) discussed. The individual cases serve as the evidence base for the study, and are cited in the cross-case synthesis. Cross-case synthesis identified which codes related to which cases, and, therefore, the significant similarities and differences across the cases were analysed and are reported in the next two chapters.

The 'cross-case synthesis' technique treats each study as separate (Yin 2014) and facilitates the reporting of case studies. This was helpful for the current research which included seven studies and served to explore how the cases being studied or the educators within them (the unit of analysis) replicated or contrasted with each other. The analysis was complex because often different people used diverse terminologies about their activities. For example, one professional identified himself as 'MOOC organiser' in one case. It was only after in-depth cross-case analysis that he was found to have had similar activities to people who identified themselves as 'learning designers' in other cases. This number of cases were investigated so that the researcher could get data from unique and significant cases, for richer findings that it would be possible to compare and relate to each other.

The researcher decided to report the analysis and findings in this way because it would be overwhelming for the reader to be informed about each of the seven cases separately, and then to be given great detail about the profiles of participants and their teaching activities, processes of knowledge building, and forms of knowledge they gain. This does not, of course, mean that extensive analysis of all cases has not been carried out. On the contrary, it will be shown how the different analysis elements are represented in all cases and how the researcher engendered credibility and trustworthiness of this research.

4.14 Credibility and trustworthiness

A credible study is one that provides assurance that the data is properly collected and interpreted (Yin, 2016), so that the findings and conclusions accurately reflect and represent the world that was

studied. The reader needs to be able to follow every step of the research, so the researcher needs to give explicit, detailed information about all the research processes.

This thesis has explicitly and methodically reported how the case selection was made, the challenges encountered, and how these challenges have been tackled so that the researcher builds trustworthiness. Time was spent on reporting when the interviews took place and how long each of the interviews lasted (see Appendix 4). Additionally, the researcher participated in all the MOOCs she studied. She read the text of the steps of the courses, she watched the videos from as many parts of the MOOCs studied as possible. She observed when courses had their own external blogs. These insights helped the researcher to have a broad idea of the discussions of participants, and make meaning of their stories during the data analysis. During the data collection phase, by interviewing people, the researcher prompted participants to engage in 'reflection' and thus, to engage in one of the processes of knowledge building. So, by taking part in this research, they changed the processes they used to build knowledge about MOOC teaching. The analysis focused on their accounts of previous activity and did not go on to analyse what they learned while taking part in the study.

In the data analysis phase, the researcher explored differences and similarities within and across the seven cases and the terminologies used (for different roles and activities that may have similar meanings) that are presented in the analysis and discussion in Chapters 5, 6 and 7. With regards to the critique that 'case studies are not generalizable', Yin (2014) suggests that if they have good theoretical propositions or theory behind them, as this research did, then analytic generalisations can be made. Thus, this study took into account a theoretical model to respond to this challenge of not being able to generalise. Additionally, the researcher studied multiple cases to make the findings more rigorous than using a single case and looked at similar results (literal replication) and contrasting results (theoretical replication) (Yin, 2014). In addition, 'by investigating several cases, similar and contrasting ones, researchers can understand the single-case findings, grounding it by specifying how, where and perhaps why a case carries on as it does (Miles, Huberman, & Saldaña, 2014).

Throughout the complex process of reporting the multiple case study, the researcher followed a structured technique. Yin (2014) is one of the few authors who has developed rigorous strategies and techniques for this methodology, and in particular the cross-case analysis that was used. From a qualitative point of view, data collection and analysis are subjective and to enhance credibility of

the research, it is crucial to explicitly take the research's influence on the data collection and analysis into account through being reflexive (Baškarada, 2014).

4.15 Conclusion

This chapter focused on the qualitative approach of this PhD study, the research approaches considered, and described the multiple case study methodology and how this was applied. It outlined methods of data collection considered, and discussed in depth the online interviewing method of data collection that was used and the interview schedule, the ethical considerations, the pilot interview prior to the main data collection, the process of data collection, how the sample of cases and the participants within the cases were chosen, and how access to the data was gained. Following this, the chapter focused on the data transcription process followed, the methods of data analysis and discussed how the multiple case study is reported. The chapter closed with consideration of the credibility and trustworthiness of this research.

The next chapter explores who teaches in MOOCs, and what teaching activities are involved in the MOOC context.

5 MOOCS: WHO TEACHES AND WHAT ARE THE TEACHING ACTIVITIES?

5.1 Introduction

This chapter identifies the profiles of participants and their roles, the variety of their activities that relate to MOOC teaching, and answers the research question 'who teaches in MOOCs?'. It is shown that although participants are given different titles for their roles, they often undertake similar activities. These activities are considered in relation to the broad definition of MOOC teaching that was introduced in section 2.2. MOOC teaching involves the preparation of mini-videos instead of the lectures, seminars and tutorials that face-to-face situations include. Other MOOC teaching activities involve designing learning materials, supporting learners by facilitating discussions, designing assessment, preparing bids to attract funding, carrying out other activities that support learning, and collaborating with other institutions or partners. Some of these activities would not be classified as 'teaching' in other contexts but the decisions for such activities have pedagogical implications for learning and are integral part of the MOOC teaching process. As already noted in the literature in 2.3, the MOOCs that this study looks at are distinct from face-to-face courses, and thus the teaching practices are also likely to be distinct.

The chapter starts by introducing the participants involved in all cases that were outlined in the previous chapter, and this time provides an overview of the titles they use to refer to their own roles as well as the titles they use for their colleagues' roles. This, as already discussed in more detail in 4.12, came from ground-up analysis of the data. It is therefore able to identify how the titles vary across cases. Following this, an analysis of the activities in which participants are involved is conducted, in order to categorize the activities that participants in different roles take on. This chapter also provides a basis for the following chapter, which examines how the people who teach MOOCs learn to do these activities by analysing the processes through which they build their knowledge. Throughout this chapter, analysis shows that MOOC educators work in different ways: some as a team, some as individuals, some collaboratively and some hierarchically.

5.2 The participants' roles

This section introduces the participants involved in all cases and provides an overview of the titles of their main roles and states their activities. The coding was based on how participants discussed

their own roles and was used to compare different descriptions and different roles (rival explanations strategy as discussed in 4.12).

Table 4 below outlines the participants who were interviewed from all seven cases, the organisational structures of which were discussed previously (see Appendix 6). The terms relating to participants' roles were grouped and analysed. Participants who acted in an official capacity during a course on the FutureLearn platform were assigned the roles of FL Educators or FL Mentors, as appropriate (reference to these definitions can be found in 1.3.4).

Initially, during the transcribing process, participants' real names were changed to a pseudonym composed of a reference to the case they belonged to, and a number, followed by their FL role. This decision was made in order to protect their anonymity (code shown in first column of Table 4 below). Some participants did not have a FL official role, and were coded as FL Other (code shown in first column of Table 4), which in the analysis of the thesis are referred to as 'FL Collaborators' (see also 1.3.4). These roles were the 'Learning Designer' (Case A, C and D), the 'MOOC Organiser' (Case E), the 'Digital Learning Team Manager' (Case G) and the 'Head of MOOCs' (Case F). The first three roles had similar responsibilities, while the last one was quite different. These roles are discussed in later sections.

All participants were also given supplementary codes (labels) that were dependent on how they described their own roles (codes shown in second column of Table 4) and according to how their colleagues described them (code shown in third column of Table 4).

Participants	How participants describe their own role	How participants are described by their colleagues
A1FLEducator	Educator, Academic	Academic (Team)
A2FLOther	Learning Designer	Multimedia developer
A3FLEducator	Academic	Academic (Team), Lead Educator, Academic
A4FLMentor	Mentor, moderator, editor, facilitator	Post graduate student, Lead facilitator
A5FLMentor	Facilitator	Post graduate
A6FLMentor	Educator, translator	Educator
B7FLEducator	Academic staff, Lead educator	N/A (there were no other participants)
C8FLEducator	Academic Staff	Course Instructors, Academics
C9FLOther	Learning Designer (as part of a team), Host	Learning designers
C10FLMentor	Facilitator (team of), Educators	Team of PhD students
D11FLEducator	Lead Educator, Academic	Lead Educator
D12FLOther	Learning Designer of the e-learning team	Educational Technologists, MOOC team, education team, 'the researcher', Learning Technology team, Technology specialists, 'non-academics'
D13FLEducator	Teacher, academic	Educator
D14FLEducator	Tutor, Lecturer	Educator
D15FLEducator	Academic	Educator
D16FLEducator	Academic	Educator
D17FLEducator	Service provider, Academic	Educator
D18FLMentor	Educator, Facilitator, Tutor	PhD student, Facilitator
E19FLOther	MOOC Organiser, MOOC supervisor	The technical department
E20FLEducator	Educator, Academic	Teacher
E21FLMentor	Mentor	Teacher
F22FLEducator	Educator and Librarian	Educator
F23FLEducator	Educator	Co-Educator
F24FLOther	Head of MOOCs, Sponsor	Nobody referred to them
G25FLOther	Digital Learning Team Manager	'The technical people', the digital learning team, 'the university'
G26FLEducator	Lead Educator	Academics, Subject matter experts
G27FLEducator	Educator, Academic	Academics, Subject matter experts
G28FLEducator	Academic	Academics, Subject matter experts

Table 4 Participants' main roles, name coding and descriptions of their colleagues' roles

The titles FL Educator, FL Mentor, FL Host (the role-title Host was only mentioned once in the 28 interviews of the seven cases) and the FL Collaborators (i.e. Learning Designer, MOOC Organiser, Digital Learning Team Manager, and Head of MOOCs) are illustrated with data in the next sections. In the next three sections, participants' descriptions of their roles are presented and analysed.

A list of how each of the titles is seen in the current study is given below. These descriptions combine different accounts of each role, including the official role descriptions supplied by FutureLearn and information from the data, identifying the most salient aspects of each.

FL Educator: professionals who have subject matter expertise and are usually employed as academics in their everyday roles (but not when they work for non-university partners of FL). These professionals are also involved in other activities such as learning design with the loose or the conscious approach discussed in 2.2.2 as well as the activities that support teaching in the broad sense. A FL Educator may also appear as a lead educator, the one who signs off emails to learners, presents a 'persona' which introduces the course and creates a story around the course (storytelling) (https://www.futurelearn.com/using-futurelearn/why-it-works).

FL Mentor: professionals, usually PhD students in their everyday roles, who are facilitating the discussions with learners, answering their questions, and making comments. FL Mentors occasionally take part in other teaching activities.

FL Host: a professional who chairs recorded discussions during which FL Educators answer questions from learners. This role overlaps with others, and so FL Hosts are described in this thesis as FL Collaborators (see below).

Translator: a professional who moves text from one language to another. This may be done within an external blog related to the MOOC, or by adding subtitles to the course videos.

Educator: this term was used in different ways by participants. It was typically used to refer to FL Educators or FL Mentors

5.2.1 The FL Educators

FL Educator is 'an academic with a specialist knowledge of the course subject' (Coleman, 2016). This is the term that is used in this thesis to refer to the official roles of the people that appeared in the FL platform as 'educators'. FL Educators appeared in the dataset in all cases. Participants often used the term 'educator' to refer to an 'FL Educator'.

FL Educators often identified themselves as 'academics'. This was because they were academics in their everyday roles. However, as there were also non-university partners in the cases that were investigated, one FL Educator from Case F (see 4.10.1 for details of Case F structure), F22FLEducator, identified himself as a librarian. This role title related to his everyday role in the non-university partner of the MOOC.

> *'my work is as a librarian, so professionally I am a librarian, so essentially I am not a sort of university teacher, I don't kind of teach formally'. F22FLEducator*

F22FLEducator used the term 'university teacher' to distinguish himself from that role. He was not part of a university institution, or an educator (i.e. general term) who would teach formally at a university. However, F23FLEducator, who worked with F22FLEducator on the same course, used a different term to refer to his colleagues:

> *'So, effectively the other two lead educators [meaning that they facilitated the course], there was [name of FL Educator who was not interviewed hidden] and F22FLEducator from [name of non-university partner hidden].' F23FLEducator*

F23FLEducator used the title 'lead educators' to include an FL Educator colleague from his university institution and F22FLEducator who was associated with the non-university partner of the MOOC. So, F23FLEducator considered all his colleagues as 'lead educators', without making a distinction between the university FL Educator and the non-university FL Educators.

Additionally, participants in other cases also used the term 'lead educator'. For instance:

> *'When it actually run [meaning the course], it was really only facilitated by the lead educator [name of D11FLEducator hidden]' D12FLOther*

D12FLOther discussed here that the 'lead educator' (who was a FL Educator) was the only person facilitating the course, indicating that a 'lead FL Educator' had this responsibility of facilitating discussions. However, it should be noted that the course had 12 FL educators who contributed to the course but they did not get involved in any interaction with learners through facilitating discussions. This usage of 'lead educator' is also present in Cases A, B, and G where FL Educators also facilitated the course, but in collaboration with other educators.

Further, the term 'academic' was common in all the other cases studied. For instance:

'We had two other academic colleagues being associated with the course'. B7FLEducator

'...the courses which involve academics giving their time..' D11FLEducator

'We do it with a large team of us; we have probably 4 academic staff'. C8FLEducator

C8FLeducator considered that they were part of a team of academic staff, rather than part of a set of individual academics, which was the view of those involved in the cases of D11FLEducator or B7FLEducator of Cases D and B.

The title 'academic' was also used by the FL Collaborators.

'I think all the academics in general worked really well'. A2FLOther

Across the cases 'FL Educators' were referred to as 'academics' and 'educators'. Further, another term used additionally to the term 'educator' appeared in Case E.

'so any educator, any teacher..' E19FLOther

The term 'teacher' was used by E19FLOther here, from this non-UK Case (E). The term could possibly have been direct translation from their own language to English but it was also combined with the term 'educator' (which was the FutureLearn term). However, the term 'teacher' was not only used in this non-UK context but was also used in a UK Case (D) by D13FLEducator:

'so the one thing the teachers we always do (…)' D13FLEducator

So FL Educators also conceived themselves as teachers. Similarly the terms 'tutor', 'lecturer' and 'instructor' were used less frequently than the term 'academics'. A unique title that was used was the one of 'service provider' from D17FLEducator in Case D:

'I called myself a service provider […] they realised that they needed a gap to be filled, because they didn't have that particular specialism'. D17FLEducator

D17FLEducator here described providing the service of her specialism. Case D included 12 FL Educators who contributed in particular topics of the course separately. So, Case D worked more on the individual level, with each of the FL Educators contributing their work to the course

independently. This is in contrast to Case C earlier whose participants considered themselves to be a team of academic staff and who worked as a team.

Further, another title that was used in Case G to refer to FL Educators is shown in the next quote:

> *'The academics would write the content, they are the experts, they are what we call subject matter experts, our SMEs'. G25FLOther*

Therefore, G25FLOther introduced the FL Educators as 'academics' with a 'subject matter expertise' capacity/quality. Making this distinction entails that FL Educators are experts in the subject but this does not entail that they are experts in other parts of the MOOC development. The titles 'service provider' and 'subject matter experts' also resemble the 'FL Educator' definition mentioned in the beginning of the section that relates to an 'academic with a specialist knowledge of the course subject'.

Thus, FL Educators appeared in the data with different titles apart from 'educators', such as 'academics' and 'academic staff' which were more frequent because they referred to their everyday roles, most of them being academics. There was a distinction between referring to academics as a team or as individuals. Additionally, the FL 'lead educators' had more responsibilities than the rest of the FL Educators, and this was a distinction that participants indicated, and is also prompted by FutureLearn. Other titles used less often were 'teachers'. The non-UK and the UK cases did not have distinctive differences with the non-UK case using more the official FL term 'educator' as well as referring to them as 'teachers'. Even less frequently used were the titles 'tutor', 'lecturer' and 'instructor'. Finally, the titles 'service provider' and 'subject matter expert' were used and resemble the FutureLearn definition. However, this FL definition excludes FL Educators that are part of non-university partners who develop FL MOOCs.

The next category of participants analysed in the following section is that of FL Mentors.

5.2.2 The FL Mentors

A FL Mentor is 'an academic with a good understanding of the course subject, who can help with guiding discussions' (Coleman, 2016). This is the term that the researcher chose to use to refer to the official roles of the people that appeared in the FL platform as 'Mentors', and to unbundle their activities. The term 'mentor' that will be referred by the researcher as 'FL Mentor' appeared in the data twice, in Cases A and E. Other titles that were used instead of Mentor were 'facilitator' and

'postgraduate student'. 'Mentors' also used the term 'educator' for their roles creating a blend between them and the FL Educators. For instance, A6FLMentor of Case A mentioned:

> *'It's work with the other educators'. A6FLMentor*

C10FLMentor, from Case C also used the same title:

> *'It did make me grow [this work experience] as an educator to try and think of different ways to approach their [meaning learners'] comments'. C10FLMentor*

C10FLMentor did not discuss her work as a 'mentor' either but referred to her role with the general term of an 'educator'. It can also be implied that the role was seen as an opportunity for professional development for C10FLMentor. In addition, D18FLMentor from Case D also used the general term 'educator' about his role. Thus, it was common that FL Mentors considered themselves as educators (general term). This meant that the term 'educator' was not only used for the official FL Educator role, but also by FL Mentors. This dual use of the general term 'educator' meaning both 'FL Educator' and 'FL Mentor' created a blend between roles and titles used. The 'educator' reference for FL Mentors' work was not only used by the FL Mentors themselves but also by their colleagues. For instance, C8FLEducator in Case C mentioned:

> *'We have probably four academic staff and probably six PhD Students moderating as educators'. C8FLEducator*

In this quote, C8FLEducator referred to FL Mentors with two titles: their everyday role title of 'PhD students' and a general term of 'educators'. C8FLeducator saw the FL Mentors as 'educators'. This did not happen in most cases. FL Mentors were typically referred to as 'PhD students', which for all but one instance was their substantive role.

Case A, on the other hand, was unique in terms of their FL Mentors. At first, A4FLMentor described his role as follows:

> *'I have to go to comments and of masses of comments but for us, for me as a mentor, facilitator I can see all the study groups, and I can interact'. A4FLMentor*

Therefore, as the quote above indicates, A4FLMentor mentioned his role as a 'mentor' who was responsible for the activity of going through comments and interacting in study groups[22] with learners. Thus, the focus of a 'mentor' was in the interaction. A second term used in the same way as 'mentor' was the term 'facilitator'. It seems that the term 'facilitator' is the explication of the term 'mentor'. It is significant that this was one of the rare references to the term 'mentor' in the whole dataset indicating that they did not see themselves as mentors. A4FLMentor later added that his official role was a also moderator, but he was also essentially an 'editor' and the person who was controlling the smooth running of the course. In the earlier literature on mentors (Coleman, 2016; Liu et al., 2012; Wong & Premkumar, 2007) this type of work is not reported.

There was a very different understanding of the role of this FL Mentor in this Case A, in comparison to the other cases. The FL Mentor role in Case A was multifaceted thus, A4FLMentor was not able to give a single description of what he did in Case A. On the other hand, the Learning Designer of Case A introduced A4FLMentor as the 'lead facilitator':

> *'..about [name of A4FLMentor hidden] and his key role, so he was if you like the lead facilitator and he's been facilitating all the runs since then but he also designed and ran the blog that we run alongside the course'. A2FLOther*

The title 'lead facilitator' the A2FLother used in the above quote was not an official FL title but it emphasised the different understanding of the FL Mentor role participants had in Case A, particularly as A4FLMentor was the 'lead facilitator'. Other people were presumably taking their understanding of their role from his lead, and the term used indicates that it can be a hierarchical role. This quote extends the understanding of what a facilitator is or can be beyond the MOOC and over time. Indeed, there were a number of FL Mentors in Case A apart from A4FLMentor (i.e. A5FLMentor and A6FLMentor, and other FL Mentors who were not interviewed). So A2FLOther distinguished the work of A4FLMentor as opposed to the rest of the FL Mentors. The extended activity of blogging outside the FutureLearn platform will be further discussed in the section of

[22] Study groups are groups on FutureLearn in which a limited number of learners can join and interact with each other. There is a number of study groups.

MOOC teaching activities (5.3). On the other hand, A6FLMentor of the same Case (A) appeared as a 'translator':

> *'my involvement was into translating all the materials […]so it's slightly different 'cause I haven't created the content but I translated the content so made it in a way that was easy to follow for the [name hidden] community.' A6FLMentor*

A6FLMentor identified herself as a translator, who was an individual moving text from one language to another in order to involve a foreign community in the course and gather data for some research she was planning to do. A6FLMentor's quote indicates once more that FL Mentors in Case A had dissimilar roles/responsibilities from each other.

A4FLMentor earlier evidenced that he was an editor and a moderator and in this quote, A6FLMentor identified herself as a 'translator'. Although she had this expertise of 'translating content' that others clearly did not have in Case A, she did not recognise it as 'creation'. It should be noted also here that the capacity of A6FLMentor extended the FL Mentor definition 'to translating learning material' drawing a distinction of the role of FL Mentors among cases. In this Case A, supporting learners was seen as important and therefore, involved FL Mentors.

Additionally, the term 'facilitator' which was common for FL Mentors was mentioned in A5FLMentor's quote below:

> *'I've only ever facilitated for this MOOC […] It's really nice to work with learners who are so enthusiastic […] and it's really great to get feedback on your own guidance that you are providing' A5FLMentor*

Thus, A5FLMentor described his role of interacting with learners being new in his role making a reference to an emotional response from learners.

In the multiple case study apart from the FL Mentors discussing their roles, their colleagues discussed them and mentioned additional titles. For instance, D12FLOther from Case D and FL Educators from Case G also used the term 'facilitator' for FL Mentors' work. Additionally, the 'postgraduate' or 'PhD student' (i.e. everyday role) was used in more cases such as in A, D, F and G when participants talked about the facilitation of the course discussions showing their place in hierarchy as junior professionals. The term 'mentoring' did not appear as such.

In Case D, D18FLMentor discussed in depth the facilitating activities and what these entailed:

'I joined the MOOC about half of its run because we had a lot of feedback in the comments saying we want more sort of interactions with educators etc. So my role was to attract and then to respond to comments and provide links of thorough research and points of interest, to spark the base and also clarify things. D18FLMentor

So, the approach to the activity of facilitation for D18FLMentor was to respond to comments. It was an effort to interact with learners, to facilitate their understanding and to attract their attention. However, the call for this approach to pedagogy came from the learners, not from the educators. This is one of the few points across cases where the voice of the learners comes through and where it is seen what they are looking for in terms of teaching. The quote above stresses this relationship with learners. It seems also that this was one of the few cases that articulated what facilitation involved. In other cases people assumed everyone knew what it involved, but facilitation had a different meaning in different MOOCs (for instance, facilitation was about translation or about keeping the process of the course smooth in Case A earlier).

A significant view about FL Mentors came from Case G and G28FLEducator who referred to them as 'moderators':

'Engaging with the MOOC and doing the moderation [meaning facilitation], I think in the last iteration was moderated by students [meaning PhD Students/FL Mentors] which isn't ideal.. it's not as an experienced [meaning academic]… I suppose, to the people that are taking part... but in the previous one we all kind of took our part moderating and engaging […]the students [meaning FL learners] were engaging with kind of proper academics, professors [meaning FL Educators] and stuff whereas I think in some ..as I said some they don't get that.. but it takes time of course, that's the main thing I suppose...' G28FLEducator

In G28FLEducator's quote, facilitation is seen as 'moderation' which in a latest run was done by 'students'. The term 'moderation' implies a notion of control of learners' discussions. The way G28FLEducator discussed this topic has different implications from the way the C8FLEducator in case C saw FL Mentors earlier. G28FLEducator implies with the above quote that, 'students' (i.e. FL Mentors) are less experienced, have less subject matter knowledge, and are probably in a subordinate position compared to the 'moderation' that 'proper academics' and 'professors' would do. The job of moderation was not seen as less important but it would take time for FL Educators

to do it so it was given to PhD students. It seems that this FL Educator was concerned that PhD students working as FL mentors would not engage with FL learners in the same ways that more knowledgeable 'proper' academics would do.

Consequently, the second category of participants, the FL Mentors, were rarely referred as 'mentors'. They mostly appeared in the data as 'educators' (general term), 'facilitators', 'moderators' and as 'post graduate students/ PhD students'. FL Mentors' responsibility was to help and guide learners and to interact with learners. The data also showed that Mentors' activity involved responding to learners' comments, facilitating their understanding and attracting their attention. It also happened that FL Mentors saw their MOOC work as an opportunity for professional development and at times they extended the responsibilities of the FL definition and got involved not only in guiding learners' discussions but also translating learning material and preparing learning material for external blogs outside FutureLearn. The title 'mentor' of the FL definition was rarely used by participants. The term 'educator' was used by 'FL Mentor' participants and rarely by their more experienced colleagues (i.e. FL Educators). Also, the Mentor definition of FutureLearn sees mentors as 'academics'. In relation to the ways FL Educators positioned FL Mentors, the definition is not accurate as it comes out from the FL Educators' comments, who sometimes saw FL Mentors as subordinate to 'academics'- FL Educators. FL Mentors were regarded as 'students' rather than 'academics' by the FL Educators, a fact that indicates that FL Mentors were seen as less experienced, with limited knowledge and power compared to FL Educators.

5.2.3 The FL Collaborators

Moving on to the rest of the participants, these were not officially recognized with a title on the FL platform, as they were not expected to interact with learners directly in a formal capacity (Coleman, 2016). The participants with these roles were labelled in this research as 'FL Others' and are referred to in the text as FL Collaborators (see 1.3.4) and as it will be shown in this chapter they were involved in MOOC teaching. First, it should be noted how they introduced themselves, and how their colleagues discussed their roles. They were identified as Learning Designers in Cases A, C and D, as MOOC Organiser in Case E and as Digital Learning Team Manager of Case G (shown on Table 4 in 5.2.). These participants were involved in the same activity (shown in the next sections), the design. However, the ways they conceived design were not always the same. As already noted in the literature review in 2.2.2 the design can involve a very conscious approach or a loose one. The FL Collaborators that were involved in the design of material not only had different naming from case to case, even more, the participants within the cases were using different terms to describe

the FL Collaborators' work, a fact that indicated that the role of FL Collaborators was not clearly defined. Finally, there was a unique participant, the 'Head of MOOCs' in Case F, whose role was not present in other cases.

To begin with the most common term/role that appeared in the seven cases and was MOOC related was the 'Learning Designer' in the Cases A, C and D. A2FLOther from Case A mentioned*:*

> *'my role is learning designer, I kind of work alongside the academics to talk through their ideas and in particular thinking about ways that learning technologies can be used to facilitate some of the things they want to do' A2FLOther*

A2FLOther was clear about his role and activities, which involved collaborating with academics (i.e. FL Educators) and brainstorming their ideas of how technologies can be used to design a course. This is in line with the learning design definition that was used in 2.2.2 by (Conole, 2013) that implied that the design was a process.

Going further, to Case D and D12FLOther, she was part of an 'e-learning' team and discussed the assistive role of the 'Learning Designer' to the academics:

> *'…so there was much closer collaboration between our e-learning team and the academics that were involved in terms of helping to design the curriculum and the course but also in creating the content'. D12FLOther*

The D12FLOther used vocabulary such as 'curriculum' and 'content creation' that are typically used to refer to a course module of a face-to-face environment or distance learning (e.g. The Open University uses such terms).

Further, E19FLOther from Case E discussed his role which involved design as supervising FL Educators:

> *'I'm [name hidden] and actually a teacher at the communication department, film and media, and actually I'm involved in several courses as an organizer in MOOCs in [university name hidden], I'm in charge of MOOCs. [...] I have a supervisory role you could say.' E19FLOther*

In the quote above, E19FLOther introduced himself as a teacher, which if translated in his language of origin, this would refer to a lecturer, in Communications. He identified himself as a MOOC organiser with the responsibility of supervising several MOOCs apart from Case E. This title was unique in this non-UK case. His activities will be presented in detail in 5.3.3, but a significant aspect of his work was that in his team:

> *'there was a crew of people working on storytelling narrative adapting academic courses to something more 'mediatic' or for media we would say' E19FLOther*

E19FLOther in this quote mentioned storytelling which goes further from the focus on 'content creation' which was mentioned in Case D earlier, referring to more traditional design methods. Moreover, the story telling activity is close to the FutureLearn guidelines. Going a little further, in Case G, there was G25FLOther who mentioned:

> *'…so that team is part of the digital learning team which is the team I manage'. G25FLOther*

One of the activities that G25FLOther did with FL Educators was to start with the MOOC design and the *'learning objectives'* which follows the FutureLearn guidelines (Sharples, 2015) as well as having the *'learner'* in the centre of the design as (Laurillard, 2012) suggests.

As will be shown in the next section of participants' activities, the titles of Learning Designer, MOOC Organiser and Digital Learning Team Manager had similar activities and crucial roles in the design process. Cases B and F did not have distinctive roles for professionals related to learning design, with FL Educators solely involved in the activity of design. The different approaches to design in the cases studied are addressed in 5.3.3.

The FL Collaborator C9FLOther from Case C, on the other hand, mentioned her role as a 'learning designer' but also discussed a supplementary role:

> *'I've appeared in some of the google hangouts just as the host asking questions that learners had put forward and so you know I've spoken to people at conferences who've been aware of my involvement in the MOOC whereas normally I work as a learning designer kind of goes, pretty much unnoticed' C9FLOther*

So C9FLOther indicated that her role was only recognised when she acted as a Host during interaction with learners' questions which did not happen during her learning designer role. This

quote signifies that the 'learning designer' role was not acknowledged by learners or colleagues, but the 'Host' role offered her satisfaction that she could find recognition. The position of FL Collaborators was not always obvious to the learners.

With regards to how the 'learning designer' role/title was considered by FL Educators, the latter were not clear about it. For instance, D13FLEducator from Case D mentioned:

> *'I think quite a few of them are educational technologists, certainly the MOOC team, it certainly consists of people who are trained for example like video photography, and the designing of that but also media specialist I would imagine.' D13FLEducator*

D13FLEducator mentioned a broad group of people, 'the educational technologists', with whom she was supposed to have worked together on MOOC developments. She gave them the title 'MOOC team'. However, it seems that this FL Educator was brought together with other teams without being aware of each other's expertise. It is clear that D13FLEducator was not part of the same team but brought up possible activities that this MOOC team would engage with. Part of that was the design of video and other media. Similarly, in Case G, the Digital Learning Team was discussed as follows by one of the FL Educators:

> *'we got into quite difficult conversations with the university [meaning the Digital Learning Team] because they wouldn't even let us, they didn't want us to have links to YouTube videos on the course materials, even if they were official things so that became problematic' G28FLEducator*

G28FLEducator here talked about the work they did with the Digital Learning Team but referred to them as 'the university' generally. It is clear that G28FLEducator did not have the knowledge about the genre of videos that the FL platform can host and the restrictions that may come up. Moreover, although in other types of course the FL Educator would have the power to decide the kind of materials he would present to learners, in the MOOC design, the power and expertise with regards to some learning material (such as a YouTube video) would come from a group of people who are more aware of permissions (copyright law) in any open online environment that in this case is the Digital Learning Team.

Moving on to Case F, and F24FLOther, she identified herself as the 'Head of MOOCs'. This was a unique role not mentioned in any other case. Particularly, she said:

'I'm Head at the [name of organisation hidden] in [course title hidden] of the FutureLearn, and I guess I'm sponsor probably […] this is the very first MOOC for [name of organisation hidden] so there was no pre-set procedure as such, because the whole idea was to trial and see how this actually might work. So, the one ... the procedure we didn't have [meaning they did not have before/previously] is co-partnering with universities'. F24FLOther

This unusual role was that of the funder of Case F, who worked closely with the university partner to develop the MOOC. From the quote, it seems that the MOOCs was for F24Other a way of experimenting on designing MOOCs. This participant did not directly design the course nor was she a teacher or an educator. However, she felt that she was suitable to be interviewed according to the criteria that the researcher had set (see Appendix 2).

In summary, the last category of FL Collaborators included professionals with non-official roles who would not normally appear on FL with a formal capacity during the courses. Their work was associated with the learning design as their role titles often denoted. The learning design was not conceived by everyone in the same way. Some saw the design as a collaborative activity, where FL Educators would work with FL Collaborators to design courses. Some cases were hierarchical, with the FL Collaborators appearing to have an assistive role for FL Educators. Individuals in these cases saw the design more as curriculum and production of content rather than a process of creating learning materials. It was also apparent that, although FL Educators were the subject matter experts, they were not essentially the MOOC experts. All these elements had implications for how they learned to teach and this will be further analysed in the next few sections and in the next chapter.

The roles of FL Collaborators were not limited to the 'learning design' activity and these participants were involved in more activities that are discussed in later sections of this chapter. Most FL Collaborators typically had some experience in developing MOOCs while other categories of participants did not (MOOC experience will be discussed in the next chapter 6.2.).

The analysis goes on with a presentation of the teaching activities that participants reported they undertook.

5.3 MOOC teaching activities

This section introduces teaching activities that participants engaged in, which were identified through a 'ground-up' strategy of analysis (see 4.12) and through the broad definition of teaching given in 2.2 that involves activities that might not be direct teaching but contribute to teaching. This definition of teaching is translated in the context of MOOCs and involves the following:

- promoting and facilitating learning
- preparing bids to attract funding for the MOOC (Gašević et al., 2014),
- engaging in the design process of preparing and developing the online course. This process involves creating the learning materials by authoring textual content, creating and editing videos, preparing assessment which is typically automated or peer reviewed (Huisman, Admiraal, Pilli, & Ven, 2018)
- carrying out other activities that support teaching
- collaborating with other colleagues, institutions or partners.

Although participants were usually assigned specific role titles, as indicated in the previous section, these titles did not correspond fully to the activities in which the participants were involved. The teaching activities participants discussed across the seven cases are analysed in this section. These activities, categorised in relation to the broad definition of teaching, that were found and analysed across the cases are summarised below:

- securing funding for the courses to be developed
- allocating the work across FL Educators and FL Mentors who would be involved in the MOOC
- designing learning of the MOOC process, which was seen differently across cases
- ensuring rights clearance for learning material
- presenting videos as learning material
- editing videos
- creating the course on the FutureLearn platform
- facilitating the course by responding to learners' comments, and in some cases facilitation involved translating materials and subtitling videos
- extending teaching roles outside FL: writing external blogs, running Q&A sessions, using social media or other websites to facilitate learners' understanding
- repurposing MOOCs

Analysis of these activities is in the following sections. Some of these activities require pedagogical decisions to be made. These decisions reflect different conceptions of teaching that were described in 2.2.1. In the remainder of the section and in Table 5, the aforementioned activities are examined in detail across the cases. When there is a sign ✓ on the table it indicates that the participant was involved in this activity. When there is a sign ~ it indicates that the participant engaged to some extent in this activity but was not heavily involved. When there is no symbol it indicates that there is no data to suggest that the participant was involved in this activity or that they were not involved.

Participants	Funding	Work Allocation	Design process	Rights Clearance	Presenting	Editing	Creating Course on FL	Facilitating	Extending role	Repurposing
A1FLEducator	✓	✓	✓	✓	✓			✓		
A2FLOther			✓	✓	✓	✓	✓	✓	✓	
A3FLEducator	✓	✓	✓	✓	✓			✓		
A4FLMentor			✓			✓	✓	✓	✓	
A5FLMentor								✓		
A6FLMentor								✓	✓	
B7FLEducator			✓		✓	✓	✓	✓	✓	
C8FLEducator	✓	✓	✓	✓	✓	✓		✓	✓	✓
C9FLOther			✓	✓		✓	✓		✓	
C10FLMentor			✓		✓			✓	✓	
D11FLEducator	✓	✓	✓	✓	✓	✓	✓	✓		
D12FLOther			✓	✓		✓	✓			
D13FLEducator			~		✓					
D14FLEducator			~		✓					
D15FLEducator			~		✓					
D16FLEducator			~		✓					
D17FLEducator			~		✓					
D18FLMentor								✓		
E19FLOther	✓		✓	✓		✓	✓			
E20FLEducator	✓	✓	✓		✓			✓		
E21FLMentor								✓		
F22FLEducator			✓		✓			✓		
F23FLEducator			✓	✓	✓	✓		✓		
F24FLOther	✓	✓	✓							
G25FLOther			✓	✓		✓	✓			✓
G26FLEducator	✓	✓	✓	✓	✓	✓		✓		
G27FLEducator			✓	✓	✓			✓		
G28FLEducator			✓	✓	✓			✓		

Table 5 Participants' activities on MOOCs

5.3.1 Funding

The data shows that in order to develop a MOOC, securing funding was one of the activities that contributed to MOOC teaching. This was primarily an activity for FL Educators while it was evidenced that in one of the Cases, Case E, a FL Collaborator (FLOther19) was also involved. Table 6 below shows the funding sources as well as the participants involved in securing them. An FL Educator would normally write a proposal with another colleague. The proposals would then have to be accepted either by their university management or other funding bodies. In Case A, C, D, the proposals were sent internally to someone in the university. Case E was funded from their government. In Case F and G, the FL Educators wrote a proposal or a presentation and their non-university partner funded their courses. In Case B, it is not clear where funding came from but possibly from the university. Moreover, it is not clear whether the FL Educator interviewed was involved in this activity. FL Mentors were not involved in securing funding in any of the cases.

Cases	Funding sources	People Involved in securing sources
A	Internal from university	FL Educators
B	Possibly internal from university	Possibly FL Educator
C	Internal from university	FL Educators
D	Internal from university	FL Educators
E	From the government	FL Educator & MOOC Organiser
F	From a funding body	FL Educators
G	From a funding body	FL Educator

Table 6 MOOC funding and participants' involvement

Case A and C belonged to the same university and the procedure to secure funding was similar. In Case C, C9FLOther discussed the application process in the call that the university made. Any staff of the university who were interested in creating a MOOC could apply. The learning designers (i.e. C9FLOther) would be allocated in the course after the application process. C9FLOther implied that an approach to teaching had been selected because the university specified what the applicants would do (‘what they want us to do’).The same process for securing funding for Case C was also followed in Case D.

Moving on to Case E, securing funding was slightly different from the other cases, with the FL Collaborator (E19FLOther) helping the FL Educator on securing the course funds after an unsuccessful attempt. The two colleagues revised the proposal and secured course funds. Case F and G, on the other hand, which were MOOCs developed by university institutions in collaboration with non-university partners, secured course budget by writing proposals and demonstrating their work to the non-university partners, who then secured the funds.

To summarise, many of the FL Educators were involved in obtaining funding, and this often involved meeting criteria set by others, whether within the institution or within the government. This meant that not all decisions about the MOOC and how it should run were made by the FL Educators. It was also clear that FL Mentors did not undertake this activity. Apart from securing funding, choosing the professionals who would work on a MOOC was another activity, which is discussed in the next section.

5.3.2 Allocating work across MOOC groups

Another activity that contributed to MOOC teaching that was mentioned by a few participants was the allocation of FL Mentors and of additional FL Educators when the courses were team taught (i.e. Case A, C, D and G). Lead FL Educators in most cases added other FL Educators from their research teams to the MOOC development and allocated tasks to FL Mentors. For instance, in Case G, G26FLEducator described that the course was a team taught MOOC where they brought together (FL) Educators from diverse disciplines to create the MOOC as a team. G26FLEducator was the person who organised the workforce of the rest of the other Educators. The different angles meant different ways of presenting information or facilitating the course.

The allocation of roles was not clear for everyone. For instance, in Case A, A5FLMentor (PhD student) mentioned:

> *'I had no meetings with anyone. One of the things that I find quite difficult about working on the course is I'm unsure about who is on the team and who is responsible of the work that I do.' A5FLMentor*

Thus, A5FLMentor's quote reveals that he was unclear who chose him to work on the MOOC as he never met with anyone to discuss his role through. Case E and Case D had appointed E21FLMentor and D18FLMentor respectively for facilitating courses. The D12FLOther of Case D mentioned:

> *'D11FLEducator did have help from a PG student (meaning D18FLMentor) half way through because I think he found it a lot more intensive (meaning the facilitation)'. D12FLOther*

Therefore, as D12FLOther's quote shows, the D11FLEducator appointed the FL Mentor to share the burden of facilitation.

In the cases that were collaborations of non-university partners and university institutions, the non-university partners would set up the partnership and choose a university institution, and subsequently the FL Educators would then choose the rest of their colleagues.

In conclusion, after securing funding for MOOC development, the next step was to allocate a workforce of supplementary FL Educators and FL Mentors. This was an activity that FL Educators engaged in. However, choosing the type of teaching roles that were required, what expertise was needed to fill them and how many of each professional was needed, entails pedagogical decisions which did not seem to have been carefully thought through. Additionally, this activity entails administrative work, to recruit and hire professionals. Apart from choosing the workforce of a MOOC, another activity which was central for MOOC teaching, was the process of design discussed in the next section.

5.3.3 The process of design

The process of design (learning design) was a substantial activity in developing a MOOC. Learning design was defined in chapter 2 and is repeated here:

> 'Learning design is a methodology for enabling teachers and designers to make more informed decisions in how they go about designing, which is pedagogically informed and makes effective use of appropriate resources and technologies. This includes the design of resources and individual learning activities right up to whole curriculum level design' (Conole, 2013).

As this definition involves a wide range of activities, the sub-sections of 'rights clearance' (5.3.4), 'presenting'(5.3.5), 'video editing' (5.3.6), 'facilitation'(5.3.8), 'extended activities' (5.3.9) and 'repurposing MOOCs' (5.3.10) are also part of the design that relates to making pedagogically informed decisions on the ways courses are developed. However, the participants did not always imply that these activities were part of the design, hence, they were structured in separate subsections.

According to the FutureLearn learning design guidelines (Sharples, 2015), the design starts from a learning objective or a big question with a focus on the learner, asking them to give answers to the question. These guidelines did not seem to have been followed across cases. The process of design was a central activity that was conceptualised differently across cases and participants used different terminology to describe it. The terminology used to refer to 'design' involved: 'curriculum'

(already mentioned in 5.2.3), 'designing the structure in weeks', 'content creation', 'designing the course', 'learning objectives' and 'supervising MOOCs'.

All types of participants were involved in the teaching activity of the process of design. Design was the main activity for the work of FL Collaborators in Cases A, C, D, E and G. Cases A, C and D involved professionals who identified themselves as 'Learning Designers'. Case E involved a 'MOOC Organiser', and Case G, a 'Digital Learning Team Manager'. These professionals were briefly discussed in 5.2.3 and, although they had different role titles in the seven cases, they all discussed their involvement in the 'design' activity. FL Educators in Case D did not extensively contribute to the 'course design' apart from the FL lead Educator of the course. In Cases A and C, FL Mentors were involved in the design of the courses which reflect a more collective approach of how design is employed compared to the rest of the cases.

Participants in Case F did not have dedicated 'learning design' experts for their MOOC and the FL Educators of the case mentioned having 'designed the course' while their 'Head of MOOCs' (i.e. F24FLOther) described that she evaluated how courses were taught ('graded how they are taught'), an activity that requires pedagogical judgement. On the other hand, in Case B, the B7FLEducator referred to the existence of a 'design coordinator' who provided minimal support but the 'design of the course' was the B7FLEducator's work. As the process of design was very diverse from case to case, this section is organised describing each case separately highlighting how design was conceived in each case.

Case A

In Case A, the design was an effort of different professionals: the FL Educators, a FL Mentor and a FL Collaborator (who identified himself as a Learning Designer). A dedicated role of 'learning design' was assigned to A2FLOther:

> *'so when our university decided to become a FutureLearn partner, we were the sort of natural choice of group of people, the learning designers here, to work with the academics and try make that [meaning the course] happen' A2FLOther*

So, the FL Collaborator, A2FLOther, expressed that the choice of Learning Designers was 'natural' implying that they were the 'experts' in learning technologies who could help FL Educators in supporting their work. Moreover, this quote implies that the work would be a team effort. Additionally, A4FLMentor was also involved in the design of the course and stated:

'I think when we first started the designing of the course, we were all very, me and [name of A3FLEducator hidden] was kind of new area […]we initially set up, discussed how many weeks we want, how many sections to divide up it to, and then my kind of role was basically to design each week, like a kind of skeleton format'. A4FLMentor

The quote above explicitly indicates the design process of Case A. A4FLMentor engaged in the planning stage of the course with A3FLEducator, mentioning that they did not have experience in that but also indicating that the design was a group activity. They initially understood design as a matter of course structure which involved the production of content. Additionally, A4FLMentor implied that they discussed with A3FLEducator the teaching objective ('what we wanted to show to people') which was pragmatic, but did not particularly show a pedagogic basis for these decisions. This quote also explains why A4FLMentor was referred as a 'lead facilitator' earlier on 5.2.2. This mentor had more responsibilities compared to the rest of FL Mentors in Case A which exceeded what a FL Mentor's role involved according to the FL definitions mentioned in 1.3.4.

So, although A4FLMentor had as primary title 'mentor', he mentioned learning design activities apart from his mentoring activities. A3FLEducator from Case A understood the process of design as a management process without any overt pedagogical decisions. The process was connected to organising the video making, the people who would work and the video location (outside the UK) implying the administration of timetabling of the design. He referred to the learning material they wrote after doing the videos which suggests that the activity of authoring material was designed in a later stage of design. The translation of the learning content was another part of the learning design discussed later on by A6FLMentor in 5.3.9 (extended activities).

Case B

Going further to Case B, B7FLEducator was the main professional for the design, with minimal support from other FL Educators, as he reported. This was the third MOOC experience for this FL Educator, who said:

'that most recent course was my own design 'rethink', 'rethink' more that's myself doing the conception and the videos […] we had the basics videos, the videos narrated by me and which I was able to make sure that we get across a particular content that I really wanted the learners to have and instead we used the interviews as a supplementary tool'. B7FLEducator

B7FLEducator indicated that the activity of design was individual work, and that the MOOC was his own design rethink, although he referred to 'we' twice in the quote above. His approach was related to offering learners certain 'content' through videos as well as through interviewing other experts in his field. Thus, he explained the objective of having interviews as a way to convey a message for certain content. This relates to Kember's (1997) 'imparting information' conception of teaching. This FL Educator implied that his colleagues (not interviewed), were not part of the design. The design was also about a process of 'thinking' of previous MOOC experiences. A 'MOOC team' as B7FLEducator mentioned was involved in a later stage of the course:

> *'by team I mean [FL Educator's name hidden] and [FL Educator's name hidden] the other academic colleague of mine and some of the 'MOOC team' if you like, so people from quite .. Design coordinator and Media Production people and you know in terms of approving me and agreeing with the academic content it was just [FL Educator's name hidden] and me, because of course the MOOC people, that's not their field of expertise, they were relying at us to tell them that we are happy with this.' B7FLEducator*

B7FLEducator's quote suggested there was a team. He gave the name 'the MOOC people' to experts in media production and design coordination and distinguished them from experts in academic content. Also he mentioned that the MOOC people 'relied' on FL Educators which indicates a power of academics over the MOOC people because of their (academic) subject matter expertise. He also saw the course design as production being content led.

Case C

Moving on to Case C, the FL Collaborator C9FLOther (who identified herself as a Learning Designer), the FL Educators and the FL Mentors engaged in the design. This was seen as a process, with C8FLEducator reporting:

> *'I think for a year we had a meeting every week […]sometimes a sort of manager, would see everything and ideally if everybody could be there, then everyone was .. so it was very much a process of us meeting every week and go through, I suppose from the very beginning just sketching out the initial.. we're gonna have six weeks the first time we did it and each week we were you know, what's gonna go this week, what our theme is gonna be, once we got in that stage , working out the detail ..we are covering.. I don't know ethics and that go to this material […] so*

from the beginning right to the way through to the launch of the first one it was very much, we were twelve people sat on the table. The PhD students [FL Mentors] who were the facilitators, we identified people who were.. who didn't want.. People in the final year were busy and people in the beginning have got quite a lot to be doing as well.' C8FLEducator

C8FLEducator, in this quote, explicated the design activity as a process that lasted a year. There was a person managing the timetabling and assigning roles to the courses' weekly structure as in Case A. The point of management here was C9FLOther (learning designer), whereas earlier in Case A and B it was an FL Educator. C9FLOther had some experience in MOOC developments, as will be discussed in the next chapter. FL Educators and FL Mentors shared the activities of the course after they sketched out its length. With regards to the pedagogical activities of the design, these took place gradually, with educators starting from *'top down'*, meaning that they started from the themes. Themes are the 'content' they wanted to present in the course. The case worked as a team, taking into account the time that FL Mentors could devote. The views of C8FLEducator about the design reflected the views of the rest of the interviewees of Case C. C9FLOther, for instance, discussed extensively the people that took part in the meetings of designing Case C. In particular, C9FLOther reported:

'we had a representative from the library every week, with regards to the legal team they didn't come but we have a MOOC process administrator who does all of our liaison with the legal team and she came to most of those meetings, […]Whether we could use content she then take it back to the legal team to find out. We had one member of the media production team who generally came to each meeting […]we had somebody from Marketing, she would come to some meetings'. C9FLOther

The quote above reveals that there were a number of experts involved in the design apart from the FL Educators, FL Mentors and the FL Collaborator -C9FLOther. Librarians, Legal experts via a MOOC process administrator, the Media team and the Marketing team were involved in the process. This shows that the design of a MOOC demanded a team of experts from different backgrounds who contributed to the process of design in different degrees and ways.

Case D

Moving on to Case D, D12FLOther (who identified herself as a Learning Designer), was not only involved on the management part of designing the course structure but also served as the author of learning material. In particular, D12FLOther indicated that their role as designers was to manage individual meetings with FL Educators where the latter would talk through course content and their ideas. Following this, the job of the designers was to synthetise 'learning outcomes' of the course and in the meantime they got on with producing content. The learning designer would organise the structure of the course, which was seen as production of content. The designers took decisions on having a balanced mix of learning activities (videos, discussions, articles) as the guidelines of learning design of FutureLearn suggest (see 2.2.2). Case D was an unusual case where the learning designer would do most of the design without extensive involvement of the several FL Educators involved in the course. The FL Educator's activity would mainly start in evaluating this content ('*they would feed back into*'). The views of D12FLOther of Case D are in line with the FL Educators' reports. For instance, D13FLEducator explicitly described the work of the learning designer similarly:

> *'two members of the team [meaning the e-learning team] actually came to my office they made an appointment and they basically talked about the content about four particular sections , so they gave me a kind of outline of the whole thing with six parts and they said which parts can I give them content about, and I said I can give them content about three of the six themes they had outlined so the way they did this was in an one hour kind of free flowing meeting in which they basically asked me to talk about the kinds of things that I would like to talk about and maybe you've maybe think of the outlines, […] so I was kind of helping them developing the content for three of the sections.. so the way it happens it's kind of stream of consciousness, so I was kind of talking and they were doing two things, they were recording it but also, another person was actually writing down on the white board and then taking photographs I think.' D13FLEducator*

Thus, D13FLEducator how the e-learning team decided the course structure. This was a design element. It is also shown that the work was individually organised and was not group work of all FL Educators with the e-learning team. D13FLEducator's activity was to 'talk about' her field of expertise (i.e. the three sections). This was not discussed as 'design' but as *'development meeting'* signifying that the FL Educator did not see it as design. At the same time, a member of the e-learning team recorded D13FLEducator and took notes so that they could then go and write the course content. It is also significant that D13FLEducator saw that her role was to help the e-learning team

and she did not seem to have the 'main role' in the course or to hold power over other types of professionals involved in the MOOC (i.e. FL Collaborator or FL Mentor).

FL Educators in Case D described similar evidence on the process. In fact, the FL Educators were not involved in designing the outline of the course and authoring learning material as FL Educators typically did in the other cases, i.e. to write the subject matter, and as would be expected from a FL Educator who would know the subject. On the contrary, the tasks of the design activity were primarily the responsibility of the e-learning team (i.e. FL Collaborator). Also, the design was treated as a number of 'sections' (course steps of each course week) that were allocated to different FL Educators, the subject matter experts, who only gave advice to the FL Collaborator who had decided the structure and wrote the subject matter. The FL Mentor of Case D was not involved in this activity, and the processes participants followed did not work very well for everyone in this case. This is discussed in the next chapter.

Case E

Moving on to Case E, E20FLEducator and the FL Collaborator (E19FLOther) contributed to the design. E19FLOther (who identified himself as MOOC Organiser) discussed the pre-production process which included the design activity.

This activity is seen as a *'production'* process. The difference though in this non-UK course from the rest of the cases, as described by E19FLOther, was that he particularly referred to content as translated to *'storytelling'* in the MOOC context. Storytelling is a key aspect in the FutureLearn guidelines for design (see 2.2.2). In this case, they involved professionals in storytelling and referred to it as a unique expert knowledge in which FL Educators were not familiar with, rather as simply creating content or material. Further, E19FLOther discussed that part of their design phase was to choose appropriate resources (i.e. *'we also thought of the images'*), and decide when the course would run (i.e. *'we start to think of calendar'*) as well as ensuring they have copyright permissions for material used. The rights clearance was in this case linked to the design of the course but is further discussed in the next section. E19FLOther stated 'we' that implied that there was a group of people working on the design (the storyteller was one of them as well as E20FLEducator). Thus, their institution regarded it as important to involve different experts in the MOOC design (pre-production).

Case F

In Case F there was no reference to the specific role of an FL Collaborator such as a learning designer but evidently FL Educators engaged in the design activity. In particular, F23FLEducator mentioned that he designed the course with his co-educators:

> *'we met to discuss the structure of that, we went to multiple iterations of the potential structure, refining it all the time, we decided that there's a big global audience we wanted to, you know international input into this [...]so then you tried to string things together in a way that is coherent for a learner who is coming to the module, or coming to the MOOC for the first time' F23FLEducator*

In F23FLEducator's quote, apart from thinking of the design as a 'structure' process there is a perspective of thinking about the learners. This was one of the design principles of FutureLearn (see 2.2.2) to put the intended learners in the centre of the design. So the FL Educator here showed that they took into account that some learners were new to the MOOC and some were from different countries. This is one of the few accounts that had a focus on learners and on pedagogy. It is also clear that the design was a group work although it was an integral part of the FL Educators' roles without involving FL Collaborators as in most of the other cases.

Case G

Finally, in Case G, there were a number of experts mentioned as having contributed to the MOOC design. Moreover, in an attempt to compare with Case C, there is a significant difference. In Case G participants did not refer to legal teams, librarians or marketing teams being involved in the design activities as happened in Case C. The staff structure was not exactly the same as Case C, nor did any participant from Case G mentioned having involved FL Mentors in the process of design as happened in C and A. The FL Collaborator (who identified herself as a Digital Learning Team Manager) of Case G gave a clear description of the design process:

> *'we would have a course designer, a production lead, a content lead and a project coordinator as well. We also have a learning technologist and an animator who might work on a project if their skills are needed so, that team is part of the digital learning team which is the team I manage. We would then work with our academics, so our academics would be involved in every process but they don't actually get involved in creating the course on the platform. So we would start off by work with those academics to define what the learning objectives are for their course, what it is that they wanting students to learn as to know, we would then*

look into breaking that down into a number of weeks, so that will determine how long the MOOC was..' G25FLOther

From the quote above, it is evidenced that the design was an organised and structured activity that combined interdisciplinary teams and was a group effort. The FL Collaborator made a distinction between teams that worked together. Her team, the digital learning team, consisted of different experts used when needed for design purposes. The second team was the academic team. The team of the FL Collaborator (i.e. digital learning team) clearly saw the design as a process. For the first time across the seven cases, an account of learning design began with the learning objectives, following the FutureLearn design guidelines (see 2.2.2). The learning objectives and the mix of appropriate activities that G25FLOther stated (video, article, quizzes, tests) for the course were created by the experts mentioned in the quote and the academics (FL Educators). The FL Collaborator also mentioned that they had to think about the learners as part of the design process as also occurred in Case F. Additionally, G25FLOther referred to the assessment element of the course. This was rarely present in the discussions of this multiple case study, although typically assessment is a very significant teaching activity. In this case it was seen as part of the activities that they had to design. G25FLOther discussed formative assessment (self-test to see what a learner learned) or summative assessment (formal test to receive a score) without specifying how exactly assessment took place in the course. Although assessment was not discussed in detail, since it was not an integral part of the design, a dedicated section on assessment activity can be found in Appendix 9.

G27FLEducator's view is in line with G25FLOther's. G27FLEducator identified that the activity of design was a group activity working with the digital learning team, and recognised their expertise in design with considerable MOOC experience (this will be discussed in the next chapter). After identifying the necessary elements (the learning objectives), the FL Educators went on to write the content (learning material). The design of the course in Case G was a mutual contribution of the digital learning team and the academics.

To sum up, FL Educators of all cases and FL Collaborators (i.e. Learning Designers/MOOC Organiser/Digital Learning Team Manager in Cases A, C, D, E and G) engaged in the design activity. The design was seen differently across cases, sometimes as a process that learning had to be designed, and sometimes as production of structure and content of the course. In most cases, there was one professional that had some experience of learning design. The institutions of most cases

regarded design as a specialist skill, and therefore hired professionals to do this, although most of them did not follow design principles that were learner centred or did not seem to have followed the FutureLearn guidelines, as they did earlier with the naming of FutureLearn roles (5.2). However, one case that had no designer (Case F) was one of the very few that discussed the 'intended learners' of the course in the interview. Case G also discussed the learners as well as the learning objective which was not central in most of the cases. Finally, in some of the cases the design was a collaborative activity and involved experts of interdisciplinary teams to complete those (Cases C, G). In some of them they also involved FL Mentors (Cases A, C). Consequently, in most cases there is a lack of pedagogical decision-making and the main focus is on content and the practicalities of MOOC development and requirements from FutureLearn rather than focusing on what they want learners to learn and how they want to support them in achieving that.

As noted in the beginning of this section, the next few sections are activities that can be regarded as part of the design. The next section describes one of these: the rights clearance of copyright content.

5.3.4 Rights Clearance

One of the activities that was regarded as part of the design process was choosing copyright free learning material or purchasing material when there were legal restrictions. However, this activity was not articulated as part of a design process in all cases (only Case G mentioned it- see 5.3.3.). The 'open' aspect of MOOCs, was a new activity for most FL Educators. Although they had used material such as images and videos in their teaching before, it was only the massive and open aspects of MOOCs that prompted them to look at the legality of what they were doing and the limitations of the material they could use. Moreover, in some cases, it was essential to secure location agreements if videos were to be filmed in protected sites.

The activity of rights clearance was mentioned nearly in all cases where FL Collaborators (i.e. Learning Designers/ Digital Learning Team Manager) and the FL Educators were engaged in it. In Case F, the rights clearance was handled by the FL Educators of the university partner. There was no reference to such activity in Case B, while none of the FL Mentors from any of the cases studied were involved in this. This activity was indicated as a challenging one for all participants that revealed clear gaps in their knowledge and will be discussed thoroughly in the next chapter. An example is given in this section to show the problems participants had.

In Case C, C8FLEducator described in detail the information about this activity and the reasons behind it:

> *'we did have issues with our own legal team where we had fairly a good understanding of copyright law, but they had a different understanding of it.. it made sourcing material quite challenging at times because of their requirements and part of that actually came about because of the way with the ability for FutureLearn to sell a certification at the end of it which suddenly made it commercial thing which prohibited lots of uncommercial use...' C8FLEducator*

This quote suggests that participants in Case C became aware of the need to work within the copyright law that was different for them and their legal team's understanding. From the quote of C8FLEducator, it is clear that this activity was shared with the legal team of their institution. Although it is expected that the legal team would be experts in legal matters, the FL Educator here indicated that they had different understanding of copyright law from the legal team. C8FLEducator implied with the above quote that the academics (i.e. FL Educators) also had this expertise in copyright. This quote indicates that the FL Educator is an expert on legal law and knows better than the legal team about the copyright law. It seems that C8FLEducator did not have the power to act according to their own understanding of the law.

Overall, ensuring rights clearance was a broad activity in MOOC teaching with administrative aspects. Rights clearance was found challenging in most cases because of their knowledge gaps. This activity is discussed in detail in the next chapter (see 6.4) along with how it contributed to participants' knowledge building through problem solving processes.

The next section discusses the presentation activity that was also part of the MOOC teaching.

5.3.5 Presenting

Presenting videos was another teaching activity whose preparation was sometimes regarded as part of the design (see 5.3.3, Case B). Conole's (2013) design definition explains effective use of appropriate resources and technologies needs to be made by professionals. The use of video is one of these resources and would potentially be informed by pedagogical decisions by participants when developing MOOCs. This activity was not an easy task that all participants felt familiar with as this section shows, and participants did not seem to have made carefully conceived, pedagogically informed decisions about the video presentation. Presenting videos was primarily an activity taken

up by FL Educators but in one Case (C), FL Mentors were also involved while in another Case (A), the FL Collaborator (A2FLOther) presented videos via the external blog that the course maintained.

In Case A, A1FLEducator and A3FLEducator presented the videos that were put on FutureLearn. Additionally, it was rather unexpected that the FL Collaborator was also involved in this activity, creating-presenting videos to be shared via the external blog of Case A:

> *'so, what happened was I got to go out to [location hidden], with an I-pad and a nice microphone, and spend three very enjoyable days there, taking again hours and hours of filming, according to the things that we wanted, questions from the course, of we made films of, so we wanted that kind of feedback loop, that direct thing there and those were done really well, so they were all edited and put onto YouTube which gets round some of the legal complications and just linked from the course, and we still use some of those' A2FLOther*

This quote indicates that in their effort to offer some feedback on questions that came up from the course, A2FLOther presented videos that were then put on YouTube. Such videos had an underlying pedagogy that extended beyond the platform that Case A considered ('according to the things we wanted') and were related to providing 'feedback' and answering learners' questions. Such videos might have been produced quickly and informally but targeted the facilitation of learners' understanding.

Further, FL Mentors also mentioned having presented videos in another Case (C). The FL Collaborator in particular mentioned:

> *'we got a lot of our PhD students [meaning FL Mentors], who depending on how much time they were allowing to their own research, some of them contributed of articles, bits of videos'. C8FLEducator*

This quote points out that there was a provision about the time availability of FL Mentors in which they could contribute to videos, while taking into account that their primary role involved their PhD research. It is evident that the FL Mentors in Case C took on a broader role, and the limitations on their involvement were due to their lack of time rather than to their status as PhD students. In the rest of the Cases, FL Educators presented the videos but gaps in their knowledge were observed especially in Case D and G that are discussed in detail in the next chapter (in 6.3).

In summary, presenting videos was a teaching activity that mostly FL Educators undertook although a Learning Designer (Case A) also performed it. FL Mentors in one case (Case C) were also involved in this. There were pedagogic decisions behind video presentation (for instance, to facilitate understanding of learners) but it does not seem to have been viewed in that way by all courses. This activity was not easy for everyone and participants reflected on it showing gaps in their knowledge that will be discussed in detail the next chapter.

Apart from filming videos, the activity of editing these followed and is discussed in the next section.

5.3.6 Video Editing

Video editing was an activity in which FL Educators mostly offered their support and advice to FL Collaborators (Case A, C, F and G). There was an unusual Case (D) in which one FL Educator had only seen raw versions of her own videos. Moreover, in Case A, an FL Mentor was involved in taking decisions on video editing. Video editing, like video presenting earlier, was an activity that involves underlying pedagogical decisions to be taken which were not seen by most participants.

In Case A, the video editing was completed by the media team. A2FLOther was part of this activity:

> *'So, eventually our team [meaning the media team] flew out to [location hidden], filmed, brought the film back here and then what we wanted to do was to edit it to the videos [meaning short clips]. You know, 'how do we do that?' and we just couldn't get them to give us advice [meaning the FL Educators] about how to edit those to the message you wanted to deliver' A2FLOther*

So, A2FLOther here reflected on the challenge of editing the videos to show the learning objective (message), where the FL Educators would contribute with pedagogic expertise and academic knowledge. A1FLEducator, though, reported contradictory information on the editing activity:

> *'yes, they showed us all of the videos as they were being edited, and asked.. There wasn't at any point much room for us to ask for things to be changed really, partly because everything was running on an exceptionally tight schedule and, these people had a limited amount of time because they are not doing just the MOOC.' A1FLEducator*

From A1FLEducator's quote above it is evident that time shaped who was involved, how FL Educators were involved, and to what extent the pedagogy (learning objectives) could be fully developed. A4FLMentor, in the same Case A, got involved in a preliminary phase of video editing:

> *'we had another small meeting and emails to organise the way that each video we wanted to be edited, so, I reviewed all the videos […] and sent that to the team to edit.' A4FLMentor*

A4FLMentor pointed out here that he reviewed all the videos that they previously recorded and that were further edited by the media team that he was part of (c.f. *'we wanted'*). This meant that this was an individual effort rather than an effort which would also involve the FL Educators. Moreover, this was the only case with an FL Mentor mentioning having been involved in the editing activity but explains once again why A4FLMentor was given the title 'lead facilitator' earlier in 5.2.2.

Further, in Cases C, E, F and G, the FL Educators had some involvement in the editing activity. For instance, F23FLEducator from Case F mentioned:

> *'post filming in the editing process, we visited the editing suite, we went through that process, so they produced kind of rough copy and then we would work on that, till we ended up on something we were all happy with.' F23FLEducator*

Thus, it becomes evident that the editing activity was not an integral part of FL Educators of Case F but there were professionals involved in this (i.e. *'they produced...'*). F23FLEducator was present in the editing process and this was, therefore, a group activity. It seems that the FL Educator did in depth work on editing with his colleagues.

Moving on to Case D, FL Educators were not at all involved in the editing process and there was a rare case with an FL Educator mentioning:

> *'..well it might seem very funny but no I haven't watched it online [meaning her video].. the people who were doing the filming, my colleagues and.. they sent me like the raw video and I watched it with all the mistakes' D13FLEducator*

D13FLEducator's quote shows a disconnect with her pedagogic content, in that the course materials went out without her having looked at them. Editing was not a group activity in which she made any pedagogical decisions involving the learning objective.

In summary, the video editing was an activity that was undertaken by the FL Collaborators (i.e. the Digital Learning Team, Learning Designers etc.). FL Educators had little involvement if any in this activity. However, as in the previous activity of presenting videos, this activity of video editing would involve underlying pedagogical decisions that were not seen by the participants. Thus, although this stage that involves significant pedagogical decisions, it does not seem to have been viewed in that way by most cases. This suggests that there were still gaps in the learning of the participants in terms of the MOOC process design that will be discussed in detail in the next chapter.

The next activity discussed was the creation of the course on the FutureLearn platform.

5.3.7 Creating the course on the FutureLearn platform

Creating or building the MOOC on the FutureLearn platform was another activity that some participants mentioned. 'Creating the course' refers to the process of building the course on the platform itself which is undertaken by FL Collaborators (G25FLOther in Case G, E19FLOther in Case E) and the B7FLEducator in Case B. In Case G, the G25FLOther discussed:

> *'so our academics [meaning FL Educators] would be involved in every process but they don't actually get involved in creating the course on the platform.' G25FLOther*

Creation of the course was the responsibility of the Digital Learning Team. Similarly, in Case E, the FL Collaborator, E19FLOther mentioned what his team did:

> *'we incorporate some documents and we do the implementation to the platform .. so we construct the whole architecture of the course .. we upload the videos, the papers, the quizzes etc.' E19FLOther*

So, E19FLOther indicated the activity of building the course. There was no reference to FL Educators building the course on the platform in the rest of the Cases apart from Case B. In Case B, B7FLEducator filled in the structure of the course on FutureLearn, therefore, he was the person who created the course on the platform.

To summarise, creating (building) the courses on the FutureLearn platform was the FL Collaborators' responsibility (i.e. Learning Designers, Digital Learning Team and MOOC Organiser). FL Educators were less involved in this activity. They took up the activity only when FL Collaborators were not part of their team. This activity was not discussed in great detail in all cases.

In contrast, 'facilitation' was an activity that participants described in more detail and its analysis is presented in the next section.

5.3.8 Facilitation

Facilitation involved mainly responding to learners' comments. In a couple of cases it also involved translating materials (Case A) and subtitling videos (Case B). All types of participants referred to having been involved in facilitation. Although there was a certain approach to support learners through facilitating discussions (FutureLearn is based and designed on learners' discussions as a way to learn), there were no expectations by institutions that their educators would engage with such activity. However, the practice showed that facilitation was important.

Facilitation was implemented differently across cases, which reflects different approaches to the ways participants conceptualised teaching, or that they did not recognise the pedagogical implications of facilitation. Facilitation could be a group effort (Case C), an activity in which FL Educators were backed up by a FL Mentor (Case D), or work everyone did individually (Case A, E, G). When there was no dedicated FL Mentor to facilitate discussions, the FL Educators were responsible for the activity (Case B).

Starting with Case C, the facilitation approach was one that worked and that they developed. This experience that worked for C10FLMentor and her colleagues is shown in the next quote:

> *'We had a shared google document that all the facilitators and instructors had access that we could use to communicate with each other, so we could say, when we worked, what sections of the MOOC we worked on, any questions we couldn't answer, any problems that we had, any people that we thought, people should look out for, so we could have all of that, in sort of a template that we used whenever anybody worked on a shift on the MOOC, they would put that, they would fill that out so everyone knew what have been done and what needed to be done every day'. C10FLMentor*

C10FLMentor managed to develop the approach they used for facilitation between her team which was collaborative and the hierarchy of facilitation came out of the topics that had to be answered in the discussions. They had a technique of sharing information amongst the team, because facilitation was distributed across FL Educators and FL Mentors of the case. This collaborative process in facilitation only occurred in Case C, where people communicated questions to each other to develop answers for the learners. This collaborative approach did not occur in the other cases.

Moving on to Case A, the FL Collaborator was heavily involved in facilitating the course and interacting with learners' discussions. A1FLEducator and A3FLEducator also facilitated discussions along with the three FL Mentors. A1FLEducator mentioned:

> *'There is absolutely no expectation of an educator to participate.. And there was no support for you to participate because it does not count towards your teaching. It's in your own time.. and because MOOC lives 24h, it is really hard, by the time you wake up, you know in the meantime America, Australia have done their bit... it is relatively, it takes a lot of time to keep up [...] when we interacted fully, people [meaning learners] really followed through, people interacted. When we followed less […] I saw that there were far fewer people, […] I think the success of the MOOC definitely depends on how much educators interact' A1FLEducator*

A1FLEducator associated the teaching activity of facilitation with the success of the MOOC. There was no expectation from their institution for FL Educators to be present in the discussions. A1FLEducator's experience of being part of learners' discussions, though, showed that it determined learners' presence. Also, the activity of facilitation was not something that FL Educators would do as part of their workload. This suggests a clash between the MOOC pedagogy supported by the institution (i.e. there was no need to facilitate) and the MOOC pedagogy in practice.

Moving on to Case D, the D12FLOther discussed the facilitation activity in their course:

> *'Although there was about a team of probably about 12 academics, they were all part of the same research group that sort of contributed videos to the MOOC, when it actually ran it was really only facilitated by the lead D11FLEducator and he did have help from a PG student [meaning D18FLMentor] half way through.' D12FLOther*

It is significant from the above quote that, in this case, there was a shift in pedagogy. In the first run, facilitation was supported, while in later runs it could not be supported. Also, the work that FL Educators could do for their own part of the course was something that was backed up by a postgraduate (PG) student. This decision suggests that facilitation was not so important, and a subordinate would get involved in it, revealing aspects of hierarchy on the tasks the MOOC involved. In other words, although there were about 12 Educators in Case D, assistance was given by a postgraduate student, the D18FLMentor. The FL Mentor revealed, though, that the activity of facilitation was not only to facilitate discussions and respond to comments but also to attract

learners' attention (see 5.2.2). FL Educators in the same case, however, perceived that facilitation was not part of their workload as the D12FLOther mentioned in her interview. The FL Educators were the ones with subject matter expertise and therefore capable of responding to learners' comments, but they did not get involved. The lead D11FLEducator confirmed that the facilitation activity was time consuming for him:

> *'it's incredibly time consuming process, I mean even just to read the comments, I mean you simply can't absorb them all, because there are thousands and thousands of comments ..and so then you have to decide which ones you have to respond to and what are you gonna say ..'D11FLEducator*

Time appears to be an element that shaped who was involved in the process of facilitation, the ways they were involved and to what extent the pedagogy of facilitation could be fully developed. FL Educators in Cases B, E and G discussed challenges of facilitation activity in a similar way to D11FLEducator of Case D.

In summary, FL Mentors, FL Educators and more rarely FL Collaborators (Learning Designer in Case A) took part in the activity of facilitating MOOCs. There was a rare Case (D) that changed pedagogic approach from the first to the second run of the course and did not facilitate the second run at all, whereas Case C contrasted with all other cases with the collaborative techniques participants used. Facilitation involved the participants' interaction with learners or commenting with an overview of the topics discussed in learners' discussions when there was no time. Time was an element that shaped the ways participants would be involved in the activity of facilitation. Facilitation also appeared as a way to attract learners' attention.

The teaching activities were extended outside the FL platform and are discussed in the next section.

5.3.9 Extending activities outside FL

In some cases the activities of FL Educators (Cases A, B, C and F), FL Mentors (A,C) and FL Collaborators (A) of this multiple study were extended outside the FutureLearn platform, in other channels, where participants offered more material or encouraged interaction with learners via blog posts, social media (i.e. Twitter) or image hosting websites (i.e. Flickr). These activities were deployed as a means to share learning material that would enrich learners' experience. Also, at times, participants could not share material through the FL platform and, therefore, used these external channels.

In Case A, for instance, the role of FL Educators, FL Mentors and the FL Collaborator was extended in writing on the external blog of the course. A6FLMentor explained that her work was extended outside the platform by translating blog posts as well as adding subtitles. The FL Mentor in Case A took an approach that was not present in other cases. Although A6FLMentor did not recognize translating content as 'creation', the translation of the course content was clearly an approach to teaching that targeted the facilitation of understanding for learners whose first language was not English. Similar activities with blogging to answer learners' questions appeared also in Case C where FL Educators and FL Mentors participated in blog authoring. Again this was a way of facilitating understanding for learners.

Moving on to Case B, B7FLEducator extended his role on social media through using Twitter:

> *'I was not entirely convinced by the Twitterfall, [...] we've been on Twitter, it might have been interesting to have, to try to have done that more in the [meaning FutureLearn] platform itself, I would have been happy with that, I mean I was, we wouldn't have known at least unless we tried it but it might have been just as well to have done it in the platform, that might be been ok' B7FLEducator*

In this quote, it is evidenced that B7FLEducator got involved with Twitter to answer questions to learners and clearly said that the platform of FutureLearn could support these discussions without extending the activity on Twitter. However, the FL Educator found out by experimenting with Twitter.

In Case F, F22FLEducator mentioned their activity on Flickr:

> *'I think much more common just people [meaning learners] didn't understand what we were asking or how to do it […] so again we had to, I mean in the second run of the course although we kept the Flickr group going and people contribute to we made it much more about , 'oh just send us a link in the discussion threads and we will manage it through Future Learn'. F22FLEducator*

Flickr was used so that learners could upload their own photo content related to the MOOC that would then be discussed with the FL Educators at certain points. F22FLEducator learned about what worked by using Flickr and about what was possible to do with it, which meant that they did not make effective use of it with learners and therefore used the FutureLearn platform instead.

To sum up, some of the cases studied had participants who extended their roles from the FL platform to other media (blogging websites, Twitter, Flickr). Participants used this teaching activity to facilitate understanding on the part of the learners, to interact with them outside the FL platform, which did not always work well, as either the FL Educators were not clear on the ways other media would work, or the learners were not ready to use more channels of interaction outside the platform. FL Educators, FL Mentors and less often FL Collaborators across the cases participated in these extended activities, showing how multifaceted the roles on MOOC teaching were.

Another activity that was less often observed was repurposing a MOOC for other audiences. This is described in the next section.

5.3.10 Repurposing MOOCs

There was one Case, G, in which participants mentioned having repurposed their MOOC for other audiences. This activity of MOOC repurposing was taken up by a FL Collaborator in Case G who mentioned:

> *'we have re-purposed some of the material and we are running a shorter MOOC monthly now which is aimed at school children at 6th formers' G25FLOTHER*

G27FLEducator's report endorses the previous quote:

> *'It's been developed in for 6th formers and is accessible to schools in a way, I don't know particularly about it as educators were not involved in that'. G27FLEducator*

Thus, the course was repurposed for students of 6th form on the FL platform. It is significant that none of the FL Educators were involved in this activity but the FL Collaborator. Repurposing a teaching activity typically entails subject matter expertise and pedagogical decisions about the ways academic content will be presented to school students, and the subject matter experts were not part of this.

The rest of the cases did not refer to repurposing activities but only to reusing their courses, in the form they were created in the FL platform, as supplementary supporting material for their students. Further, the reuse of MOOCs is similar to a blended learning approach of teaching in FL Educators' face-to-face classes. For example, Case C was used in some cases as 'suggested extra reading' for their students. C8FLEducator in Case C discussed this matter:

'[university students] can do in their own time and you know, not everybody sits in a 45-60 min lecture and takes all, no matter how much you try to make it interesting and interactive and all that.. so, having that sort of material up there for students is really helpful.' C8FLEducator

So C8FLEducator mentioned here that his MOOC was used as a way for his university students to revisit the learning material that he taught. Similarly, in Case G, G26FLEducator encouraged students to follow her MOOC:

'I did encourage my students to do the MOOC as a kind of extra reading, you know, I put all the reading list and said basically do the MOOC if you're interested in this topic and I know some of them did' G26FLEducator

This suggests that the FL Educator had a blended approach in mind from the beginning. As described here, it seems that G26FLEducator (and C8FLEducator discussed earlier) used the MOOC as content and as structured information in her face-to-face teaching, which may be a different pedagogical approach to what was happening online. Similarly, some FL Educators in Case D reused videos of the course.

In summary, repurposing the course was not usual but was observed in one of the cases with a FL Collaborator taking up the activity. The FL Educators were not involved at all in this activity that would possibly entail pedagogical decisions. Additionally, Cases C, D and G used their courses in a form of blended learning in FL Educators' everyday classes as a supplementary learning resource.

5.4 Conclusion

This chapter addressed the first research question 'who teaches in MOOCs'. The analysis started with an investigation of the participants' profiles from the seven cases followed by and exploration of what the MOOC teaching activities involved.

It was shown that although participants had some central responsibilities as part of their roles, they were given titles that did not fully correspond to those roles. The FL Educators appeared in the data mostly as 'academics', as commonly this was their everyday role. Other titles were 'service provider' and 'subject matter expert'. The term 'academic' reflects a hierarchical position, placing them as experienced professionals. The titles of 'service provider' and 'subject matter expert' narrowed the expertise to a specific service or subject in the MOOC contexts. Additionally, the FutureLearn

definition of ‘Educator’ is limited (it refers to educators as academics) as it excludes non-university partners who develop FL MOOCs.

Further, FL Mentors rarely appeared with the title ‘mentor’ in the data. Instead, they appeared as ‘facilitators’, which implies that the work they did was to facilitate learners’ discussions. Some FL Mentors considered themselves ‘educators’ and saw the MOOC experience as an opportunity for professional development, while other participants classified them as ‘post graduate students’ influenced by the FL Mentors’ everyday role. The ‘post graduate’ title in the context of academia implies someone who is less experienced, has less subject matter knowledge and probably is in a subordinate position. In contrast, the term ‘facilitator’ does not place individuals in terms of experience or power. The implication is also that less skilled and less important jobs are given to post graduates. The FutureLearn definition of ‘mentor’ does not reflect the work that FL Mentors did, neither the ways that they see their role or they are seen from their colleagues.

The last category of FL Collaborators involved ‘Learning Designers’, a ‘MOOC Organiser’, a ‘Digital Learning Team Manager’ and a ‘Head of MOOCs’. This type of professional did not officially appear in the platform but had significant roles in working with FL Educators to make decisions about the MOOC teaching. Not all universities regarded FL Collaborators as an integral part of the MOOC, so some cases did not have them at all. In those cases that FL Collaborators were not an integral part of a course, the FL Educators had additional responsibilities. However, as the learning design, which was the main activity of the FL Collaborators, was not conceived by everyone in the same ways, the titles of these professionals differed. Additionally, the work of FL Collaborators was a collaborative activity where FL Educators and FL Collaborators would work together, or in some cases it was seen as a hierarchical process where FL Collaborators had an assistive role for FL Educators.

The evidence of the dataset shows the activities that contributed to the MOOC teaching and in which of these participants were involved in the seven cases. These activities included securing funding for the courses to be developed (a) and allocating the work across FL Educators and FL Mentors who would be involved in the MOOC (b). Another activity which was central for the MOOC teaching was the design process of the MOOC (c) and was seen differently across cases. Other activities that contributed to MOOC teaching involved ensuring rights clearance for learning material (d), presenting (e) and editing videos (f), creating the course on the FutureLearn platform (g). Additionally, the teaching activity of facilitation (h) was also seen differently across cases and involved not only facilitating discussion but also translating materials and subtitling videos. The

teaching activity was occasionally extended outside FL (i) with participants reporting activities ranging from writing in external blogs to answering learners' comments and using social media or other websites. Lastly, repurposing MOOCs was another activity (j) that was observed in few of the cases studied.

The activity of securing funds and allocating work often entailed administrative work, to manage organisational processes, and to recruit and hire professionals that involved mostly FL Educators and less often FL Collaborators. There was no evidence in the analysis whether there was any pedagogical rationale behind securing funds for the cases studied. For instance, funding activity implies a pedagogical rationale behind bidding for a certain course or set of courses. Moreover, pedagogical decisions are associated with work allocation as distinct from the more pragmatic decisions (i.e. how many people will get involved in a course). However, participants, did not refer to these activities in relation to pedagogical decisions.

The process of design was a teaching activity seen differently across cases with all types of participants involved. Some saw this as a process for which different experts needed to bring different elements of expertise knowledge (subject matter, MOOC creation, awareness of pedagogy) while some others did not see that and did not involve experts. In some of the cases the design was a collaborative activity and involved interdisciplinary teams to complete those. In some of them they also involved FL Mentors. Designing the courses was mostly content driven and rarely seen as a process that would start by deciding the learning objectives and putting the learner in the centre. The guidelines for learning design development of FutureLearn were less often followed. The data about the design shows that most of these educators had very limited understanding of learning design. They discussed the pragmatic and functional process of design without mentioning at all what they wanted learners to learn and how they intended to support them in achieving that. There was lack of pedagogical decision making with a focus on content and practicalities which was quite consistent in most cases.

An activity that could be included in the design but were not regarded by most of the participants (FL Educators and Mentors) as part of it was the process of ensuring rights clearance for learning material. FL Educators mentioned their gaps in their knowledge on rights clearance (discussed in detail in the next chapter) and the collaboration on this activity with the FL Collaborators was not always productive. Moreover, it is significant that participants saw gaps in their knowledge in this

activity but did not overtly mention such gaps about learning design, which is a substantial activity in a MOOC.

The activity of presenting videos as learning material was taken mostly by FL Educators and less often by FL Mentors and one FL Collaborator. The activity of editing was mostly carried out by FL Collaborators but in their absence FL Educators would get involved in it. These two activities entailed pedagogical decisions that often did not seem to be thought through carefully by participants as they were overwhelmed by the number of activities they had to complete, overshadowing the pedagogic issues. Time was an element which was decisive on the ways some FL Educators were involved in the editing activity.

Facilitating the courses involved responding to learners' comments, attracting their attention and less often translating materials and subtitling videos. Time emerged again as an element that influenced the ways FL Educators would be involved in facilitation. A change of pedagogic approach was also observed from the first to the second run of the course in one case where a course was not facilitated in further runs, in order to keep it running and be sustainable. However, when participants worked collaboratively and shared facilitation activities, time was not an issue.

The activity of creating the course on the FutureLearn platform was done by the FL Collaborators and, in their absence, by FL Educators, and also involved organisational processes. Additionally, at times, the teaching activities were extended outside FL by writing external blogs to answer learners' comments and therefore to facilitate understanding for learners, using social media or other websites. Finally, repurposing the MOOCs was another teaching activity that was not seen in all cases, while discussing assessment activity was very rare.

The teaching activities were associated with certain conceptions of teaching that related to Kember's (1997) framework. The overall conceptions of teaching that are reflected in the interviews were first, to impart information through the learning materials, i.e. video presentation and creation of content. Second, facilitating understanding on the part of the learner was another conception of teaching reflected through the 'facilitation' activity either within the platform or through blogs, Twitter or other websites. However, not all cases thought carefully about these conceptions because time was an element that influenced their participation in such activities as well as in the activity of design. They granted these responsibilities to FL Mentors and FL Collaborators in some cases showing that it was a less important job to facilitate.

Additionally, FL Educators were not always aware that video editing decisions had pedagogical implications and did not get involved. Also, the conceptions of teaching were not always learner oriented. However, when cases involved experts in MOOCs (i.e. Learning Designers etc.) who collaborated with the FL Educators, the hierarchical differences were not as present and the work became a 'team work' rather than individual tasks. The same happened with FL Mentors when FL Educators saw the MOOC work as a 'team work' and involved FL Mentors in supplementary activities other than facilitation (i.e. in video presentation, editing).

Overall, when participants worked collaboratively, there was less sense of hierarchy or power and more a sense of individuals bringing their expertise to the course. The teaching activities were often distributed across FL Educators, FL Mentors and FL Collaborators with none of these roles having only one exclusive activity. FL Educators engaged mostly with all the activities described, and it was rare that they would not be involved at all in them. FL Mentors were involved primarily in facilitating the courses but they also engaged in designing (Case A, C) and creating content as well as editing videos (Case A). The main activity for the FL Collaborators was design, but they were involved in all other activities depending on the case. Occasionally, it was observed that an FL Collaborator had heavy duties on the preparation of the subject matter text (Case D), while the FL Educators were not involved in that. On the other hand, another FL Collaborator (Case F) was only involved in decisions on getting funding and evaluating how the courses were taught. Consequently, such findings raise a discussion on whether participants' current titles should be challenged and reconsidered or combined under a more generic title so as to reflect the participants' activities (this will be further discussed in chapter 7).

In terms of comparing the non-UK case and the UK cases, the terminology they used in the non-UK Case E seemed to have been closer to the FutureLearn guidelines (for instance, 'educator', 'mentor' and 'story telling' as part of the design of the course).

Finally, as it was briefly discussed here and will be further discussed in the next Chapter 6, participants were not always well prepared to complete the activities discussed and had gaps in their knowledge that they attempted to fill through different processes. Using these processes, they integrated different forms of knowledge. The processes and the forms of knowledge they used are discussed in the next chapter.

6 PROCESSES OF KNOWLEDGE BUILDING AND THE INTEGRATION OF DIFFERENT FORMS OF KNOWLEDGE

6.1 Introduction

The previous chapter analysed participants' profiles and unbundled the teaching activities they engaged in as part of their MOOC work. As was shown in the conclusion of the previous chapter, participants had gaps in their knowledge with regards to MOOC teaching. Therefore, the current chapter looks at the gaps of knowledge in order to answer the second research question: 'How do these different educators learn to teach in MOOCs?' To do this, it explores the gaps in knowledge that prompted participants to engage in processes of knowledge building and illuminates the different forms of knowledge that are involved during the processes as well as the new forms of knowledge they created. These processes were not always prompted by known gaps in knowledge but were observed by participants on-the-job and part of the process is finding out where the gaps lie. During the analysis, the seven cases are compared in relation to the ways the data indicate that they learned in more effective ways. It does this by shedding light on the cases where they engaged in the diversity of processes of knowledge building. Additionally, the forms of knowledge they integrated are associated with mediating tools that supported knowledge building.

Initially, the analysis focused on the theoretical propositions of Integrative Pedagogy (IP) (as discussed in the methodology section 4.12) and particularly on the discussions where participants reported aspects that 'translated' to the different forms of knowledge (theoretical, practical, self-regulative and sociocultural knowledge) of IP (discussed in the literature section 3.3.). However, as these integrated with each other and overlapped, it was not appropriate to present the different knowledge forms separately. Thus, this chapter focuses primarily on the 'processes of knowledge building' while mentioning the forms of knowledge that participants integrated during their teaching activities, as well as presenting, across cases, new forms of knowledge participants created.

In order to set the scene for this chapter it is noted that the 'processes of knowledge building' originated from the definition of 'mediating processes' of IP developed by Tynjälä and her colleagues (2014) that was discussed in section 3.3. Understanding of these processes was further developed by working with the data from the ground up (see 4.12). Although the IP framework adopted the term 'mediating' processes, the current study discusses these as 'processes of knowledge building' which is a wider term than 'mediating processes'. The term used in the current

research stresses not only the mediation of a tool but the process of building knowledge which reflects the second research question that this chapter addresses.

The processes of participants' knowledge building when working in MOOCs included problem solving, dealing with uncertainty, collaboration, explication, reflection and evaluation. Problem solving, explication and reflection are shown on the 'IP diagram' first shown in 3.3 that is repeated here, highlighted in red (see Figure 5 below). As the IP processes were not adequate to explain the processes that the participants used to build knowledge in MOOCs, similar patterns were grounded in the data.

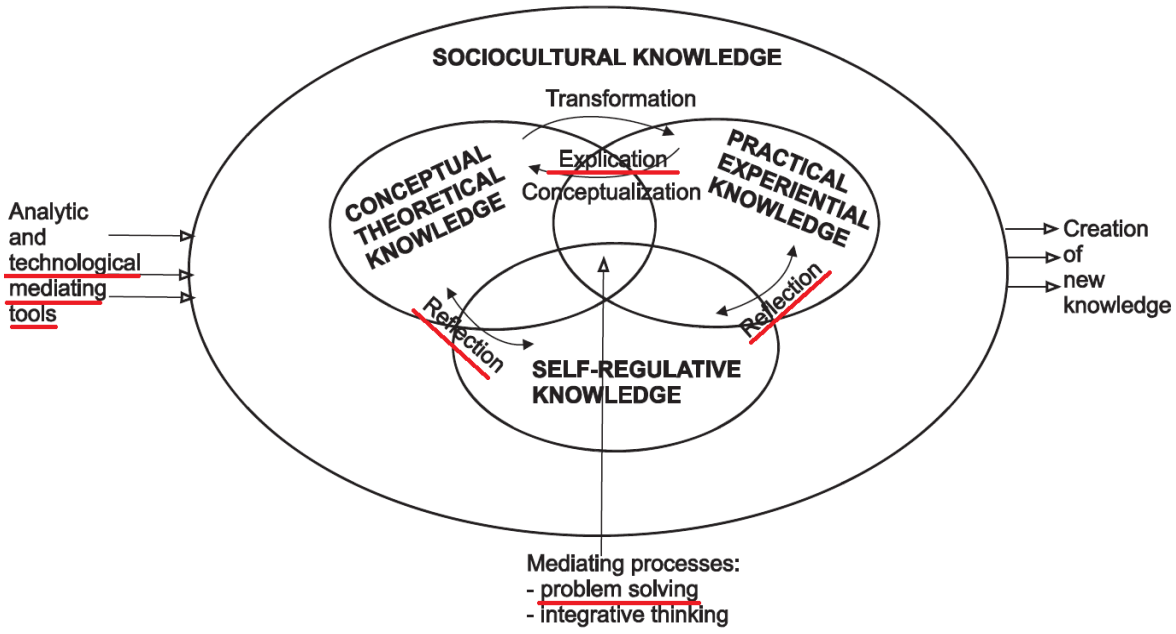

Figure 5 Integrative Pedagogy Framework (Tynjälä et al., 2014) investigated in the MOOC context

The mediating processes mentioned explicitly in the IP framework are 'problem solving' and 'integrative thinking', as Figure 5 above shows. Integrative thinking, a form of mature thinking (Tynjälä et al., 2014), was embedded in the analysis of this research by referring to it as part of the forms of knowledge as they integrate and overlap. Moreover, the mediating tools are also highlighted in Figure 5 and analysed. In the dataset, the tools implied were not essentially 'technological' and thus, the term used in this research is 'mediating tools'.

The 'processes of knowledge building' were grounded in the data by working with similar patterns (explication, reflection, problem solving) across the entire dataset, which suggested useful concepts (see also 4.12). The terms 'transformation', 'explication', and 'reflection' were not clearly referred

to as ‘processes’ but this study observed that these terms were useful concepts that appeared and were analysed as ‘processes of knowledge building’. The term ‘transformation’ relates to how theoretical knowledge ‘changes’ both to and through practical knowledge while concepts are explained and explanations conceptualised (Tynjälä et al., 2014). This is part of the processes of overlapping and is not analysed separately as a process but is examined in relation to the ‘change of practice’ that is discussed across this chapter.

The processes of knowledge building that were identified in the data, from across the cases, are defined below, and will be discussed throughout the chapter in relation to the activities of the participants:

- **Problem solving** is associated with how participants made decisions about challenging aspects of their MOOC teaching.
- **Dealing with uncertainty** was a process through which people experienced ambiguous situations.
- **Collaboration** refers to the shared activities and the ways two or more participants worked together.
- **Explication** relates to explanations and definitions of aspects of teaching and whether participants developed a shared vocabulary or a shared understanding of these aspects during their MOOC work.
- **Reflection**[23] is linked to the ways participants thought about experiences of their MOOC work that contributed to their MOOC knowledge.
- **Evaluation** relates to how participants assessed their work and is a step further from reflection when they wanted to re-act on their reflection. It also suggests that they considered that they changed practice in later runs of the course.

The forms of knowledge used in this research were not used in absolute accordance with their descriptions in the publications of Tynjälä and her colleagues as already mentioned in 4.12. These forms were coded right at the start of the analysis of this research. It was not found

[23] See also the section on trustworthiness in 4.14.

appropriate to use the forms of knowledge separately in the data because in fact the idea of IP is that they are closely connected and 'not to be seen separately' (Tynjälä et al., 2014). Therefore, when from now on the following forms of knowledge from Tynjälä's framework are discussed, they are not presented separately and are interpreted as follows:

- **Theoretical knowledge** is knowledge that has been structured, codified and recorded. It includes the types of knowledge represented in books, videos and reports
- **Practical knowledge** is gained from personal experience. In some cases, practitioners make explicit what they have learned, but this knowledge is more likely to be tacit and embedded in performance
- **Self-regulative knowledge** emerges from metacognitive activities, particularly reflection on experience and activity
- **Sociocultural knowledge** is developed in a social setting, where individuals are able to share and reflect on other forms of knowledge, thus jointly creating new knowledge that is relevant to a shared understanding of the context and of what constitutes that context.

The above forms of knowledge were supported successfully or less successfully by mediating tools that enabled participants to combine the above types of knowledge. These tools involved:

- meetings and email exchange that facilitated the development of a shared vocabulary.
- using collaborative software for sharing learning material such as online spreadsheets and online word processor
- using social media to facilitate learners' understanding
- other courses on how to teach at a distance or seeing previous iterations of the MOOC participants worked on, or other MOOCs run by different institutions or on different platforms
- seminars and training
- the use of 'experts' as resources

- the use of ‘learners’ as resources who have influenced participants’ understanding of how the MOOC worked.

Table 7 below summarises the participant types and their ‘code-names’ in parenthesis along with the other professionals that the participants mentioned having worked with. Appendix 9 contains short descriptions/summaries that inform the reader about participants’ processes of knowledge building and the forms of knowledge they integrated in each case in relation to their teaching activities.

Case A • FL Educators (A1FLEducator, A3FLEducator) • FL Collaborator: Learning Designer – part of Media Team (A2FLOther) • FL Mentors (A4FLMentor, A5FLMentor, A6FLMentor) • Legal team
Case B • FL Educator (B7FLEducator) • Videographer • Coordinator
Case C • FL Educators' team (C8FLEducator) • FL Collaborator: Learning Designer (C9FLOther) • FL Mentors' team (C10FLMentor) • Media Team • Librarians • Marketing team • Legal Team
Case D • FL Educators (D11FLEducator, D13FLEducator, D14FLEducator, D15FLEducator, D16FLEducator, D17FLEducator) • FL Mentor (D18FLMentor) • FL Collaborator : Learning Designer (D12FLOther)
Case E • FL Educator (E20FLEducator) • FL Collaborator: MOOC Organiser (E19FLOther) • FL Mentor (E21FLMentor) • Story telling team
Case F • FL Educator(s) from the university institution (F23FLEducator) • FL Educator from the cultural organisation (F22FLEducator) • FL Collaborator: Head of MOOCs (F24FLOther)
Case G • FL Educators (G26FLEducator, G27FLEducator, G28FLEducator) • FL Collaborator: Digital Learning Team Manager (G25FLOther) • FL Mentors • Media Organisation

Table 7 Participants interviewed & groups of professional participants mentioned as part of MOOC development

The following section starts with presenting participants' prior MOOC experience.

6.2 Participants' prior MOOC experience

This section indicates the prior MOOC experience[24] interviewees had. By experience it is meant a. whether interviewees had participated as learners in any MOOCs and b. whether interviewees had developed any other MOOCs before the courses that they were asked to discuss. The experience in MOOCs relates to who the MOOC Educators are, and has implications related to how they learn in each of the cases (the focus of the second Research Question). Table 8 below shows that, in most instances, there was one participant in each case with some MOOC experience. FL Mentors did not mention any MOOC experiences, so Table 8 shows only FL Educators and FL Collaborators. However, most participants did not have prior MOOC experience, either as learners or related to MOOC development.

[24] It is also noted here as a background information that most FL Educators were mostly experienced lecturers and professors in HE with teaching experience in face-to-face courses while FL Mentors were PhD students with no extensive face-to-face teaching experience.

CASES	MOOC Experience
A	
FL Educators	Had no experience as a learner and had not developed another MOOC
FL Collaborator	As a learner: participation in many MOOCs including the first ever MOOC (CCK08) and a MOOC on E-Learning Design// Had developed MOOCs before: involvement in two more courses
B	
FL Educator	Involved in 3 MOOCs before this course as an FL Educator
C	
FL Educators	First MOOC involved as an FL Educator, involved in Case A with some learning material
FL Collaborator	Involved in Case A prior to this course but had not created an entire MOOC before
D	
FL Educators	Had no experience as a learner and had not developed another MOOC
FL Collaborator	As a **learner:** participation in some MOOCs , which inspired them to work on this course
E	
FL Educator	Had no experience as a learner and had not developed another MOOC
FL Collaborator	Had some experience from other MOOC development
F	
FL Educators	F22FLEducator: Had no experience as a learner and had not developed another MOOC F23FLEducator: worked in Case F and in the same time in another MOOC
FL Collaborator	Had no experience as a learner and had not developed another MOOC
G	
FL Educator	Had no experience as a learner and had not developed another MOOC
FL Collaborator	Experienced as a designer in more than 30 MOOCs

Table 8 FL Educators and FL Mentors MOOC experience

Detailed analysis of the participants' experience as indicated in the Table 8 above can be found in Appendix 10.

In summary, most cases had somebody with prior experience in MOOCs, and when they worked as teams, it was possible for this experience to be shared. In cases A, C and G, the FL Collaborators had prior MOOC experience, in Case B, the FL Educator was MOOC experienced, while in Case D, the FL Collaborator had some limited experience. In Case E, FL Educator found the MOOC hard because of his limited experience. It was observed that being experienced in the MOOC process helped some participants to be in a more comfortable position than the rest. However, not having experience did not entail that participants would not get support from elsewhere. By participating and by taking ideas from other courses, some participants gained valuable information that they used in their own courses (Case D).

After the discussion of the range of participants of this multiple case study and their experience with MOOCs, this analysis continues with identifying what prompted participants to engage in the 'processes of knowledge building' that were defined in the introduction of this chapter (6.1) and the types of knowledge that were integrated as well as the new forms of knowledge they created. The analysis is structured around the MOOC activities in order to show and compare how participants responded to these activities across the seven cases. The teaching activities discussed in the next sections in relation to processes of knowledge building and integration of different forms of knowledge are: the process of design (6.3), video presentation and video editing (6.4), ensuring rights clearance (6.5), facilitation (6.6) and the extension of the educators' role outside FutureLearn (6.7).

6.3 The process of design

The process of design involved the work of all categories of participants across the cases (see 5.3.3). The following subsections discuss the 'processes of knowledge building' and the integration of knowledge in relation to the process of design across the seven cases.

6.3.1 Case A: reflection, limited explication, fragmented collaboration

In Case A participants mentioned gaps in their knowledge in relation to design. Activities that prompted them to engage in processes of reflection, fragmented collaboration, and limited explication are discussed.

In Case A, participants' views about the design was relatively inconsistent. A2FLOther said:

> *'Because the academics [meaning FL Educators] have no idea about how videos are made and in spite of our repeated requests that they provide us with this information, they were too busy, you know, they were busy academics […] and I think they had an idea and a heart of what they wanted to do but they didn't kind of write it down anywhere' A2FLOther*

A2FLOther was looking for learning material (i.e. video scripts) that he expected FL Educators to write down. He expected it to be theoretical knowledge that had been structured, codified and recorded. In fact, though, it was practical knowledge and not easy for FL Educators to hand over to him. There was a mismatch between expectation and reality. Time was limited on the production of that knowledge (i.e. busy academics). Time seems to have been an important element for FL Educators and restricted the ways they would create the knowledge that A2FLOther needed for the

preparation of videos. Thus, A2FLOther's comment suggests that time was a limitation on the explication process to explain and share each other's theoretical knowledge (FL Educators and A2FLOther) with regards to the activity of video scripts that needed to be designed. Thus, it limited the transformation of theoretical knowledge into practical. On the other hand, A1FLEducator reported contradictory views on the same topic:

> *'So, we had this huge working document, week 1, step 1, title .. Week 2, step 1, title and what it will contain and then we divided it between ourselves [meaning FL Educators] who is gonna write it […] We decided roughly what we can do in the field'. A1FLEducator*

In the quote above, A1FLEducator shows a collaboration process among the FL Educators through which they had organised the subject matter as she explained how they defined the responsibilities of each FL Educator in a working document[25]. So, although they were prompted to a process of collaboration, this involved the working document shared only between FL Educators. A1FLEducator argued that they divided tasks in weeks and steps and decided a rough plan on designing their activity on the field (their videos were to be filmed outside in the field) creating self-regulative knowledge, which emerged from reflection on activity. A3FLEducator, in contrast, talked about how the design process took place:

> *'The sort of the document, the design document [...] I think shamefully, we probably, we did the first thing, which was the sort of the advertising document and we did some work around thinking about the themes and that was about it, so I mean, we, I think to be honest, we should have prepared many more materials in terms of planning but we actually didn't[…] but we probably should have done a lot more planning and thinking about it as you know before we did the work...' A3FLEducator*

A3FLEducator reflected on how the process might appear to others. Shame is a strong emotional response. The FL Educator here self-judged the activities that they did in terms of design.

[25] The researcher asked A1FLEducator and A3FLEducator to access this document but it was never shared

A3FLEducator was prompted to engage in a process of reflection during the interview where he noted the need for the creation of self-regulative knowledge at an early stage of MOOC design and mentioned that although they did not prepare the design, what helped them to do the design was that they were a small group ('*there was so few of us*').

The contradictions among the three participants' views about the design show a failure to come to a shared understanding among FL Educators and the FL Collaborator. Apart from that, collaboration was also fragmented because A1FLEducator and A3FLEducator worked together but their reporting implies that knowledge was not shared with the FL Collaborator (A2FLOther) which relates to the absence of mediating tools such as meetings among the different teams (FL Educators and the team of the FL Collaborator). So this also indicates a gap in sociocultural knowledge from the different areas of participants' expertise (i.e. academic and MOOC design knowledge).

6.3.2 Case B: reflection and evaluation

Moving on to Case B, it was unusual in the sense that the design was implied to have been the responsibility of a single individual who was MOOC experienced (see 6.2). B7FLEducator discussed how he designed this MOOC in the quote below:

> *'I tried to use my experience from the previous two MOOCs, to this MOOC to innovate and to change some of the things we did because [...] and I was very pleased with the way the previous MOOCs had worked but I knew that there were some things that I wanted to change to try to improve the experience that users [meaning learners] would have' B7FLEducator*

So, B7FLEducator was prompted to a reflection process that contributed to knowledge building and an evaluation process that contributed to changing his practice. This process made him use his existing practical knowledge (i.e. experience from other MOOCs). The previous courses worked as mediating tools to integrate practical and self-regulative knowledge. He gained skills on the job and he took decisions about how he would work on the MOOC activity. Moreover, B7FLEducator saw time pressure as something positive:

> *'with the pressure of time we made decisions, we've got things done...' B7FLEducator*

B7FLEducator engaged in a reflection and evaluation that time was an element that worked in favour of his course to complete the design of the course. So, although time pressure was a barrier

for other participants' work here it appeared to have made the FL Educator make decisions and completed tasks.

6.3.3 Case C: collaboration, explication and reflection

In Case C, the C9FLOther, *'who was sort of point of management'* -as her colleague C8FLEducator mentioned- discussed the ways they worked in the beginning and the interdisciplinary teams of experts they involved in the design of the course:

> *'I think it was how things started with few of the MOOCs… that people [meaning FL Educators] feeling in a way… they didn't really know what to do... I think a lot of them now have got much smaller teams that are working with, maybe one or two doing the content. We have a better understanding of the legal issues involved in creating MOOCs and we don't need to have the legal representative… we generally don't have a library representative there and I think quite often the learning designers maybe have a clearer idea of what the role of the media team might be, so they don't necessarily involve the media team in every step [meaning every step of the design]' C9FLOther*

C9FLOther made it clear that the team was aware of some learning that needed to take place in relation to design. The gaps of knowledge prompted them to engage in the process of explication and collaboration where the experts (legal, library and media teams) explained aspects of their expertise (i.e. theoretical knowledge) to FL Educators. They began with self-regulative knowledge where lots of professionals needed to be involved. They then gained practical knowledge that small teams work better. C9FLOther indicated that they had lots of questions and explained how collaborative this process was throughout its preparation:

> *we set the first few meetings just sketching things out in a piece of paper of sort of , what was the key content that we needed to include and try to come up with a plan […] C8FLEducator took on a week that was more relying to his specialism so, the second week and so it meant that they could work out what the concept was going to be that week more closely and we worked a lot of sort of online spreadsheets where everyone could go and edit and work out not only what the general concept was the... write down to the individual steps that FL course... quite a lot of time working on what needs to be there and then once we worked out what steps were... we assigned to individuals. So, some of the PhD students*

[meaning FL Mentors] wrote some of the steps, so it was working out who could write which bits of content really, so it was very collaborative all the way along...' C9FLOther

C9FLOther, who managed the team of FL Educators and the FL Mentors, engaged in a process of collaboration to build knowledge. One aspect was to clarify and define how they would organise the course length, to divide tasks according to each colleague's specialism. They therefore engaged in a process of explication through working in the same direction, having a shared understanding of what needed to be done. This was theoretical knowledge – i.e. FutureLearn has decided, and recorded, who makes these decisions and within which parameters. At the beginning, the team of C9FLOther and FL Educators did not know this theoretical knowledge, but by asking questions they developed it. This process did not work similarly in Case A, as the FL Educators did not work together with their FL Collaborator (A2FLOther), as previous discussed. C9FLOther also mentioned the importance of each individual's specialism by giving an example of C8FLEducator and the week he got involved in. The same happened with the rest of the team in Case C.

C9FLOther was therefore involved in a process of interpersonal reflection with her colleagues that led them to divide the course structure into four weeks and to divide tasks for each member of the team. Following this, a process of collaboration was the dynamic method they used in order to write and edit learning material (i.e. content) using online spreadsheets on Google Docs[26]. Google Docs was a mediating tool that helped FL Educators and FL Mentors to make each other's writing and commenting visible and transparent (each user can see each other's work).

All these processes were supported successfully by three mediating tools mentioned above. The 'meetings' between the different teams that were systematic and at the start of the process, the use of 'experts as resources' that shared their knowledge and the 'Google Spreadsheets' that made each other's work visible. In addition to C9FLOther's discussion about 'meetings', C8FLEducator noted these meetings they had with his colleagues and the content of discussions:

[26] Google Docs is Web-based software that permits users to work synchronously were they can see each other's writing and editing activity

'I think for the most part we met for a year and we were discussing how we wanted, what we wanted to present, and what we had again was previous experience of other MOOCs running […] and C9FLOther was familiar at work with those and had an understanding of what worked and what didn't.' ***C8FLEducator***

In the quote above, C8FLEducator indicated what was achieved in these meetings which relates to the ways that they would design the courses and was associated with the approach they would take on their teaching (*'how we wanted'*), the content (*'what we wanted'*). This implied that members engaged in explicating things that needed to be decided. Meeting for a year indicates that knowledge building was a long process of sharing information and transforming their knowledge. C8FLEducator then talked about the important position of C9FLOther in bringing her practical knowledge.

From C9FLOther's and C8FLEducator quotes, it is implied that the *'sorts of things',* that the C9FLOther mentioned that *'they didn't know'* in the beginning, were achieved through a form of socio-cultural knowledge during the design activities. This knowledge was pushed to FL Educators that had different experts to help them in the design. The FL Educators therefore learned in practice, and on-the-job and integrated practical knowledge. C8FLEducator was clear that C9FLOther was familiar with MOOCs and it can be interpreted that C9FLOther shared this with C8FLEducator and her team. This indicates that knowledge was pushed when knowledge gaps of FL Educators were identified by C9FLOther. These aspects highlight processes of collaboration that contributed to integrating sociocultural knowledge that were passed from one to another to get ideas of how their course would work.

6.3.4 Case D: explication, reflection, evaluation, problem solving and fragmented collaboration

Moving on to Case D, there is a significant difference between this case and all other cases of this study. Case D was the only one where the FL Collaborator (D12FLOther) had a major responsibility for writing video scripts (authoring the subject matter). Some of the FL Educators referred to this in similar ways. For example, D15FLEducator mentioned:

'Well we had some guidance from the actual MOOC team [meaning the e-learning team] who let us know and then so, what happened […]we would go in and we would just sort of talk, on a subject matter, maybe with some notes in front of us and the MOOC leader [meaning the D12FLOther] would story board, so they were

taking notes, putting things up there and I think depending on who it was, how much they revised that, it turned out into a script depended on how easy the boarded stories went ...and this was piloted for 10-15 minutes and they wrote up a lecture that they then sent us and we read over it to make sure that it was accurate and everything was the way we liked to...' D15FLEducator

So D15FLEducator referred, in this quote, to the process they followed in designing video scripts. D15FLEducator used the term 'lecture' apart from the term 'video script' to describe the process of MOOC design. There was no established vocabulary that was shared across the Case D participants as there was with the participants in Case C. During meetings with the D12FLOther, the FL Educators would discuss their subject matter, prompting a process of explication of their subject matter (theoretical knowledge) that involved only one FL Educator at a time. Through this process, the FL Collaborator gained theoretical knowledge by recording it (taking notes). Following this, D12FLOther would author the script which was a text summary of their discussion. The FL Educators would sign that script off, and they would then move on and film the MOOC videos. This was a process where the FL Collaborator gained practical knowledge on the job by engaging in a collaborative process with an FL Educator and was different to the one of Case C that involved a large group of experts. D12FLOther described this same process, mentioning the challenges:

'…it's very time consuming on the project management, because that sort of having to interpret all the material and the project managers [meaning herself and her team] are not the experts so, I think it wasn't doing that… actually the experts [meaning the FL Educators] should be writing it [meaning the video script]' D12FLOther

In this quote, the FL Collaborator D12FLOther stated that the video script activity was time consuming, and underlined that it was not her job to author scripts but should have been the FL Educators' job (subject matter experts). D12FLOther was prompted to engage in a process of reflection about this activity that did not work well for her and her team, because of the gap in the subject matter expertise (i.e. theoretical knowledge) of D12FLOther ('project managers are not the experts').

The activity of listening to FL Educators and their subject matter knowledge (theoretical) and then transforming it to online learning material takes a lot of time. It is held up, to some extent, by a misunderstanding of what pertinent theoretical knowledge already exists. Although the subject

matter experts had relevant theoretical knowledge, they had not yet developed the exact theoretical knowledge that was needed, because that was shaped by the sociocultural context. The sociocultural context was rather limited in this case as participants did not extensively use mediating tools such as meetings to share understanding. D12FLOther also stressed how the practice of her team should change:

> *'so I think to get them all to sit down and get that very broad message and understanding straight at the beginning would […] it would have been nice as well to have more facilitators [meaning FL Mentors] ' D12FLOther*

D12FLOther was prompted to a process of reflection of the practice and a process of evaluation about how the design process would work better if doing the course again. This would involve building sociocultural knowledge at the start ('*sat down at the beginning'*). She emphasised the importance of this sociocultural element (group meetings) which would work in favour of FL Educators' decisions about a shared learning objective for their course. D12FLOther thought that the academic was an important part of sharing this objective but the academic thought they were not part of this context. Moreover, a good practice for D12FLOther would include more mentors. The reflection and evaluation process of the D12FLOther echoes the ways that Case C worked where the different teams met at the start and built sociocultural knowledge and worked well for them. This quote also reflects a fragmented collaboration process. Even more, D17FLEducator was not happy with the material produced, mentioning the following:

> *'I appreciated the message that I would be giving about being condensed, being clear, having simple messages and having a clear arc to the narrative and so then, I then used their [meaning 'learning designers'] word length and their kind of rhythm and I re-did the material so that it will have the messages that I needed to convey.' D17FLEducator*

D17FLEducator referred to the video script material and the message (learning objective) she wanted to pass to learners. There were two sets of theoretical knowledge in this quote that needed to be combined; the MOOC design features and the subject matter. The process of explication about these sets of knowledge was fragmented because D17FLEducator had to rewrite the text. However, she gained practical knowledge through this practice. This shows that both the FL Educator and the FL Collaborator spent time separately for script writing, resulting in not having shared the message of the video script; there was therefore also a fragmented process of

collaboration for design. It seems that a lack of sociocultural knowledge was an obstruction and they did not integrate this form of knowledge (each other's expertise) smoothly as it happened in Case C. D17FLEducator and the learning designers were working in different context without realising that they did not have a shared understanding of context and that the aspect of the limited collaboration of different teams impacted on this process.

However, D12FLOther worked hard to learn how to work on the design and mentioned:

> *'... we didn't have any official training, I don't think so, for me personally, it was very much just exploring what was already out there... I looked on things like Twitter and followed a lot of people that had experience of MOOCs to see what they ...their advice they were sharing so it was lot of looking online, trying to find advice and tips about what worked and didn't work [...] Mostly it's just observing different things that've been trailed and experimented with… so for example Dan Ariely had a MOOC …his idea that concept at the end of this week they had the feedback video, […] that [meaning the feedback video], I took directly from his MOOC […] I think his MOOC influenced me quite a lot actually' D12FLOther*

D12FLOther was prompted to a reflection process on the ways she built her knowledge on design. In the absence of training, as well as the limited collaboration with her FL Educator-colleagues, D12FLOther faced various issues. In reality, D12FLOther reacted to her knowledge gaps, and managed to 'train' herself. No theoretical knowledge was being 'pushed' to her, so she went out and 'pulled' this when she identified the knowledge she needed. She took the initiative to look on Twitter (used as a mediating tool to build knowledge) and to look at how experienced MOOC people worked in other courses. Through this process she integrated self-regulative knowledge in the absence of sociocultural knowledge with other colleagues. She was influenced and applied techniques such as the 'feedback videos' that Dan Arieli (an educator doing MOOCs in Coursera) used on his course, creating new theoretical knowledge. Her gaps in theoretical knowledge of MOOC design prompted D12FLOther to build this knowledge through problem solving processes.

On another note, D13FLEducator also talked about the lack of seminars and training offered from her institution on 'teaching in MOOCs' and although her reflection referred to the 'design', she did not specifically share this term:

> *'Actually it would be thrilling in fact if we went about it properly, we had a proper seminar, and I mean talk about how to do this... and then we can go ahead […]*

Because I'm really interested in fact the theories of teaching, in the theories of pedagogy so if they gave us proper time I would like to actually interact […] because I think we cannot just pretend that it's the same thing. A classroom is a physical location it is an interpersonal setting as well. So you teach not just content, you actually interact with people and you modify what you say according to their understanding every moment in time and in this [meaning in MOOCs] you do not have the luxury of doing that ... also it is too diverse an audience […] I need maybe proper training and seminars […] I think that, anything can transfer anywhere, like just do it quickly, is really really bad teaching practice.' D13FLEducator

The gaps in theoretical knowledge of theories of teaching in the MOOC space prompted D13FLEducator to engage in a process of reflection about the pedagogy which is different in MOOCs. She mentioned that transferring the classroom courses to the online environment without offering training and seminars was not a good practice. Her understanding was that there already was theoretical knowledge (i.e. a proper way of doing a MOOC). This understanding was not expressed in much of the other data in this case. Finally, time (i.e. 'proper time') again appeared as an important feature of the context where D13FLEducator would be able to transform theoretical into practical knowledge.

6.3.5 Case E: reflection and evaluation

In Case E, participants mentioned that they used their established knowledge and experience from face-to-face courses and adapted it to the MOOC design. E19FLOther in Case E mentioned:

'We didn't have experience on that.. When we started with E20FLEducator, we knew that we wanted to just have something more adaptive to the circumstances and to the new pedagogical models... and we designed a specific course for that... So the main difference it is a media course, it is a course thought to be streamed and I think the participants can notice that on the quality of the videos or the narrative, the story telling etc. I would say this is the main difference [from a face-to-face course].' E19FLOther

The FL Collaborator E19FLOther engaged in a reflection process about the MOOC design, mentioning that they did not have experience in MOOCs (i.e. practical knowledge), and reworked and transformed their existing practical knowledge from their face-to-face experience in order to

design Case E. However, they did not reflect on another set of knowledge, for instance, about online pedagogy. Although he mentioned having added story telling in videos, he did not imply using any informed pedagogical decisions. E20FLEducator's view on the design matter was a different reflection from the FL Collaborator's above. E20FLEducator mentioned:

> *'so any teacher, any educator moving from eye to eye [meaning face-to-face] education into a MOOC he will not do it properly the first time[…] It's a different learning experience and therefore, it is not a question of translating content to a format... It's a way of designing this learning experience in a complete different way.' E20FLEducator*

In a reflection process, E20FLEducator stated that he was not aware at the point he started about the existence of this separate body of knowledge that was required. Moreover, he emphasised how different the design of an online learning experience is. This echoes D13FLEducator's view from Case D. It was through his job on designing the MOOC, in practice, that he realized that it was a completely different sociocultural context and that existing knowledge had to be transformed to take that into account (i.e. the different context). Following this, E20FLEducator quote suggests that he evaluated that he had to design the course differently (evaluation process). He gained practical knowledge from the first run which implies that he would do it differently if he would design it again.

6.3.6 Case F: explication, reflection, collaboration and evaluation

Moving to Case F, F23FLEducator referred to the different nature of MOOCs compared to face-to-face courses, as the previous participants from Case D and E mentioned, in relation to the design of the course:

> *'as I sat down to design this, obviously we looked at some previous examples of MOOC work that have been done at this university. […] everything about it is different from face to face teaching and from the start... at the level of interaction that the learners will have with us is going to be of a different nature and also just frankly proportionally less... So you know we design a face-to-face module with a face-to-face being absolutely central, everyone to design a set of materials that learners will hopefully find engaging and then yes we would engage with the learners, ourselves but also we needed to design in such a way that learners*

engage with each other then peer to peer interaction would be an important part of this...' F23FLEducator

In this quote, F23FLEducator showed that there was an early 'reflection' process, and a 'pulling in' of previous practical knowledge of other people who have done MOOCs. He emphasised how the MOOC was different from a face-to-face situation, and thus designed with a particular focus on the learner's engagement with the material, with FL Educators, and with other learners. It is significant that although other participants from Cases D and E highlighted that a MOOC is different, they argued that they did not know how to do this design and learned on the job. Here, F23FLEducator made it clear that he knew how to work on the design. He engaged in a process of explication of terms such as 'learner-centred approaches to design for learning' (theoretical knowledge) that he worked on with his colleagues. Therefore, they integrated theoretical knowledge about approaches to online learning design. On the other hand, F22FLEducator from the same case who was part of the non-university partner of the MOOC talked about an online course he took as well as his 'learning':

'One thing that was really helpful for me as well is that the university [meaning the university partner] run a Moodle course on remote learning and how to kind of structure information learning courses' F22FLEducator

'…part of the reasons of getting involved in the MOOC was that we could understand online learning and how online learning is changing, so certainly that has... It is starting to give us answers. I'll be interested actually in your research and what comes out. Partly our rationale for doing this course was to learn, so we have! And we need to do more analysis before we reach proper conclusions about how we do online learning as an organisation' F22FLEducator

His knowledge gap in online learning (i.e. theoretical knowledge), prompted F22FLEducator to a process of collaboration with his university partner colleagues. The collaboration process he engaged in resulted in new knowledge; theoretical (through a Moodle course) and sociocultural (through sharing expertise with colleagues). The Moodle course was a mediating tool for F22FLEducator to gain theoretical knowledge about how to structure an online course. For F22FLEducator's organisation, producing a MOOC was a learning process itself, to study how online learning takes place. F22FLEducator explicitly said that he 'learned' from this experience. He gained

practical knowledge. The process of running Case F for the non-university organisation was also a way to see whether it was worth running MOOCs. F24FLOther mentioned this in the quote below:

> *'we are evaluating if it's worth doing them at all because you know MOOCs are fantastic things there's lots of people all interesting, but that doesn't mean that it's the right thing to do'* F24FLOther

The FL Collaborator F24FLOther (identified as the Head of MOOCs) made it clear that they were doing -designing- MOOCs in her organisation as a way to find out and evaluate how this would benefit her organisation ('*what they actually do'*) and talked in general for all MOOCs and not just Case F. Doing MOOCs sounded more like a process of experimentation to learn. This implied they did the course to gain practical knowledge.

6.3.7 Case G: explication, reflection, collaboration and evaluation

Moving on to Case G, there was a similarity with Cases C, A and D of having a professional acting as the point of management of the design activities, who also emphasized collaborative aspects of their MOOC work. The FL Collaborator (G25FLOther) of Case G discussed the steps they followed in the design by making a comparison with a face-to-face circumstance:

> *'The academics would write the content, they are the experts, they are what we call subject matter experts, our SMEs. They would write the content, we would just help them with the format that they write that content to… for instance a lot of academics are used to writing lectures face-to-face which might be an hour long whereas when we are talking about a video then we're talking really no more than five minutes.[…] much shorter pieces of information than they are used to, we would also help them with writing scripts for videos as well we do run script workshops, […] so we would help them with access to different ways of writing […] When they are writing a video script it is a different approach, so that may take a little bit of time. So this is a collaborative approach but the content comes from the expert, what we might write might be some text to go on the platform which is really just context and continuity text, you know things like, 'in this video, G26FLEducator will talk about …dah dah'.' G25FLOther*

The FL Collaborator here showed that they engaged in a process of explication and collaboration with the FL Educators of Case G to build knowledge about the design of scripts. G25FLOther in her

quote suggested that her team had theoretical knowledge (shorter pieces of information etc.) that they could pass on to the FL Educators. This was a 'push' approach, where the digital learning team realised that the FL Educators needed this knowledge and they would offer it through workshops that were a mediating tool for integrating knowledge (i.e. script writing). Therefore, practical knowledge from the workshops was integrated with sociocultural knowledge. However, this tool was not mentioned by the FL Educators. Their discussion about things they learned came from meeting their non-university partner. G26FLEducator mentioned the path they followed to develop Case G and the challenges they met and was not similar with G25FLOther's argument/report:

> *'Yes [name of the non-university partner they collaborated hidden] asked us to simplify the MOOC I think we were probably trying to do too much with online learners and I think that... none of us had had experience, and I think we were maybe, you know we were thinking about how we would have set up a module in front of our actual students because that's what we know […]' G26FLEducator*

This quote of the FL Educators indicates that although there was a process of explication about the way the course needed to be designed, this came through a process of 'delayed' explication and collaboration for FL Educators in this Case G when they collaborated with the non-university partner. However, the FL Educator engaged in a process of reflection and evaluation on how this practical knowledge of the non-university partner was shared with the FL Educators. They integrated sociocultural knowledge while also creating new practical knowledge shown by the 'change of practice' that this participant mentioned.

In addition, G27FLEducator described the discussions with the organisation's experts:

> *'So we spent quite a lot of time in discussions with the [name of non-university partner hidden] and what the priorities for the course were and what you need as selling points for the course were...' G27FLEducator*

Here, G27FLEducator noted that they engaged in a process of collaboration of FL Educators with the non-university partner which she also mentioned in her interview that offered them a *'broadcaster's perspective'.* Different types of expertise, the academic and the broadcaster, were combined forming sociocultural knowledge. The 'meeting' with experts was a mediating tool that contributed to the integration of practical and sociocultural knowledge. Explicating that the

broadcaster's perspective is different from the educational proved to be valuable in changing their priorities of the course. The third FL Educator had similar views to the other two discussed above.

6.3.8 Summary

The teaching activity of design prompted participants of all cases to engage in different 'processes of knowledge building'.

The process of explication was quite distinct in Case C in that its participants extensively engaged in the process, developing a shared understanding about their teaching aspects. All participants in Case C used meetings (i.e. meeting over the course of a year was important to transform knowledge), online spreadsheets and 'experts' as mediating tools to integrate sociocultural and practical knowledge. Knowledge was often 'pushed' to FL Educators through the different experts involved in their course. When knowledge was pushed it meant that there was a known gap on a particular task.

On the other hand, in Case G, although participants engaged in processes of explication as in Case C, these came with some delay when they got in touch with their non-university partner, who helped them integrate practical and sociocultural knowledge while creating new theoretical knowledge about how their MOOC should be designed. A process of explication of learning design terms (i.e. learner-centred approaches to design for learning) was also apparent in Case F which involved a university and a non-university partner. One of the FL Educators of Case F engaged in this process, showing that he integrated theoretical knowledge with his colleagues.

In contrast, a limited explication process was observed in Case A between the FL Educators and the FL Collaborator, delaying the integration of diffent types of theoretical knowledge (the subject matter and the MOOC design expertise) and therefore restricting sociocultural knowledge. Gaps in explication were also connected to fragmented processes of collaboration in Case A, because FL Educators and the FL Collaborator did not work closely together. Similarly, in Case D, the FL Collaborator only met the 12 FL Educators individually, and not as a group as it happened in Case C where there was a quite distinct process of collaboration. This involved the different experts working together on the teaching activities, using the mediating tools mentioned in the previous paragraphs. Collaboration in Case G, on the other hand, also came with some delay as to the explication.

Further, the participants in Case C engaged in the process of interpersonal reflection while meeting each other and reflecting on the teaching activities. In Case A, in a process of reflection, one of the FL Educators indicated that they had to record the steps of the design at an early stage and therefore engaged in self-regulative knowledge. Similarly, in Case E, in a process of reflection and evaluation about their course, the FL Educator mentioned his experience with the MOOC design in which he had to engage as a new learning experience which was different from face-to-face learning. However, he only found this out through doing the Case E course. He transformed his existing practical knowledge and only through this form of knowledge did he realise that the MOOC was a different sociocultural context that he had to work differently. The participant in Case B also engaged in a process of reflection as well as evaluation. Having experienced MOOCs previously, the FL Educator used these as a mediating tool that contributed to evaluation of what needed to change in the new course (Case B). This process involved the integration of self-regulative knowledge with his existing practical knowledge.

On the other hand, a process of explication and collaboration between the university and the non-university partner in Case F helped the non-university partner participants to engage in the reflection and evaluation process to assess if it was worth doing the MOOC. Case F was also distinct in that the FL Educator of the university partner engaged in an 'early' reflection, and a 'pulling in' of previous practical knowledge of other people who have done MOOCs in their university through a process of collaboration to share knowledge. On the other hand, the FL Educator of the non-university partner engaged in an evaluation process mentioning that the course was for him an opportunity to learn about online learning and how a MOOC takes place (i.e. theoretical and practical knowledge).

However, in Case D, in a process of reflection and evaluation that the FL Collaborator engaged in, she articulated what would be good practice if they were doing the course again. These processes that the FL Collaborator reported reflected the actual practice of Case C. These ways of working made their work efficient (i.e. meeting with colleagues at an early stage of the design, deciding the learning objective, involving mentors in the process). Also, an FL Educator of Case D mentioned her lack of theoretical knowledge with regards to online learning theories (implying the design according to theories) that could be filled with seminars.

Problem-solving was another process that was seen in Case D. The FL Collaborator, who was the only one heavily involved in the design, was prompted to solve problems integrating self-regulative

and new theoretical knowledge. She used Twitter as a mediating tool to 'pull in' this knowledge on how to design the course. This mediating tool was used to build practical knowledge and was integrated with her self-regulative knowledge.

Consequently, identifying the differences across the cases leads to identifying the reasons for these differences. Participants from the different cases had different understandings of what they were doing and they often did not share their understandings to reach agreement. This meant that they had difficulty in making use of some theoretical knowledge (for example, guidance on learning design) because it was not perceived as relevant to their context. However, in the cases where teams collaborated, they agreed on their sociocultural knowledge. When the sociocultural context was not understood and shared, the teams had little chance of developing forms of knowledge that would work for all of them. This sociocultural knowledge was not shared across cases but was quite important.

After the processes of knowledge building in the design activity, the subsequent activity for participants was to present and edit their videos, and the processes and forms of knowledge they integrated are discussed in the next section.

6.4 Presenting videos and editing videos

Presenting and editing video activities as already noted in 5.3.5 and 5.3.6 were two activities that all categories of participants got involved but rarely did FL Educators conceptualise that there were pedagogical decisions to be made during the editing. As already noted in the previous chapter although the video presentation and editing can be regarded as part of the design process, it is discussed separately, as not all cases saw these activities strictly as part of a learning design process.

6.4.1 Case A: lack of collaboration and explication

In Case A, it was noted that A2FLOther and A1FLEducator did not have similar views on video presentation and editing. The Learning Designer mentioned:

> *'what we wanted to do was to edit it [meaning the film] to the videos, you know, how do we do that and we just couldn't get in to give us advice [meaning the FL Educators] about how to edit those to the message [meaning the learning objective] you wanted to deliver […]things were getting a bit panicky, and then I got drafted in to be lead educator on it' A2FLOther*

This quote indicates that there was lack of collaboration and explication among people in Case A. FL Educators had the subject matter expertise and the pedagogical expertise (to write the learning objective) but did not work with A2FLOther and his team who had the MOOC expertise to make the MOOC video. So different types of theoretical knowledge were not combined in this circumstance where all colleagues would share expertise and work together explaining to each other their expertise as they did in Case C. A2FLOther was involved in the process of editing, as he reported that he was drafted as 'lead educator'. They faced problems and panic because they did not explicate the process of editing, or earlier, the process of planning, and therefore, built this knowledge with some delay. One of the FL Educators of the same case was not involved in the activity of editing because of time limitations as discussed earlier in 5.3.6.

6.4.2 Case B: reflection, problem solving and dealing with uncertainty

In Case B, the B7FLOther referred to his involvement to Q&A videos creation that took place during the course run:

> *'I filmed the Q&As myself, you know set up the camera and you know... went in front of the camera, that worked out fine, I mean I was pleased with that format but you know, each week there was a different challenge with the video […] it' s very difficult I find it difficult anyway, I don't have a great deal of experience filming […] we had the busiest time in our lives, it was absolutely crazy'.*
> *B7FLEducator*

The FL Educator here experimented with creating and editing videos. The absence of an expert to help him prompted him to engage in the processes of problem solving and of dealing with uncertainty, gaining practical knowledge which was integrated with self-regulative knowledge. However, the quote does not suggest that B7FLEducator recognised the practical knowledge he created. He managed to both auto-film himself as well as to edit the videos on his own because the editors were not available. He trialled different ways, he made mistakes (he did not use the right camera frame), but he developed skills even though he reflected that he did not have much experience. So, it seems like he did not explicitly recognise his practical knowledge (skills involved).

6.4.3 Case C: collaboration

In Case C, C8FLEducator mentioned the existence of a separate professional team of making their videos:

'Sometimes we're involved [meaning the FL Mentors] in the making of the videos and recording of the videos, again with the filming directed by [name hidden], because to do that as well, film making professionally...'C8FLEducator

FL Educators' limited knowledge in video making prompted them to a process of collaboration with the professionals of film making of their institution. This process was supported by sociocultural knowledge. So, they used film experts to make professional videos.

6.4.4 Case D: lack of explication and dealing with uncertainty

Moving on to Case D, D13FLEducator did not feel comfortable about presenting videos. Although D13FLEducator was the only one from her case to mention this, she said:

'I don't do make up, I have a problem with make up so I basically said if I have to do make up I won't do it... 'cause I have no idea how to do make up ...so they basically said you don't have to at all. Come however is normal for you and there will be an autocue and you will find that it's actually very very easy.' D13FLEducator

Presenting videos, as the quote of D13FLEducator indicates, was an activity she was not comfortable with. It was not made clear to her that she could present as she wanted. So there was a lack of explication about sharing important knowledge between film makers and the FL Educator. She was not aware that she could read the video script from an autocue. Also, the gap in her practical knowledge with video filming put her in an uncomfortable position. D13FLEducator dealt with uncertainty, and created practical knowledge.

6.4.5 Case E: reflection and evaluation

In Case E, E20FLEducator discussed how he worked on video activity with his team. E20FLEducator described the process of video editing in the quote below:

'I decided not to interfere too much… now I know... Now I know that I had to do that [meaning to work with the editor], that the video has to be perfect... Exactly 'what you want to be shown.' I know that now, at this moment, but I didn't know that then' E20FLEducator

So here, E20FLEducator was prompted to a reflection and evaluation process as a result of his experience. He stated that *'now he knows'* that he had to collaborate with the editor on the video

editing. Therefore, he gained practical knowledge that indicated that the expertise of an editor was not enough and implied that it had to be combined with his subject matter expertise. Two different types of theoretical knowledge were not combined. These were the expertise of editing videos and the pedagogical expertise, the learning objective (*'what you want to be shown'*),

6.4.6 Case G: gaps explication, reflection and evaluation

Moving on to Case G, participants discussed the video and editing activities in more detail. The FL Collaborator said:

> *'we do give them [meaning to FL Educators] training using autocues,[…] and we would encourage them to write their script and read it out loud a few times to make sure it sounds natural' G25FLOther*

Here, it is observed that knowledge was 'pushed' to FL Educators when G25FLOther saw that they needed help on certain skills. Therefore, G25FLOther mentioned that FL Educators were offered training on autocue usage so that the latter read naturally on camera. They did this because as earlier with the design of scripts, FL Educators of Case G did not have such prior experience. So, this was a process of explicating the activity to FL Educators through the 'mediating tools' of a workshop and training. They also had to try it out a few times.

Although the above quote of the FL Collaborator of Case G indicates that knowledge was 'pushed' to FL Educators with the aforementioned mediating tools to help them with video presentation, one of the FL Educators found this activity hard:

> *'the university [meaning the Digital Learning Team] made films of me I read the script from an autocue and that wasn't very good, I don't think really cause I think it's [..] You have to be very trained tv presenter, really, to be able to pull that off, and it's much easier to kind of talk and be looking slightly off camera and all the rest of it, so, as I really wish I've done that and I really wish actually that I had approached the MOOC a little bit more like I approach my normal lectures just let myself kind of ramble off a little bit because I think I would have come across as more natural, I now know that […]I didn't realise that they can edit me down [..]If I could do it again I would do it much more actually as I do face to face teaching ... you know, in terms of the presentation stuff anyway.' G28FLEducator*

The video presentation, for G28FLEducator, led to new knowledge that took place in practice. For example, he used autocues, and found out how editing takes place. It is implied here that the process of explication for G28FLEducator for these specific tasks was limited and came upon reflection. The gaps in his knowledge were related to the lack of explication on video presentation and editing activities. It seems that he reflected on his practice when he repeated that he 'now knows' and evaluated how he would do the work if he were to do it again. For G27FLEducator this meant that he would adopt aspects of 'being natural' as when giving lectures. Also, G28FLEducator did not name the digital learning team that assisted with his work but only referred to them as 'the university'.

6.4.7 Summary

The activity of presenting videos and editing them was not always seen as part of the design and therefore it is discussed separately here. In cases A, C and G, this activity included FL Collaborators with video expertise. A smooth process of collaboration to build knowledge was only observed in Case C, while in Case A there was lack of collaboration.

Further, a lack of explication was observed in Case A, D and G. In Case A, lack of explication was seen between FL Educators and the FL Collaborator which indicated that different types of theoretical knowledge – the subject matter expertise and the pedagogical expertise (to write the learning objective) – were not combined in the video making. The reason the different sets of theoretical knowledge were not combined into knowledge that could be used in the situation was that they did not effectively use mediating tools of meeting with each other. The lack of explication in Case D prompted an FL Educator to a process of dealing with uncertainty and gain practical knowledge. On the other hand, the lack of explication in Case G led to a process of reflection and evaluation showing that he gained practical knowledge. Although the FL Collaborator in Case G indicated ways of 'pushing in' knowledge needed to FL Educators (via seminars and training), this did not seem to have helped him engage in a process of explication.

A process of problem solving and of dealing with uncertainty was observed in Case B. This case was unique in not having an expert to help the FL Educator. For this reason, he was prompted to engage in these particular processes, gaining practical knowledge which was integrated with self-regulative knowledge.

Apart from presenting the processes of knowledge building and the forms of knowledge participants integrated during presentation and editing activities, there was another important

activity, to ensure rights clearance. This was challenging for most of the participants so they developed a process of problem solving to fill their knowledge gaps and to build knowledge in relation to this activity. This is discussed in the next section.

6.5 Ensuring Rights Clearance

FL Educators and FL Collaborators, as discussed in 5.3.4., were involved in the activity of ensuring rights clearance for the learning material they would use as well as location agreements for filming videos on specific sites. The gaps in knowledge related to this activity prompted them to engage in problem solving (Case A, C, G, E,), reflection and evaluation (Case G), through which they created mainly practical knowledge.

6.5.1 Cases A, C, D, G and E: problem solving

In Cases A, A1FLEducator said:

> *'…constantly we were going backwards and forward... so for example when we couldn't just copy paste the paragraph from one of our own books we couldn't, we had to rephrase it , rewrite it ... because it breaches copyright[…] Very strict [meaning the legal team], not understanding that we are dealing with legislation of two different countries and not understanding the aspects of copyright. They [legal team] don't understand [topic hidden] legislation, of what you can and can't use... So it was very difficult, getting them to agree on a wording that everybody was happy with [meaning about a location agreement].' A1FLEducator*

A1FLEducator mentioned in the quote above the fact that they were not able to include the material they wanted. They were therefore prompted to engage in a process of problem solving where they were made aware of the law by the legal team. The copyright law was theoretical knowledge (knowledge that has been structured) that they needed to learn in order to use appropriate learning material in their course. However, there was fragmented collaboration between FL Educators and the legal team. The legal team perceived one context and employed the theoretical knowledge that would be appropriate in that context. A1FLEducator and her colleagues perceived a different context and the need for a different set of theoretical knowledge. However, the two groups did not find a way of aligning their sociocultural knowledge. This may be because they did not find the right processes and mediating tools, or it may suggest that the legal team was actively resisting an agreement about context because they knew they did not have the appropriate theoretical

knowledge for use in the new context. Therefore, sociocultural knowledge was not integrated as the quote implies that FL Educators were not supported by the legal team who had expertise in legal matters.

In Case C, C9FLOther discussed the legal issues they faced by making a comparison with a traditional lecture:

> *I think some of the problems we had were to do with legal issues because you know it's very common for people to deliver a lecture and they have images gathered from all over the place, scanned from a textbook that shows something they wanted to show to the students and that's fine in the context of the classroom. And I think it was getting people to really understand what we can do here on campus we can't do that online.'* C9FLOther

C9FLOther indicated with her quote a problem solving process for FL Educators to understand the differences in using images in the context of a traditional lecture and online and, therefore, recognising the need to transform existing sociocultural knowledge. In the online space, legal matters appeared for FL Educators, where they were made aware of copyright law and its limitations, and they gained practical knowledge. The different understanding of the copyright law from the FL Educator C8FLEducator was discussed in 5.3.4.

Moving on to Case D, the FL Collaborator (D12FLOther) engaged in this activity instead of FL Educators. D13FLEducator referred to the role of the D12FLOther in her interview on copyright clearance:

> *'So she [meaning the D12FLOther] did a lot of the research, […] so it was much easier for me, much less time consuming to say 'yes take this picture or that picture' but if she had told me 'you need to do the research and send me copyright free images' I think I would have backed out, I would have said 'no'.'*
> *D13FLEducator*

D13FLEducator evidenced that D12FLOther played a vital role on helping her work by finding copyright free images needed for the course. The way D13FLEducator worked suggests that she was in charge with the FL Collaborator (D12FLOther) as a back-up. There was a gap in the theoretical knowledge of copyright law which was not covered as D13FLEducator did not get involved in developing sociocultural knowledge with the FL Collaborator. On the other hand, D13FLEducator's

description suggests that D12FLOther had access to additional theoretical knowledge, and was keeping this from the FL Educator in order to avoid stressing her. In this new situation, there were limits to how much knowledge one can develop, appropriate and transform in a given period. Case E had similar examples with Case D discussed above where the FL Collaborator engaged in this activity whereas the FL Educator was not.

Moving onto Case F, F23FLEducator talked about the copyright activity as a key issue in his work:

> *'Copyright is one of the biggest hurdles we faced […] all the materials that you use, you have to have explicit copyright clearance or they have to be open access material... one sort or another... and getting copyright in terms of some of the things that we wanted to use, turn out to be extremely expensive so we made very limited use of materials for whom we had to be given license to use them on the MOOC... and the great use of materials of Creative Commons shared licences but the reproduction was very ...we spend lot of time trying to find open source materials that are suitable for what we wanted to do, and we missed out on a lot of materials we might be able to use'. F23FLEducator*

Copyright law prompted F23FLEducator to engage in a process of problem solving through which he gained some practical knowledge about using material which was open with '*Creative Commons*[27]*'* licences. However, time was an element that limited the ability of the FL Educator to build the knowledge they needed around '*Creative Commons'*. Again, this knowledge was 'pulled in' himself and he was not offered it by his institution, showing a form of self-regulative knowledge.

6.5.2 Case G: reflection and evaluation

Moving to Case G, FL Educators also discussed the challenges in relation to the activity of getting copyright-free material. G26FLEducator mentioned:

> *'In terms of what I would do differently I would think more carefully about the sources that were available as opposed to starting with a subject matter.. because*

[27] https://creativecommons.org

I think I didn't know what permissions were needed and what the cost would be... if I just thought 'ah you just need to look at this', which is what you do when you teach, but actually it would have been better if I know, actually 'you can have these primary sources' because I would have to go back and start again because we couldn't get the stuff.' G26FLEducator

G26FLEducator, in this quote, referred to the gaps of her knowledge on copyright and was prompted to a process of reflection and evaluation where she gained practical knowledge. The practical knowledge was explicit for her as she acknowledged it through a process of evaluation. Moreover, it appears that G26FLEducator did not have assistance from legal experts in advance. G27FLEducator from the same case saw the activity of getting permissions for using certain course material slightly differently:

'The other thing that I really took away from it which is actually changed my teaching practice is because everything is being published online there is a heightened awareness of the need to get permissions for all the materials we use […] it's given me some useful resources for getting Creative Commons images which I now use and build my own teaching practice and when I'm teaching post graduates in particular, in terms of thinking about how they use sources and get permissions to use those sources, so that was something that was quite different as well.' G27FLEducator

Working for this online course, G27FLEducator was prompted to also evaluate her face-to-face teaching practice. Most of the points mentioned previously have related to the MOOC context being different from other teaching contexts. G27FLEducator found ways to transform knowledge that could be applied in both contexts, online and face-to-face. She created new practical knowledge and she made it clear that she applied it in her everyday teaching context (i.e. she started using resources for Creative Commons images). In this section of the interview, she emphasised how the online experience (practical knowledge) raised her awareness about getting permissions for using certain learning material also in her face-to-face class. This was knowledge that was 'pulled in' herself. No one made her do that. She integrated self-regulative knowledge through reflection on her experience and activity. Furthermore, the same FL Educator specified the knowledge needed with regards to permissions:

'I think it's just a question of building on the experience and making from the experiences we had, you know, about very specific things like how you get permission to use a bit of the [topic hidden] archive, or a video that was produced, you know, a clip of a film was produced by someone else entirely, what's the process you go through, where you get the money from, if you need the money, what's a reasonable amount to pay in terms of permissions, what's your budget gonna be.' G27FLEducator

In this quote, practical knowledge that she created is indicated with regards to using copyright free material (WRITE better) (how you get permission, how much it costs, what is a reasonable amount to pay for getting permission, what is the process).

6.5.3 Summary

To summarise, there were gaps in participants' knowledge with regards to ensuring rights clearance for the learning material they needed to use in their courses. Most of the FL Educators were prompted to engage in a problem-solving process through which they gained practical knowledge about the copyright law -which was a type of theoretical knowledge- during their MOOC work. Collaboration with legal teams was fragmented and limited FL Educators to fill their knowledge gaps by integrating sociocultural knowledge and by sharing the same understanding (legal teams and FL Educators) where they would all recognise the need to transform that knowledge in the new context.

Issues around copyright law prompted two participants from Case F and G to 'pull in' the knowledge needed, integrating self-regulative knowledge and practical knowledge in order to find material that would be free to use (i.e. material with 'Creative Commons' licences). This practice showed the ways that knowledge about Creative Commons could be transformed and used in different contexts. In contrast, other educators were so focused on the differences in content presentation that they did not recognise the similarities in how teaching and learning work and the elements that they could apply to the face-to-face practice. However, time restricted the ways one of the FL Educators could build knowledge around such material (Case F). One FL Educator consciously reflected on and evaluated her online experience (practical knowledge was explicit) that raised her awareness about getting permissions for using certain learning material in her face-to-face class (Case G).

On the other hand, in one case (Case D), the FL Collaborator did not involve the FL Educators in this process on purpose, implying some limits to knowledge that FL Educators could take on board. In other cases, it seems that there was not such mechanism, partly because there was not sufficient institutional awareness of the knowledge gaps that needed to be filled, and partly because there was not sufficient awareness of how long this would take.

After presenting the processes of knowledge building and the forms of knowledge participants integrated during 'ensuring rights clearance' activity, there was another teaching activity that took place during the course run which was the facilitation of MOOCs. The processes of participants' knowledge building in relation to this activity is discussed in the next section.

6.6 Facilitation

Facilitation was seen differently across cases. Some of them did not have any aspects of collaboration and some were entirely collaborative. Some initial analysis of facilitation was conducted in the previous chapter (5.3.8).

6.6.1 Case A: lack of collaboration, fragmented explication, problem solving, reflection and evaluation

In Case A, all types of participants facilitated the discussions. This case also involved a number of FL Mentors whose primary activity was to facilitate learners' discussions. However, these participants did not appear to have worked together. For instance, A5FLMentor reported:

> *'Yeah, I think in all cases, I've been told to facilitate or given the opportunity to facilitate the course at the very last minute […] So, yeah, I haven't received any formal training and I've never had a meeting in person ever about, how things need to operate or what the kind of key issues might be or anything like that. It's all been very ad hoc'. A5FLMentor*

A5FLMentor's quote shows the lack of collaboration in the work he was involved in. There were no meetings or training (mediating tools) that could help him build knowledge on the facilitation activity. It was not explained to him 'how things needed to operate' and therefore, the process of explication for A5FLMentor was fragmented. Therefore, there was a lack of alignment between the individual and the team, who could see the gaps in the FL Mentor's knowledge and support knowledge development. However, in order to do his job, A5FLMentor said:

'... I think I mainly set up the Facebook group so that I could do, I could ask people [meaning his colleagues] to do this on a non-confrontational way so they could not get involved if they didn't want to[…] I just sent an email round the research team and said 'you can join if you like , you are under no obligation to', that's probably something that was slightly over stepping my boundaries… A5FLMentor

A5FLMentor was prompted to engage in a process of problem solving and to get assistance from his colleagues to facilitate learners' comments. To do this, he used Facebook as a mediating tool to gather his colleagues in one group. Collaboration was then involved 'as a result' of problem solving to prompt his colleagues to work together. This worked well and he created sociocultural knowledge with the people that participated. With the Facebook use he wanted to invite colleagues to answer him, probably outside official hours and processes. A5FLMentor also created self-regulative knowledge by taking initiative to create this group, he '*wasn't asked to...*' as he described.

Furthermore, A1FLEducator, reflected on the importance of FL Educators' presence in facilitating the discussions:

'When we interacted fully, people [meaning learners] really followed through, people interacted. When we followed less […] I saw that there were *far fewer people [...] So I think the success of the MOOC definitely depends on how much educators interact' A1FLEducator*

A1FLEducator was prompted to a reflection and evaluation process on her practice in different course runs. These runs and her involvement in their facilitation of learners' discussions offered her practical knowledge about the importance of an educator's interaction with learners, which is vital for the success of the course. Success in this occasion meant the active participation of learners in the discussions for A1FLEducator.

6.6.2 Case C: reflection, dealing with uncertainty, collaboration, explication and evaluation

In Case C, the facilitation activity was handled by the whole team of FL Mentors and FL Educators (see also 5.3.8.). C10FLMentor reflected in detail on this experience:

'I remember a couple times in particular, people [meaning learners] had very different religious views about how the world came into existence and so on and it was quite difficult to have a conversation with them, without going ... it was crazy but it was interesting as well and I thought, it did make me grow as an educator to

try and think of different ways to approach their comments and their statements but I think... beyond that […] everybody had a wide range of experience so we were able to tackle things quite well and efficiently, and was a good experience' C10FLMentor

C10FLMentor, when dealing with learners, was prompted to engage in a process of 'dealing with uncertainty'. Through this process she gained new practical knowledge which was explicit for her as she mentioned that it made her 'grow as an educator'. This was also a process of reflection for C10FLMentor. Also, through interpersonal reflection with her colleagues, she indicated that their facilitation work became more efficient. She thus created sociocultural knowledge with her colleagues when all contributed with their practical knowledge in their area. In addition, C8FLEducator also noted similar views with C10FLMentor in relation to the process of collaboration:

'[…]what we really used them [meaning the FL Mentors] was to facilitate of the online comments within the four weeks of the course… was running we made sure there was one person always on duty monitoring the comments and then where people [meaning learners] have asked things that were very specific they would send an email and say 'such and such made a comment here about...I think you could answer' and I'm going, usually out of that comment but also I probably, I've made a habit of the articles that I've written, I was checking while what ...was every couple of days and just skimmed down comments and so, we had ...we used different ways. […]Some of the feedback that we got, is that... it has been one of the most interactive courses that they have done… Probably as a result of that because we were there and they were more interested in ...Sharing the knowledge and all the rest of it...' C8FLEducator

In this quote, C8FLEducator referred to the facilitation activity and to what prompted his team to engage in the process of collaboration, explication reflection and evaluation. They used different ways in his team for which everyone was clear about, they 'explicated' to one another what had to be done. First, C8FLEducator and his colleagues commented on the discussions and second, they had someone on duty at certain times to facilitate discussions during the course duration. They distributed the work to different people (division of labour) but each colleague had the responsibility to check comments under their own articles. They also used to email colleagues with specific expertise on a topic to answer learners' comments appropriately. So, emailing was a mediating tool to communicate and inform each other about learners' comments that supported

them to integrate sociocultural knowledge. Learners' feedback that the course had been interactive prompted C8FLEducator to engage in an evaluation process about their presence on the course and its contribution to knowledge sharing. This was practical knowledge that the FL Educator gained.

Moreover, as already noted in another quote of C10FLMentor in 5.3.8 about the facilitation activity, they used a dynamic way to help each other through the mediating tool of Google Docs where they logged all the questions they had while working on different shifts so that they had someone available to respond to learners' discussions.

6.6.3 Case D: problem solving

In Case D, although there were 12 FL Educators, only (the Lead) D11FLEducator and an FL Mentor who joined midway through the course to assist, were involved in facilitating comments. D11FLEducator said:

> *'I mean even just to read the comments, I mean you simply can't absorb them all because there are thousands and thousands of comments ...and so then you have to decide which ones you have to respond to and what are you gonna say ... and if you going to do that, you know in a sort of a thoughtful way' D11FLEducator*

D11FLEducator engaged in a problem solving process with regards to facilitation by getting help from D18FLMentor. He implied in his quote, that he would post a thoughtful message in the FL discussions instead of answering thousands of comments. The amount of comments made him adjust the type of engagement in facilitation. The practical knowledge he gained as noted in the previous chapter in 5.3.8 from the activity of facilitation was to change practice and run subsequent presentations unfacilitated, changing the pedagogical approach.

6.6.4 Case E: reflection

In Case E, facilitating comments for E21FLMentor and his colleague E20FLEducator was something they adapted from another course they saw:

> *'we understood that the way we had to proceed [meaning with facilitation] was basically like they [meaning in another course from which they took ideas] did ...to follow the daily activities to see what were the topics that were more interested, the social learners, and then E20FLEducator to gather them and maybe to make a special post' E21FLMentor*

E21FLMentor engaged in a process of reflection by seeing the ways other educators had facilitated discussions in other courses. The other course served as a mediating tool, providing him with access to the experience of others, giving him an opportunity to link this to his practical knowledge, and, through reflection, enabling him to transform his practical knowledge. Practical knowledge about facilitation was also integrated with self-regulated knowledge.

6.6.5 Case G: problem solving, reflection and evaluation

Moving on to Case G, it had certain similarities with Cases D and E. However, it contrasted with Case C where the FL Educators worked together to facilitate discussions. Case G faced difficulties with handling the comments.

G27FLEducator referred to a technique she applied to deal with the heavy workload:

> *'We can't be expected to do it at odd hours for us outside our working time because this is our job... so managing those expectations for ourselves and for the learners was a real challenge, I think for all of us, and in the end I think my attitude was 'ok, I'm going to commit the first week' because that's when my lectures are running and that's the bit I know a lot about.' G27FLEducator*

G27FLEducator noted here, that facilitation was challenging so she engaged in a problem solving process and changed her practice in subsequent runs of the course without necessarily sharing decisions with others. This meant she would only interact with learners in the week related to her subject matter. The technique was the actual practice in Case C and worked well according to Case C participants (see 6.5.2). She integrated her practical knowledge from the first run and the self-regulative knowledge upon reflection and evaluation that it was not possible to facilitate all weeks.

6.6.6 Summary

The facilitation activity worked better for participants when they engaged in a collaboration process as they shared responsibilities and helped each other. This was only seen in Case C, where participants had also engaged in a process of explication, dividing tasks that each one had to follow. They also had different shifts when one professional would be present to facilitate discussions and inform others to get involved if it was their area of expertise. They integrated sociocultural knowledge during the facilitation. In contrast, the other cases worked differently, and not in the efficient ways that Case C participants did; the rest of the cases reported that they spent time individually without agreeing in advance on sharing the facilitation work or agreeing to the use of

mediating tools to smooth this process. In Case A, explication was fragmented, one of the FL Mentors was not sure what his responsibilities were, resulting in having to solve problems and engaging in a delayed collaboration that he had to 'pull in' by using the mediating tool of Facebook creating a group to get the answers he needed to facilitate. This tool helped the FL Mentor to integrate self-regulated knowledge while creating practical knowledge that was an individual effort and not part of his institution.

In Case D on the other hand, the FL Educator engaged in a problem-solving process with regards to facilitation by involving a FL Mentor, although later changed this pedagogical approach and ran the course unfacilitated as a result of the practical experience (and knowledge) that was gained from the first run. In Case E, the FL Mentor reflected on his practice through looking at other courses creating theoretical knowledge about facilitation and integrated self-regulated knowledge.

Finally, in Case G, as there was no collaboration among participants as in Case C, an FL educator engaged in a problem-solving process, and facilitated the comments in the week she was mostly involved in and was related to her area of expertise. This was the actual practice for Case C and its educators.

Consequently, MOOC facilitation worked best when it was done collaboratively. That was the case when a number of FL Educators were involved in the different course weeks. Collaboration in facilitation was the fastest way of finding a procedure that worked in practice when dealing with a large quantity of learners' comments across the course weeks.

Apart from the facilitation teaching activity, the roles of educators were often extended outside the FL platform and are discussed in the next section in relation to the processes of knowledge building and the forms of knowledge they integrated.

6.7 Extending the role outside the FL platform

There were a few cases in which the role of participants was extended outside FutureLearn in blogs, social media and an image hosting website.

6.7.1 Case A: problem solving

In Case A, the roles of participants were extended in a blog. A4FLMentor stated:

> *'we set up a MOOC blog, which we're kind of store the additional information, […]images, interactive sort of things where you can see maps etc.[…] has mostly*

kind of been reaction blogs, so answering questions, and so for example we have week 3, 'your questions answered here' and week 4 'your questions answered'. And also translations as well.' A4FLMentor

A4FLMentor created, with his MOOC colleagues, a MOOC blog outside the platform, engaging in a problem solving process as he was not able to upload certain material on FutureLearn. A4FLMentor indicated that they bypassed some of the legal issues by, essentially, putting posts on a blog, an environment less regulated (rights will be discussed further in the next chapter). Also, the FL Mentor here implied that they were prompted to create the blog through learners' feedback. That is, the learners asked questions and A4FLMentor with his colleagues responded to those through the blog so they changed practice and extending their support to learners with the blog. They created practical knowledge through this experience. They found workarounds due to their lack of ability/opportunity to acquire the knowledge to do them within the MOOC context.

6.7.2 Case C: explication

In Case C it was stated that participants received short training on their online presence in different social media. C10FLMentor discussed this:

'they encouraged us to have an active Twitter presence that would lead up to while the course was running, and also encouraged us obviously to make sure that our Facebook profiles and things like that were all appropriate, should anyone taking the course looked for us on Facebook.' C10FLMentor

The MOOC work involved social media use that extended the role of educators. Here, C10FLMentor makes it clear that there was knowledge 'pushed' to them with regards to online presence and to raise their awareness. This process served to explicate how MOOC educators could have a shared understanding around what personal information to disclose online. So they integrated practical and sociocultural knowledge through this process.

6.7.3 Case F: evaluation

Moving to Case F, there was a unique attempt to extend their role outside the FL platform by using the image-sharing platform, Flickr:

'I think much more common just people [meaning learners] didn't understand what we were asking or how to do it... so get a sense of that right of images, so again we had to, I mean in the second run of the course although we kept the

Flickr group going and people contribute to we made it much more about, 'oh just send us a link in the discussion threads and we will manage it through Future Learn'. F22FLEducator

Flickr was a space where FL Educators asked learners to post photos related to the course. However, this activity did not work well (learners did not use it) and F22FLEducator with his colleagues changed this practice after a process of evaluation, and changed the activity of sharing photos through Flickr to an optional activity. Through this process they gained practical knowledge by finding out in practice that using a particular platform outside FL was not useful in the context of this MOOC.

6.7.4 Summary

This section indicated that there were a few cases in which the role of participants was extended outside FutureLearn in blogs, social media and an image hosting website.

In Case A participants engaged in a process of problem solving in order to facilitate learning integrating practical knowledge through this experience. On the other hand, in Case C, participants engaged in a process of explication where they were offered training which was a mediating tool of pushing in knowledge about online presence, through which process, they therefore integrated practical and sociocultural knowledge. Finally in Case F, participants engaged in a process of evaluation of a tool used to facilitate learning and gained practical knowledge.

Consequently, some FL Educators took on, or were assigned, work that extended beyond the FutureLearn platform. This meant they had additional knowledge gaps to fill and sometimes this benefited the facilitation of learner understanding (i.e. the use of external blogs) or did not seem to have helped learners and were abandoned (i.e. Flickr). Moreover, filling these knowledge gaps benefited educators and their learning about how to present their personal information online which helped them when using social media (i.e. Twitter) for professional purposes.

The next section compares the processes of knowledge building discussed throughout the chapter and the forms of knowledge that participants integrated in their MOOC teaching to conclude which processes worked better for participants and were more effective than others.

6.8 Conclusion

This chapter answered the second research question: 'how do these different educators learn to teach in MOOCs?' To do this, it explored what gaps of knowledge prompted participants to engage in 'processes of knowledge building' and the different forms of knowledge they integrated, as well as the new forms of knowledge resulting from these processes. It also explored some knowledge that was 'pushed' to participants whether or not a knowledge gap had been identified. Sometimes they engaged in processes of knowledge building without identifying a gap. Sometimes their interviews revealed that they had knowledge gaps of which they remained unaware.

FL Educators were experts in the subject matter but they were mostly new in developing MOOCs. FL Mentors were mostly new in their career and were not experienced in developing MOOCs either. FL Collaborators mostly had some expertise with MOOCs either as participants or had created their own MOOCs.

The structures of the MOOC teams played a role in processes of knowledge building. When there was a dedicated professional with some sort of expertise other than the subject matter that all FL Educators had, it was helpful for the rest of the people involved in the MOOC to 'push in' the knowledge. This chapter examined the ways people learn by comparing their processes.

Starting with the Case C, they presented all the 'processes of knowledge building' discussed throughout the chapter: explication, collaboration, problem solving, dealing with uncertainty, reflection and evaluation. Case C combined the diversity of all processes of knowledge building and it is argued that they learned in smoother ways than the rest of the cases. Additionally, they integrated all forms of knowledge that could be transformed to new theoretical knowledge that could be used in other MOOC situations. This will be discussed in more detail in the next chapter. The mediating tools that supported their knowledge building were diverse and analysed within the next few paragraphs.

Case C engaged in processes of explication and collaboration to build knowledge by involving interdisciplinary teams ranging from media team, librarians, marketing team and legal team at an early stage of the MOOC development. These experts explained to FL Educators and FL Mentors different aspects of MOOC teaching while they worked together in collaboration. Combined subject matter expertise (theoretical knowledge) facilitated participants' creation of new knowledge. Knowledge was 'pushed' to FL Educators and FL Mentors as their institution found it important to involve experts from different disciplines to help when there were known gaps in educators'

knowledge. This also contributed to the integration of participants' practical and sociocultural knowledge. Systematic meetings organised over a year were important as a mediating tool that supported successfully the processes of knowledge building in Case C indicating that knowledge transformation takes time.

In Case C, participants reported that they worked as part of a team and distributed the teaching activities. They were clear at each stage of their activities which member of the team had to complete certain tasks, and they logged all information in Google Docs, making working methods transparent to all, as they had access to the documents and could help each other when needed. The use of Google Docs was a mediating tool that supported the process of knowledge building. Collaboration in facilitation was the fastest way of finding a procedure that actually worked when dealing with massive numbers of learners' comments.

Participants in Case C also engaged in processes of dealing with uncertainty and problem solving. They assisted each other and integrated sociocultural knowledge. For example, FL Educators and FL Mentors were offered training in online presence. This mediating tool of training was reported in the data to have supported knowledge building and to have prepared participants for interactions with learners outside the FutureLearn platform. Further, in Case C they also engaged in interpersonal reflection processes on their teaching practice, and a process of evaluation, implying that they changed practice over subsequent runs of their course.

In other cases, there was lack of explication (A, B, D, F and G) and fragmented collaboration (Case A, D) for diverse reasons. One reason was that participants did not have interdisciplinary teams to be advised and to explicate things they did not know (Cases B, F), so they did not have a 'pushed' knowledge approach. Moreover, the diverse subject matter expertise (theoretical knowledge) that needed to be shared takes time and is shaped by the sociocultural context. This context was limited, and the process was not supported by mediating tools such as meeting where they would share understanding and vocabulary that would work in favour of MOOC decisions. They often realised, in practice, that the MOOC was a completely different sociocultural context and that existing knowledge had to be transformed to take that into account (Cases D, E). Time was a key limitation in the knowledge that was to be shared and transformed in most cases.

In these cases, problem solving and dealing with uncertainty were more prominent. This also meant that participants would integrate practical and self-regulated knowledge as they would 'pull knowledge' from somewhere (i.e. other courses, social media) (Case A, B, F, G). A second reason

for lack of explication and collaboration was that although a FL Collaborator (such as a Learning Designer or similar) was involved, they would develop collaboration and explication processes in their teaching activities with delay (Case D, G) or the processes would be fragmented (Case A, E).

In the rest of the cases, participants did not distribute activities in the same ways as Case C, who shared their MOOC workload (design, facilitation). It was also significant that, when explication processes were vague, participants in other Cases than C are found to have discussed similar aspects of their courses with different terminology. For example, a 'video script' was also seen as a 'lecture' in the MOOC context (Case D) or it was not generally 'the university' that made videos but the 'digital learning team' (Case G). This meant that FL Educators were stuck in their past face-to-face practices. Nonetheless, even the groups that did not collaborate developed new practices by solving problems and by dealing with uncertainty.

With regards to mediating tools, it cannot be argued that training as a mediating tool always supported successful processes of knowledge building. In Case C only, a short training on online presence seems to have worked well. On the other hand, training on autocue usage and seminars in script writing in Case G were not discussed by FL Educators as tools. This is implied by the fact that some FL Educators were concerned when presenting videos or writing scripts. Nonetheless, in Cases A and C, an FL Mentor and an FL Educator mentioned the absence of training which could perhaps help them in facilitation and design activity.

In the cases that people did not collaborate and explicate things, they often engaged in processes of reflection and of evaluation which revealed forms of knowledge they gained, such as practical, self-regulative knowledge. For instance, the MOOC experience (practical knowledge) changed aspects of face to face practice when in Case G, a FL Educator started using '*Creative Commons'* in her every day class. This happened upon reflection (process), integrating self-regulative knowledge finding techniques to transform knowledge that could be used online and face to face. On the other hand, it became evident that in one case (D) there were limits to how much knowledge one can develop, appropriate and transform in a short period when dealing with ensuring rights clearance.

Additionally, the practical knowledge of the MOOCs made participants evaluate the practice and consider how this would change in subsequent runs of the course (Case E) and that they would preferably integrate expertise in MOOC design (theoretical knowledge) and from other experts (sociocultural knowledge). Further, there were times that participants reflected on their learning and recognised that they gained knowledge. In Case F, F22FLEducator said he learned through the

MOOC experience (practical knowledge). There were also times that participants did not always recognize their practical experiences as learning. In Case B, B7FLEducator did not recognize his video filming skills or in Case D, D12FLOther reflected on how she created subject matter in video scripts but she only said she was not an expert.

Consequently, through the different activities, participants integrated different forms of knowledge. Participants integrated their different types of theoretical knowledge, particularly in case C where they were assisted by interdisciplinary experts. Although the subject matter experts had relevant theoretical knowledge, they did not always develop the exact theoretical knowledge that was needed, because that was shaped by the sociocultural context that they did not share due to time limitations. All participants gained practical knowledge, which they did not always recognise. For instance, they engaged in certain processes such as writing subject matter text in Case D, or filming and putting videos for learners to see in Case B, but they did not recognise that the product of their effort was the 'fruit' of their learning. Self-regulative knowledge was gained when there was no collaboration and participants needed to get it in some way to develop their MOOC. It was observed that teams gained self-regulative knowledge in planning stages of their MOOC reflecting together.

To summarise, this chapter presented the gaps in knowledge that prompted participants to engage in 'processes of knowledge building'. It indicated the different forms of knowledge that were integrated during the processes and referred to the new forms of knowledge participants developed. During the analysis, the seven cases were compared in relation to the ways participants' interviews imply that they learned in smoother ways. The analysis did this by shedding light on the cases where they engaged in the diversity of processes of knowledge building. Additionally, the chapter presented the forms of knowledge they integrated and were associated with mediating tools that supported knowledge building.

The next and final chapter discusses the research questions, relates the findings to the initial aims, indicates transferable findings, identifies gaps and potential problems, and points to future work that could arise from this thesis.

7 DISCUSSION, CONTRIBUTIONS AND CONCLUSION

7.1 Research intention and aims

This research has addressed two questions:

- Who teaches in MOOCs?
- How do these different educators learn to teach in MOOCs?

Its intention has been to examine the professionals teaching MOOCs and the ways they learn. It had three aims. The first was to gain an insight into MOOC educators and uncover their roles, and the variety of activities they engage in as they teach in a MOOC, considering these in relation to face-to-face teaching. The second aim was to explore the ways educators learn to teach in these settings. The third aim was to develop recommendations for effective MOOC development as they emerge from the participants' reports of effective practices they used (these are presented in 7.4.).

To answer the research questions, the research design was a multiple case study with seven MOOCs in the topic of History and Politics on the FutureLearn platform. Data were collected through online semi-structured interviews with educators with teaching responsibilities. Analysis of the online interviews relied on: theoretical propositions of the Integrative Pedagogy (IP) model (Tynjälä et al., 2014), working with data from the 'ground up' where similar patterns were noticed that suggested useful concepts, and examining rival explanations across the cases.

Chapter 5 addresses the first aim and answers the first research question by focusing on participants' roles (i.e. FL Educators, FL Mentors and FL Collaborators) and unbundling the teaching activities that they engaged in. Chapter 6 addresses the second aim and answers the second research question of how these educators learn to teach, by investigating the processes they engage in to build knowledge on MOOC teaching, and by exploring the forms of knowledge they integrate during these processes, the new knowledge they create as well as the mediating tools supporting the knowledge building. This concluding chapter synthesises the findings reported in the previous two analysis chapters and discusses the research questions.

It begins by identifying the educators in all cases, highlighting their teaching activities, and takes the findings back to the existing literature relating to educators' perspectives in MOOCs and teaching. It continues with the processes of knowledge building and the forms of knowledge educators integrate, relating them to the existing literature of professional learning. The chapter proceeds with the empirical and theoretical contribution of the research related to the MOOC

educators, to the IP model, and the implications for educators, institutions and educational platforms. It then provides recommendations for effective MOOC development. Following this, it makes an evaluation of the methodology. It considers the limitations of this study and identifies how this research could be extended and built upon in the future.

7.2 Synthesis of the findings

Educators' perspectives on MOOC teaching (and learning) have not been studied in great depth (Bayne & Ross, 2014; Liyanagunawardena et al., 2013), and there is an even greater lack of empirical studies of educators' perspectives in MOOCs (Zhu et al., 2018). Although there is some research on different areas in relation to educators, they do not explore in detail what MOOC teaching entails and how professionals involved in this learn to teach. This research fills that gap. MOOCs are a relatively new area of work for educators and they include a range of teaching activities and ways of teaching that are different to those used in face-to-face teaching. The scale of these courses means that the teaching is also different to that conventionally used in online and distance education. A broad definition of teaching was taken into account in the MOOC context, influenced by the responsibilities of educators in HE. This broad definition focused not only on the activity of facilitating learning, but also on activities that go beyond that and contribute to teaching, and which educators are not always familiar with, and therefore about which their professional learning is significant.

7.2.1 Discussing the research question 'Who teaches in MOOCs'?

The first research question examined 'who teaches in MOOCs?' and looked at the teaching activities and who is involved in them. Existing research has investigated the professionals involved in MOOCs and presented them with a plethora of titles such as instructors (Hew & Cheung, 2014; Zhu et al., 2018), teachers (Ross & Collier, 2016; Ross et al., 2014) facilitators (Liyanagunawardena et al., 2013) 'Subject Matter Experts' (SMEs) (White & White, 2016) or educators (Ferguson & Whitelock, 2014).

The profiles of participants of seven cases were analysed and also indicate a plethora of titles. The FutureLearn platform has selected some specific titles as official roles in its MOOCs. However, the titles that appear in the data of the current research, on FutureLearn, do not correspond fully to the roles of participants. There are three categories analysed, the FL Educators, the FL Mentors and the FL Collaborators. The first two roles appear on FutureLearn, but the way they are defined does not give the full picture of the activities they engage in, and therefore are slightly inaccurate. As defined at the beginning of this thesis, the 'Educators' on FL are 'academics with specialist

knowledge of the course subject', while 'Mentors' are 'academics with a good understanding of the course subject who can help with the discussions' (Coleman, 2016). The third category, of FL Collaborators, refers to the people that do not appear on FutureLearn but are individuals who collaborate with the other two categories on the MOOC teaching, and were included in this study as they contribute to teaching. This research unbundles the roles of the three categories and provides a new conceptualisation for who the educators are.

Starting with FL Educators, they mostly appear in the data with the title 'academic'. This title indicates their everyday role at a university and implies that individuals have some sort of academic knowledge. Another title for FL Educators in this data is 'Subject Matter Experts', as they also appear in White & White (2016). This title positions them in terms of their expertise in a subject, and not in terms of their position in a university institution. A third title used for FL Educators in the data is 'Service Providers'. This title does not indicate the specialism of FL 'Educators' in terms of subject matter but it signifies that a FL Educator offers/delivers consultancy or services as an 'outsourcer'. As MOOCs are not only offered by university institutions but also by other organizations and companies, they have educators that have different roles from academics – such as one of the participants of this research who identified himself as a librarian. The FutureLearn definition thus excludes professionals based outside the academy and is not quite accurate.

Moving on to the FL Mentors, this is the second category that appears in the data. The term 'Mentor' is rarely used by participants in the study, and references to the FL Mentors suggest that other staff do not regard them as the 'academics' that the definition of FutureLearn indicates. Instead, FL Mentors are introduced with three main titles: postgraduates/PhD students, facilitators, and educators. Thus, unbundling these titles is important to distinguish them from the previous role of FL Educators, and to show the hierarchy associated within the role. The title postgraduates/PhD students indicates FL Mentors' everyday role. This title in the context of academia indicates that an individual is less experienced, has less subject matter expertise and possibly is in a subordinate position to the 'academics' (FL Educators). Also, when this everyday title is applied to the MOOC, it is significant that it is mostly used by the FL Educators to refer to the work of their post graduate students, the FL Mentors.

However, there are a few instances in which FL Educators also use the terms 'educators' and 'facilitators' to refer to FL Mentors. These terms do not position FL Mentors in terms of experience or knowledge and do not imply a position in a hierarchy, or that the FL Mentors do a less important

job than other educators. FL Mentors introduce themselves as 'facilitators' and 'educators'. Consequently, the definition of FL for 'Mentors' is not accurate in the context of these seven cases studied, as FL Mentors are not seen as 'academics' and they do not use the title 'mentor'. It was also observed that in some instances, FL Mentors were involved in teaching activities beyond helping and guiding discussions.

The last category, FL Collaborators, is diverse. This is not an official role on FL, but everyone who supports the teaching activities and is not expected to interact with learners directly in a formal capacity is considered a FL Collaborator in this research. The title 'FL Collaborator' emerged from the data, as the researcher was pointed to participants who had no official FL role, but who were involved in the teaching. Initially categorised as 'FL Other', analysis of their contributions suggested 'FL Collaborator' as a better term for their roles. FL Collaborators are often introduced as 'Learning Designers', but there are also titles such as 'MOOC Organiser' and 'Digital Learning Team Manager' who have very similar activities to Learning Designers. The 'Head of MOOC's is a unique title with partial teaching responsibilities. The FL Collaborators play a vital role in the MOOC development.

The above titles indicate the complexity of educators' roles in MOOCs. Table 9 below, shows the categories of participants discussed above and their involvement in the teaching activities that were found in the data. It is significant that the design, the video presentation, the editing as well as the facilitation and the extended roles outside FutureLearn are activities with which all categories of participant were found to have been involved. Only two of these teaching activities are restricted to one type of participant. In all the MOOCs studied, only FL Educators were responsible for allocating work across different professionals, and only FL Collaborators in just one case were involved in the activity of 'repurposing a MOOC'.

MOOC Teaching Activities	FL Educators	FL Mentors	FL Collaborators
Securing funding	✓		✓
Allocating work	✓		
Design process	✓	✓	✓
Ensuring Rights Clearance	✓	✓	
Presenting videos	✓	✓	✓
Editing videos	✓	✓	✓
Creating the course on FutureLearn	✓		✓
Facilitating discussions	✓	✓	✓
Extending educators' role outside FL	✓	✓	✓
Repurposing MOOCs			✓

Table 9 MOOC teaching activities: who engages in them?

Although different universities had slightly different course structures, the participants were allocated certain roles in their courses that could be compared across most cases. However, the activities were not well defined, or changed in practice during the course developments. For instance, although the role of an FL Mentor was to facilitate the discussions, they were also involved in authoring text for the MOOC or while the role of an FL Collaborator was to design the course, they also facilitated it. So, this research shows that the activities are distributed, which suggests that ownership cannot be attributed to one individual but to multiple professionals. Thus, a more inclusive definition for the professionals involved in the above MOOC teaching activities is *the term 'MOOC Educators'.*

The findings of the current study echo Watolla's (2016) description of 'distributed teaching' in MOOCs, although in the current study the distributed teaching happened only among MOOC educators, and not between learners and teachers. Important aspects that the analysis of the current study revealed are power and hierarchy, the genres of expertise needed to create a MOOC, the experience and the knowledge that each of the participants brought in the MOOC, the individual and team work (collaboration), the learning design process of the MOOC, the awareness of pedagogy and the conceptions of teaching underlying the pedagogy.

Power, as it was observed in the classifications of participants, earlier implied that some types of participants had more power depending on their hierarchy. It was observed in some instances placing the FL Mentors as doing a less significant job. However, each activity was significant in the end MOOC process. It was also seen that the FL Educators were also regarded as being 'the experts'

without their FL Collaborator colleagues being consciously aware of the types of expertise needed in MOOCs. This reflects Salmon's (2003) work, who argued that the role and skills of the e-moderator call for a wide range of expertise (i.e. understanding the online process, technical skills, content expertise etc.).

If the above teaching activities shown in Table 9, are explained according to the expertise needed in MOOCs, these entail:

- expertise in the course subject
- expertise in MOOC design
- expertise in presentation and editing videos
- expertise in legal requirements for using learning material
- awareness in the pedagogy needed behind the design of the learning material (i.e. video presentation and editing)

The experience within the teams, and the knowledge that each of the participants brought to the MOOC in the expertise elements mentioned above, was vital to the achievement of smooth working practices in MOOC development.

Further, the current research confirms the findings of White & White (2016) that indicate the importance of 'peripheral actors' in MOOCs, such as legal, marketing and media production teams that shape the course design and development process, and somewhat dilute the role of educators as known from other types of course. Buhl, Andreasen, & Pushpanadham (2018) also reflect the analysis of the current research as they showed the cast of actors with different areas of expertise to be essential in MOOC development, which demands the collaboration of many new actors.

Further, it is argued with the analysis of the teaching activities that, although FL Educators are the experts in their course subject, at the same time, they are novices in other areas of expertise that MOOC teaching demands. So, when MOOC work is an individual task, and institutions do not involve dedicated people with the necessary expertise, the job of educators becomes harder. It is through collaborative teams, and when expertise is combined and integrated, that participants create new knowledge more easily. However, that does not mean that educators in MOOCs that were not collaboratively produced did not learn, which will be discussed in the next section.

An integral part of the MOOC is the design. Conole's (2013) view is that design should be pedagogically informed and make effective use of appropriate resources and technologies. This was

not reflected in all the cases studied. MOOC design involves a number of activities that need to be thought through in advance, because once a course is up and running, there is little room for change, and any change entails financial cost. Not all cases started with a learning objective as suggested by FutureLearn guidelines (Sharples, 2015), nor did they always have the learner explicitly in mind. Two cases (Case E and G) did have the learner in the centre of design process. Additionally, the design was not seen as a process in all cases, but was mostly seen as production of content according to week structures (Case A,D,E). Participants in these cases did not consciously approach design as a methodology or as a structured process, which would include making pedagogically-informed decisions about the resources they would use from the preparation to the run of the course as Conole (2013) suggests. However, some did by taking a more conscious approach related to the genre of professionals that were needed. Additionally, some involved both subject matter experts and interdisciplinary experts of legal teams, library team etc. (Case C). Some had a dedicated team on the design (Case G). Drawing on the evidence, despite the various approaches to learning design, there remained gaps in educators' knowledge because, in practice, they did not begin with learning objectives. Most educators had very limited understanding of learning design and did not consciously engage in the process. They mostly talked about the pragmatic and functional process of design without acknowledging the learning objectives for their learners and the ways they would support learners in achieving those objectives.

The evidence that participants were not always conscious about pedagogy is that in some cases FL Educators were not involved at all in the process of video editing (Cases A, D and E) and in one case FL Educators did not write the video script nor did they watch the final version of their videos (Case D). This meant that they were disconnected from the pedagogic content, showing a need for learning about quality assurance. Also, it is significant that although in face-to-face courses, assessment is the method to evaluate the learning outcomes, assessment was not a vital part of the course design in the seven cases that were studied. Assessment was discussed mainly when the researcher asked about 'course accreditation' and not as an integral part of their MOOC design to assess learning outcomes. Therefore, it is reflected, in that the data of the current research back up the idea of Jordan, (2013) that there is a need to consider appropriate methodologies for assessing massive numbers of learners, and assessing informal and online learning for the future.

Conceptions of teaching are thought to be influencing the ways people learn. The conceptions of teaching observed in this study that reflect the findings of the study of Kember (1997) are first, that teaching is imparting information through the learning materials, i.e. video presentation and

creation of content. Second, facilitating understanding on the part of the learner was another conception of teaching reflected through the 'facilitation' activity, in which in one case (D), FL Educators did not engage at all. Not all cases carefully considered the pedagogy behind the design of learning materials (video presentation, editing) because time was an element that influenced the ways they participated in these activities. In some cases, they granted responsibilities to FL Mentors and FL Collaborators, showing that it was either a less important job to facilitate, or were not aware that they should have been involved (Case D). The rest of the conceptions of teaching of Kember (1997) were not observed in the data.

Although the current research did not analyse academic identity *per se*, it adds to work in this area, such as Ross et al., (2014), by addressing the role of educators in MOOCs. It does so by looking into the teaching activities of the FutureLearn courses, and at who is responsible for these teaching activities. In other words, the current research investigated how the roles of educators in MOOCs were conceptualised by gathering diverse empirical data.

Overall, the analysis with regards to who teaches in MOOCs shows a new conceptualisation of what teaching is and how this takes place. This new conceptualisation of teaching entails that MOOC teams need to involve educators with expertise in diverse areas as the teaching activities involved are diverse. These areas include the course subject, the MOOC design, the presentation and editing of videos, the legal requirements for using learning material and ultimately the pedagogy. The pragmatic and functional process needs to be supported by what educators want learners to learn and how they want to support them in achieving that. Finally, because a lot of preparation is needed for a single MOOC to go live on a platform, collaborative work is essential, which is emphasized with the findings of the second research question of educators' learning through the comparison of the cases discussed in the next section.

7.2.2 Discussing the research question 'How do these different educators learn to teach in MOOCs?'

After analysing who teaches and what teaching entails in the MOOC context, the second research question asks 'how do these different educators learn to teach?' To answer this question, the researcher explored the gaps of knowledge in their teaching that prompted them to engage in 'processes of knowledge building' and the different forms of knowledge they integrated, as well as the new forms of knowledge that resulted from these processes. The most apparent gaps in MOOC educators' knowledge related to activities of learning design, video presentation and editing, rights clearance, and facilitation.

The processes of knowledge building originated from the mediating processes of the IP framework (Tynjälä et al., 2014) which were used as a guide to analyse how educators learn. The analysis went beyond these in the MOOC context and examined patterns that were grounded in the data. The processes of MOOC educators' knowledge building are summarized as the following: collaboration, explication, problem solving, dealing with uncertainty, reflection and evaluation. These processes relate to four forms of knowledge: theoretical, practical, sociocultural and self-regulative which are not to be seen separately (Tynjälä et al., 2014) as the findings also show.

The reporting of all MOOC educators from the seven cases were compared. The case that combined the diversity of all processes of knowledge building (Case C) is argued to have learned in smoother ways than the rest of the cases. The other cases noted aspects that reflected the actual practice of Case C that worked smoothly, they reflected on what they would do differently or changed in subsequent runs. In the case that they used the diversity of processes (Case C), they engaged in processes of explication and collaboration to build knowledge by involving interdisciplinary teams ranging from a media team and librarians to marketing and legal teams. These teams were shaped by the sociocultural context of MOOCs and found a common ground. It takes time to fill gaps in knowledge and for it to transform. Individuals in Case C had time to transform knowledge.

Explication meant that the interdisciplinary teams (Case C) gave explanations and definitions for aspects of teaching, and they developed a shared vocabulary and understanding of the teaching aspects. So, knowledge was 'pushed' to each other through a collaboration process they engaged in. This indicated that participants shared each other's expertise while working together. Processes of explication and reflection resulted in the creation of new knowledge about the MOOC development, which could be transformed to theoretical knowledge, knowledge that can be structured and recorded to support the development of subsequent MOOCs. Examples include that small teams work better than very large ones after the first stages of MOOC development (Case C). Another example is about copyrighted material and what cost they entail, what is reasonable and what the process of getting them is. MOOC facilitation works best when participants collaborated and divided labour to deal with a large quantity of learners' comments.

They gained this knowledge in practice, on the job, so practical knowledge was integrated, although sometimes they did not recognise it as learning. Moreover, as they gained this knowledge by sharing expertise while developing it in a social setting, they integrated sociocultural knowledge.

When explication and collaboration were limited, MOOC educators still gained knowledge but they had to 'pull in' this knowledge by looking at other courses or by asking other colleagues that had done courses before them (Case D,F). So when the knowledge was not offered to them, they had to engage in processes of problem solving and dealing with uncertainty (Case B, D). This meant that MOOC educators would make decisions about challenging aspects, or they would go through ambiguous situations. These processes were still effective but they would put educators in a less comfortable position with regard to gaining the knowledge they needed, and also time restrictions would limit their participation in certain activities (video editing, rights clearance), and they would not engage in learning them (Case A,D). In these cases, there was no institutional knowledge available, or the institution did not realise that it needed to employ knowledge in the MOOC context. It was not conceived that gaps needed to be addressed at an institutional level. Time was a key element that limited MOOC educators in transforming the different forms of knowledge and integrating it in the MOOC context.

The knowledge the MOOC educators gained through 'problem-solving' and 'dealing with uncertainty' processes were integrated in forms of practical and self-regulative knowledge. Additionally, in the cases that they had to 'pull in' knowledge, MOOC educators often engaged in processes of reflection and evaluation which enabled them to gain practical knowledge integrated with self-regulative knowledge. Reflection was an important part for recognising knowledge they needed and knowledge they gained (Cases C, E, F, G). Evaluation which was closely related to their reflection related to how they assessed their work and considered that they changed or had the intention to change their practice in later runs of the course.

The change of practice was observed in different ways. Evidence that participants learned is associated with:

- Changing of terminology and vocabulary. For example, participants did not use terms that refer to a face-to-face context
- Discussing the different practices that MOOCs demand and aspects they did differently compared to their old practice
- Discussing what they did differently in subsequent runs
- Discussing the problems they solved and the expertise they gained by doing this
- Dealing with uncertain situations without guidance

- Making passing reference to skills they had gained, although they did not always recognise that they learned, as learning happened on the job and informally (Cases B,D)
- Mentioning explicitly that they learned from the MOOC teaching experience (Cases C,F,G).

MOOC educators gained new knowledge about MOOC design. This knowledge was gained in practice, so theoretical knowledge was integrated with practical knowledge, as Tynjälä et al (2014) set out in the IP literature. Almost all activities that participants engaged in came through their practical experience (design, presenting videos, editing videos, facilitating, rights clearance) combined with earlier experiences that they had from other teaching contexts and are practical knowledge. The practical knowledge was integrated with sociocultural knowledge with MOOC Educators collaborating with experts. These 'experts' are the 'peripheral' roles that White and White (2016) discuss in their work. Experts share their knowledge with MOOC educators and share each other's expertise.

The concept of expertise of Bereiter and Scardamalia (1993) is in line with the findings from cases that worked collaboratively. Bereiter and Scardamalia see expertise as a participatory process where people work together, meet new challenges and become experts (Case C, G). This does not mean that educators need to become experts in all aspects of the MOOC development, but they need to have a collective approach alongside their individual work. This reflects mostly the findings of the cases where interdisciplinary experts worked together by sharing their subject matter expertise that was adjusted to the needs of the MOOC context and came early in the MOOC development.

Expertise in the case (C) that involved interdisciplinary teams comes in a timely manner through participatory processes within the teams. In the cases that do collaborate with 'peripheral roles', but only at a later stage of MOOC development and not at the start (Cases A and G), their learning is 'reactive'. Eraut (2004b) described the characteristics of 'reactive' learning. According to these, MOOC educators make conscious and intentional efforts to learn, and this happens when there is little time to think (Case A, D). However, time in this research was an element that was decisive in the ways some MOOC educators were involved in the teaching activities. Also, time is needed for knowledge to be shared and transformed from something more abstract to more explicit knowledge.

In the absence of having people to get help from and learn from each other, MOOC educators took their own decisions about what activities they needed to learn and therefore, looked at the

expertise they needed to develop. Again, this approach that MOOC educators took reflects reactive learning of Eraut (2004b), but also 'implicit learning' which is not recognised as learning by those who are learning implicitly. This characteristic of participants not recognising their learning was present in Cases B and D.

Characteristics of another type of informal learning, that Eraut (2004b) discusses as deliberative, involve situations in which there is a clear work-based goal with learning as a probable by-product. One example is the use of 'Creative Commons' that was used not only in the MOOC context but also in the face to face situations. Example of these characteristics are the 'training' sessions offered to some MOOC educators during MOOC development. However, there is no evidence that this training helped MOOC educators' learning (Case G). Eraut (2008) also argues that people learn much more through their work than through formally organized learning events. In the current research this training was informally organised (Case C). Eraut (2004a) describes that recognition of a theory an individual needs at work can be triggered when the individual participates in practice and receives feedback on their actions. This comes up in this research when MOOC educators receive feedback on their course from their learners, which makes them change their practice or reflect on it (Cases C and A).

The mediating tools that enabled individuals to combine the different types of knowledge (Tynjälä et al., 2014) were found mostly in: 'meetings', in the use of 'Google Docs' that facilitated effective collaboration between MOOC Educators, or in email exchanges. Another effective tool was following other courses, and sometimes training and seminars were found to be effective. Finally, the use of social media and the use of 'experts' as resources were also observed as mediating tools to combine different types of knowledge.

7.3 Theoretical and empirical contribution of this thesis

This study used Tynjälä's Integrative Pedagogy model that was developed as a tool to enable creation of learning environments that integrate four areas of expertise. In the current study the model was used as a guide to investigate the gaps in MOOC educators' knowledge and how these were filled through different processes of building knowledge. The IP model consists of seven elements: four types of knowledge (theoretical, practical, sociocultural and self-regulative), two aspects that bring these types of knowledge together (mediating processes and mediating tools) and one outcome, the creation of new knowledge. The diagram of Integrative Pedagogy can be found in 3.3.

As noted in 4.12, when the data were analysed, an effort was made to code them with each of the four types of knowledge separately, but it was not possible in this empirical research to identify 'pure' forms of the types of knowledge that MOOC educators gained. The current research identified existing knowledge that participants integrated and new knowledge that they created and integrated with other forms of knowledge. Moreover, this research showed that the forms of knowledge they integrated could be transformed to new theoretical knowledge that can be codified for the development of future MOOCs. The types of knowledge categorised in the IP model are not necessarily useful in analysing "pre-integration" knowledge, but are useful in analysing the knowledge that is a result of integration. The current study focused on the processes through which different forms of knowledge became integrated. These were analysed emphasising the new knowledge gained.

Although separate types of knowledge from the IP framework were not clear in the data, the current study coded and analysed, as well as developed thoroughly, Tynjälä's 'mediating processes' and 'mediating tools' in integrating theoretical, practical, sociocultural and self-regulative knowledge. The processes were extended and given a wider scope than 'mediating': the 'processes of knowledge building' emphasise not only the mediation but the process of building knowledge. These processes, that the current research empirically analysed, contribute to the theoretical advancement of the IP model in the context of MOOC educators' knowledge-building. The 'processes of knowledge building' are: explication, collaboration, problem solving, dealing with uncertainty, reflection and evaluation. Also, it was shown that the framework is of use in the university as a workplace whereas in Tynjälä's studies the university is the place that provides 'formal', theoretical knowledge.

The empirical contribution of the current research is that it gives a new conceptualisation of who MOOC educators are by shedding light on what teaching involves, as there was no clear-cut definition. This new conceptualisation necessitates MOOC teams working collaboratively, sharing expertise not only about the subject matter area of a course but also about MOOC design, presentation and editing, legal matters and awareness of pedagogy when teaching online. This conceptualisation of what MOOC teaching involves can help institutions, educators, and MOOC providers to plan professional development for MOOC educators. As teaching does not only involve academics but also 'Collaborators', the implication is that professional learning should include everyone involved in working together to gain an understanding of online learning environments, the technical skills needed (video presentation, editing), and familiarity with the subject matter.

Moreover, the current study emphasises that these teaching practices are, or should be, associated with specific approaches to teaching and conscious pedagogical decisions. MOOC educators learn to teach more effectively when they have a shared goal, work in transparent ways, and involve interdisciplinary teams in a timely manner.

Moreover, the analytic findings of this research show that the culture of professional expertise is most effective when shared between different colleagues. These analytic findings could potentially be transferred into other situation outside MOOC environments where professionals from different backgrounds need to collaborate on a shared goal but all come from different areas.

7.4 Recommendations for effective MOOC development

As an analytic generalisation from this multiple case study, there are implications for practice and continuing professional development programmes. Drawing on the study's evidence, this thesis offers a broader perspective of who the educators are in MOOC environments compared to the FL Educators that are presented on FutureLearn and compared with face-to-face contexts, by considering the teaching activities in which they get involved. Recommendations for effective MOOC development are proposed below and examples of each recommendation linked to the research findings are offered in table 10.

1. Educate educators about the differences between online and offline teaching/learning contexts and avoid language (i.e. vocabulary/terminology) of other types of course when working on a MOOC (this did not happen in Case D).
2. Involve different experts at the start of MOOC design that will bring together their subject matter expertise that needs to be shaped by the sociocultural context and the purpose of the MOOC (as in Case C).
3. Organise meetings to investigate what needs to be done, what the gaps in knowledge are and whether these need to be covered with experts from different disciplines training each other in their area of expertise (as in Case C).
4. Look at the design as a process, not as a product and include reflection points for educators because it helps them evaluate their practice and, therefore, change it.
5. Allow time for design and allocate time for facilitation (as in Case C – however, this did not happen at all in Case D).

6. Raise awareness about Open Educational Resources (OERs) for educators while explicating the different Creative Commons licences and research the potential of the use of OER in MOOCs (as in Cases F and G).
7. Divide tasks clearly but meet regularly, and use collaborative tools that offer transparency in how teaching is developed (as in Case C).
8. Facilitate the courses and involve the individuals that have created a week in the discussions of that week to interact with learners and facilitate understanding (as in Cases C and G).
9. Take other MOOCs before teaching one (as in Cases A,D,F).
10. Reflect on and evaluate teaching activities before and after these go live, and change what does not work in subsequent runs (as in Case C).

Recommendations	**Examples**
1. Establish a shared vocabulary in the MOOC context	Case D: the use of the term 'lecture' instead of 'video script' to describe the process of MOOC design
2. The use of different experts	Case C: the use of librarians, legal experts, MOOC process administrator, media and marketing team apart from the MOOC educators along with a project manager
3. Identifying gaps of knowledge through meetings	Cases C, F, G: meetings asstisted the team to fill each other's knowledge gaps in legal issues, media production, marketing, learning material to be used, online presence of educators, video editing etc.
4. Design as a process to reflect on	Cases C: meeting regularly meant that they could reflect on the process of designing the MOOC
5. Consider time needed for design and facilitation	Case C: they spent a year on designing the course and allocated time for facilitation working on shifts during the course run
6. Awareness about OER	Cases F,G: they did research and eventually used OER in their MOOCs which contributed to reducing the cost of purchasing copyright material
7. Division of labour and the use of collaborative tools offered transparency	Case C: they logged information in Google Docs that allowed them to know at all times how to find information about their colleagues and the learning material of the MOOC
8. Educators to facilitate own their own learning materials	Case C: learners' questions were referred by educators to the educator who had written the relevant part of the material.
9. Take other MOOCs	Case A,D,F: taking other courses helped FL Collaborators and Educators to create their own courses
10. Reflect and change the MOOC	Case A,C,F: they reconsidered the length of their courses and the bulk of activities, and changed them in subsequent runs (shorter courses and optional activities)

Table 10 Examples of Recommendations from the research findings

These points should be addressed by professionals who will be involved in developing MOOCs and to their institutions who allocate professionals to develop MOOCs. Consistent project management, time and financial commitment is involved to carry out learning and development for professionals who need to develop MOOCs. Institutions need to address the above points to support MOOC professionals – educators, learning designers, PhD students acting as facilitators/mentors etc – in the MOOC process. Universities and other organisations that create MOOCs may need to adopt institutional policies and guidance in the choice of MOOC and platform that professionals will need to be aware of. Other MOOC research has pointed out that different experts need to work together, and the current research emphasises that this is of the utmost importance for educators to effectively learn to teach in MOOCs.

7.5 Evaluation of the methodology

The multiple case study approach was the methodology used to answer the research questions. The online interviews gave rich data for analysis. The number of cases made the task of analysis hard and it would be more straightforward to look at a smaller number of cases. However, the best effort was made to get participants with a variety of roles in their MOOCs. The cases were chosen to be significant and able to be compared, which is why there was an effort to compare cases from the same university, cases that were collaborative with non-university partners, and a non-UK case. However, the two cases from the same university were not similar, the non-UK case did not have distinctive differences with the UK universities. The study though shows that the non-UK case used terminology that was closer to the FutureLearn standards. The collaborative cases of university and non-university partners were found to be offering their expertise to each other (Case F, G) as happened with the case that had interdisciplinary experts (Case C). So the non-academic perspective that was brought to the courses studied proved to be useful.

Best effort was made to give as much detail as possible for the whole process of the design, data collection, transcription, analysis methods. Appendices show the email to potential participants, the information sheet for participants, the interview schedule, the duration of all interviews, the dates those took place, the consent form copy sent to participants, and the technique followed for transcribing the data. All these offer aspects of a credible and trustworthy research.

7.6 Limitations

This research has certain limitations. It only focuses on the context of two topics, History and Politics. However, the rationale for this decision was to get people that are less inclined to use

technologies on their courses, and therefore to get richer data. The pre-course and post-course surveys were not taken into account to see if there were learners' comments that confirmed or contrasted with the ideas of MOOC educators in this study. However there was an intention to include people who were not visible on FutureLearn – the FL Collaborators who would not be mentioned in such surveys of learners and therefore, it would be complex to compare surveys with interviews.

Another limitation is that this research investigates only the FutureLearn platform, and the experiences of educators in other platforms may be different, as the pedagogy of different platforms may differ. This decision was made on the basis that the research goes deeper and has more robust results in one platform using the same structures/pedagogy. Also, the study looks primarily at UK contexts but an effort was made to look at least one other course from another European country on the same topic.

This research is also limited in some categories of participants. There were certain potential interviewees, mainly FL Mentors, who were not available in all cases or did not exist. However, this shows that the ones that did not show interest were not also very involved in their MOOCs. However, in all cases, an effort was made to always include an FL Educator. MOOC related Collaborators or the 'peripheral roles' on the MOOC development would enrich the data analysis and perhaps give a broader perspective to the interviewees' roles. For example, interviewing people from legal teams, marketing, librarians to investigate their point of view on the MOOC development would have been helpful to compare them with the rest of the participants' views. However, the snowball method that was used in order to go from one participant of a case to another did not lead to these people as they were not considered educators. It was not possible to find any more peripheral roles than the ones found because they do not appear in the FutureLearn platform, and the researcher did all the work from a distance.

The last limitation that was considered is related to the organizational structure of the universities that may influence how people approach the problem of developing MOOCs. The ways people think about design, facilitation and teaching in one university is not the same as in others. However, when the study found differences in organizational structures, the best effort was made to analyse the activities that each participant dealt with, to compare them and to study the literature to analyse conceptions of teaching.

7.7 Further research

The findings of this study create the need for further research. In order to design inclusive/holistic professional development programs it would be interesting to investigate if the findings of this study reflect the views and experiences of educators in other MOOC subjects/context than History and Politics and how these are similar or different. Moreover, the topic of this research can be examined in other educational platforms with different pedagogies to compare with FutureLearn. Therefore, future research could examine this in quantitative ways and investigate if the findings of this research reflect the views of a larger population in other topics and platforms.

Interesting topics that came up from this research that would be worth looking at more extensively relate to the copyright law in MOOCs and the use of Open Educational Resources. This study problematized the openness of MOOCs. Although MOOCs are considered to be open, they have diverse restrictions and limitations for MOOC educators who develop them and teach them. Additionally, MOOCs are open but it is difficult to reuse them if MOOC educators wish to. How this impacts symbiosis of delivery and facilitation is a topic for further research.

Another topic is the labour of love of MOOC educators, their invisible work and the emotional perspective of working on MOOCs as it appears in the study. Moreover, the power relations between the different categories of MOOC educators would be a significant topic with particular focus on 'academics' and how they see their position, considering the findings that show that the work of MOOCs is distributed and ownership cannot be claimed to an individual but to multiple professionals.

On the other hand, an interesting topic would be to investigate the 'duty of care' in the MOOC context among the plethora of roles and activities that are so distributed. This study highlighted that there were MOOC educators that never followed their own courses, although they created them, let alone taking part in facilitation. Dilution or conscious rejection are two themes that may worth investigating in MOOCs where a formal relationship between learners and educators does not exist.

The design of MOOCs, and the process of it, is a topic that can be also investigated in detail and include explicit reflection on MOOC educators doing action research. Finally, further research may look at the conceptions of teaching behind the teaching activities in more depth and also the same topics about conceptions of teaching can be combined with views from learners and conceptions of learning in the same courses.

7.8 Emergent themes

In the course of this research themes emerged that could be explored further but are beyond the scope of this study. These are Power and Hierarchy, Time and Language.

Power and Hierarchy is a theme that reveals the different ways that participants think of themselves as FL Educators, FL Mentors and FL Collaborators. The analysis suggests that power and hierarchy shifts depending of the stage of work (i.e. the design and the run of MOOCs). Moreover, power and hierarchy influence the use of language in terms of the role-titles although these may not be so crucial in the MOOC context because of the great diversity of teaching activities that need to be completed by different individuals.

More precisely, there were data suggesting that during the design of the course FL Educators' decisions had a particular power. For example, FL Educators had to sign off the process of design of learning material, and FL Collaborators would chase the approval of FL Educators to proceed with the creation of the course in the FL platform. However, during the run of the courses, it became apparent that FL Educators were not as present, which may have transferred power to the FL Mentors who facilitated the MOOCs. Time appeared there as an important theme that restricted how much participants, and especially the FL Educators, would become involved in the teaching activities.

In some cases FL Mentors tried to use informal ways to complete their jobs without the help of FL Educators suggesting that FL Educators' power was not absolute. As the data has shown, the teaching activities in MOOCs are diverse and the peripheral roles of legal, marketing and media teams dilute the role of educators as it is often experienced in other types of course. Further research could look in depth at how and when power shifts and relate it to the unbundling of roles in MOOCs and the dilution of the role of the 'teacher' as known in other learning contexts.

This research has focused on the use of language in terms of MOOC roles and titles. The second emergent theme concerns language for the different process of MOOC development. Participants used terms from their everyday work to describe their MOOC work. For instance, at times they referred to 'video scripts' as 'lectures'. This topic could be usefully researched further in order to help professionals working in MOOC contexts to distinguish the different culture and nature of MOOCs.

The final emergent theme is time and the different reasons that this becomes an issue in people's work. There were three aspects of this theme. The first one relates to the ways that time is managed and negotiated when people work collaboratively on MOOCs. The second aspect concerns the time available for educators to learn and transform their practice. The third aspect is connected to whether MOOC educators are paid for their time working on the MOOC and whether this work is part of their formal workload. The issue of time, as explained above, is also a factor within the power and hierarchy theme.

7.9 Conclusion

This research uncovered the roles of people who carry out the teaching in MOOCs, the wide variety of the teaching activities in these settings compared with other course types, and the ways people learn to work on the teaching activities. This study seeks to offer a nuanced definition of teaching MOOCs after investigating the activities of educators and the ways they work towards MOOC teaching. This investigation contributes to a better conceptualisation of who the educators in MOOCs are, and what teaching means in the MOOC space. It shows that educators' practice in MOOCs is different from other types of course, with a variety of activities that educators need to engage in. Therefore, it was significant to study how these professionals learn, whether they are experienced professionals or early career researchers. Moreover, even if early career researchers have no experience, they are more likely to have been schooled in traditional settings as likely to have been experienced professionals. Thus studying both cohorts offered rich understanding of how MOOC educators learnt to teach as most of them had no MOOC experience.

Further, this research shows that educators are not only the professionals with the 'official' FL title but also the professionals who take pedagogical decisions with underlying approaches to teaching. Therefore, a more appropriate title for the work they do is 'MOOC educators' which is inclusive and can involve a range of people involved in the MOOC teaching who are not essentially academics and may come from non-university institutions. This research shows that MOOC teaching is difficult for a single individual to carry out, with such diverse teaching activities, and it should not be treated as essentially the same as teaching other types of course.

Teaching in MOOCs involves activities that relate to administrative work (funding, allocating work to different professionals and management of the different professionals), the design that involves some technical skills (video presentation and editing) that need to be combined with pedagogical decisions, and subject matter expertise. However, the subject matter expertise needs to be

presented in new forms (i.e. video script writing) and decisions on using appropriate resources (copyright free or with permissions) are essential. Facilitation of learning is also a teaching activity that may extend outside the MOOC platform with MOOC educators using different channels (blogging, social media etc.).

Finally, this research shows that the MOOC environment was a point of workplace learning for MOOC educators of seven different courses, where they learned new practices and changed their old ones. Especially when they worked as part of interdisciplinary teams, they shared knowledge, they worked in transparent ways and they created new knowledge that could be transformed to theoretical knowledge for future MOOCs. When teams collaborate, they may agree on their sociocultural knowledge. When the sociocultural context is not understood and shared, they have little chance of developing forms of knowledge that work for all. This sociocultural knowledge was not shared across cases but it seemed to have been valuable to participants' MOOC work.

Their learning was not always treated as learning or development, as it happened on the job. However, raising their awareness that learning happens in this way may benefit educators, institutions and platforms. MOOCs are a tool that is still developing and they have led educators and institutions to work further in the direction of online education. Even if MOOCs are transformed to another form, the professional development of educators is essential in the long-term. It is crucial to educate existing staff and learning designers through informal ways of work, to raise their awareness about the available resources and combine the different expertise that each of them have to offer, to work collaboratively, to reflect and evaluate their practice continuously and therefore, to learn.

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APPENDICES

Appendix 1: Email to potential participants

Dear X,

I am contacting you in order to invite you to be interviewed as part of my PhD study that investigates how university educators move their practice towards MOOCs. The interview will last around 45 minutes and will be conducted by Skype at your convenience. You will be asked about your experience with open, online education and teaching as well as how you worked on the 'Z' course and about how this differs from your previous experience. I have attached an information sheet and I am happy to provide you with more information about the study if needed. Also, could you please point me to other colleagues of yours that have been involved in this course? Your contribution is important to develop greater understanding of educators' professional practice processes in MOOC settings and will therefore be of benefit to other educators and to institutions.

I look forward to hearing back from you.

Yours sincerely

Tina Papathoma

Member of Future Learn Academic Network (FLAN)

Appendix 2: Information Sheet for PhD study on 'how educators move their practice towards Massive Open Online Courses'

I am a PhD student studying at the Institute of Educational Technology of The Open University, UK, conducting interviews as part of my research study to explore 'How university educators move their practice towards Massive Open Online Courses (MOOCs): A multiple case study'. This study aims to investigate educators' experience in the area of MOOCs. As an educator of the Z course you are in a position to give me your perspective on how you work towards MOOC production and the running process of this MOOC. Examples of people who are considered educators include:

- people involved in the learning design of the MOOC
- people who develop content or assessment for the MOOC
- people who produce videos for the MOOC
- people who facilitate / moderate the learners' forums
- people who present MOOC videos

Useful Information

- **Interview Duration:** Around 45 min.
- **Place and Time:** Skype at your convenience
- **Interview Questions:** You will be asked about your experience with open, online education and teaching as well as how you **worked on the course** and about how this differs from your previous experience. I will send you the questions in advance, to give you time to consider them.
- **Recordings & Transcripts:** The interview recordings and transcripts will not be disclosed to anyone besides the researcher, her supervisors and her examiners.
- **Compensation**: There is no compensation for participating in this study. However, your participation will be a valuable addition to this research project.
- **Contribution**: findings will help to develop **greater understanding of educators' professional practice** processes in MOOC settings. The study will therefore be of benefit to educators and to institutions. Findings may be applicable outside the domain of education, in domains where innovation is placing pressure on practitioners to change.
- **Withdrawal:** You have right to withdraw at any point before the data are aggregated (date 21 July 2016). Your responses will be anonymised before any publication.

If you are willing to participate please indicate **a date and time** that are convenient for you **from 3 June – 21 July 2016**: If you have any questions please do not hesitate to ask.

I look forward to hearing back from you.

Yours sincerely

Tina Papathoma

Member of Future Learn Academic Network, *Institute of Educational Technology, The Open University*

Supervisors: Doug Clow (Doug.Clow@open.ac.uk), Rebecca Ferguson (Rebecca.Ferguson@open.ac.uk), Allison Littlejohn (Allison.Littlejohn@open.ac.uk

Appendix 3: Interview Schedule

This study explores 'how university educators learn and change their practice towards Massive Open Online Courses'.

Section 1 of the interviews includes general questions

1. What is your experience with teaching? How long have you been teaching? What is your experience with open and distance education? Which MOOCs have you worked on as an educator?
2. Think about your work on the z MOOC and about how this differed from what you have done before. In how many presentations of the course have you worked on?

Section 2 includes semi-structured questions

3. How did you set up and run (work on) this MOOC? Could you tell me about some of the things that are the same as the work you have done before?
4. Could you tell me about the things that are different in this MOOC compared to what you have done in the past?
5. How did you prepare to work in these new ways?
6. Did working on the MOOC change your understanding of how teaching and learning take place? In what ways? Did working on the MOOC change you approach to developing course content and assessment? In what ways?
7. What were the steps you took in order to work on this MOOC? What was the process you followed in order to work on this MOOC?
8. Can you describe any occasions when you encountered problems when you set up or while running this MOOC and how you tackled these problems?
9. Can you describe an instance of a positive aspect of working on this MOOC?
10. Do you have any experience of MOOCs being offered for university credit? Could you see that working with your course?
11. Thinking about the production and the running process of this MOOC - how should it change in the future, if at all?

Appendix 4: Cases and duration and date of interviews

Cases	Participants	Interview Date	Interview Duration (min.)
A	001	10/06/2016	61.01
	002	16/06/2016	42.50
	003	08/08/2016	44.05
	004	22/06/2016	38.43
	005	12/07/2016	23.51
	006	15/07/2016	25.54
B	007	11/07/2016	40.59
C	008	11/08/2016	30.46
	009	25/08/2016	24.06
	010	27/09/2016	33.31
D	011	06/07/2016	36.53
	012	29/06/2016	39.40
	013	15/06/2016	43.25
	014	13/06/2016	27.11
	015	20/06/2016	20.50
	016	06/07/2016	17.03
	017	15/06/2016	52.35
	018	20/06/2016	19.45
E	019	04/07/2016	55.49
	020	18/08/2016	40.25
	021	09/06/2016	30.01
F	022	22/06/2016	45.13
	023	11/07/2016	26.08
	024	07/07/2016	23.10
G	025	07/07/2016	27.37
	026	17/06/2016	28.00
	027	04/07/2016	44.03
	028	05/07/2016	34.02
			Average time: **34.73**

Appendix 5: Consent form for the PhD study on 'how university educators learn and change their practice towards MOOCs'

If you can contribute to my study and agree to be interviewed, I would like your informed consent, please fill in the form below and return it to me by email. If you could help me by agreeing to be interviewed it will be an enormous contribution to my study.

Thank you in advance.

I am looking forward to hearing back from you.

Tina Papathoma

The Open University

Email: tina.papathoma@open.ac.uk

I, ……., agree to participate in this study being conducted as part of an Open University PhD research study.

I give permission for the data collected to be used in an anonymous form in any written reports, the web, presentations and published papers relating to this study. My written consent will be sought separately before any identifiable data is used in such dissemination.

I am aware that I am free to withdraw and to request the destruction of any data that has been gathered from me, up to the point, **31 September 2016**, at which data is aggregated for analysis.

I understand the purpose of the research, as explained in the email sent to me, and accept the conditions for handling the data I provide.

Signature (type your name): ……

Date: ……..

Important dates:

- 3 June – 31 September 2016: Interviews
- 31 September 2016: Deadline of withdrawal from the study and request for destruction of any data that has been gathered (After that date preliminary results will be analysed and will be written up for my PhD thesis)
- Participants will be sent the link of the PhD thesis (www.oro.open.ac.uk) with the findings once it is finished.

Appendix 6: Organisational structures of the seven cases

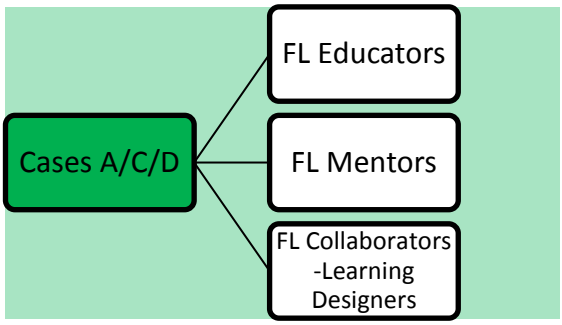

Figure 6 Organisational structure of Cases A/C/D

There were several similarities between the cases but also differences. Each MOOC had a different organizational structure, although they all included at least one FL Educator. Cases A, C and D had the same organisational structure shown in Figure 6 Organisational structure of Cases A/C/D on the left with FL Educators, FL Mentors, and FL Collaborators who described themselves as Learning Designers. The key aspect of Case D, though, compared to Cases A and C, is that it was structured around a bigger number of FL Educators (six interviewed). In Case D, FL Educators only contributed to the course with their subject matter expertise of their research topic in specific sessions, in the different course weeks. Cases A and C came from the same university; Case A ran before Case C. The professionals who worked in Cases A and C were not the same but it appears that they collaborated in other university projects, which are discussed in Chapter 6.

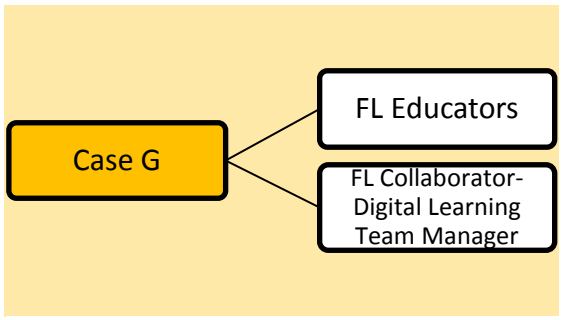

Figure 7 Organisational structure of Case G

Case G (a partnership between a university and an non-university partner), was different from Cases A, C and D, and their FL Collaborator described their role as a 'Digital Learning Team Manager' (see Figure 7) Even though these two categories of participants (i.e. 'learning designer' and 'digital learning team manager') did not have the same titles for their role, the titles denote that their roles related to 'learning'.

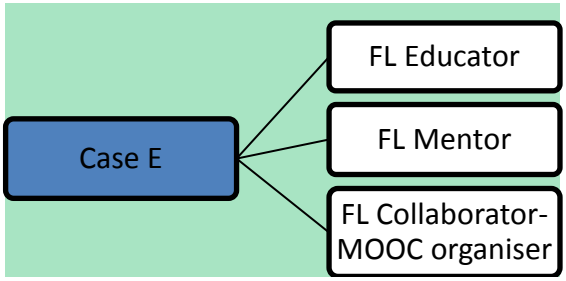

Figure 8 Organisational structure of Case E

Furthermore, Case E was similar to the previous Cases in terms of their organisational structure of FL Educator and FL Mentor (see Figure 8), but Case E only had one FL Educator and one FL Mentor involved in the course. Additionally, instead of a 'Learning Designer' or a 'Digital

Learning Team Manager', Case E had another role, a FL Collaborator identified as 'MOOC organiser'. Chapter 5 of the analysis discusses the commonalities in the teaching activities of the FL Collaborator roles (i.e. 'Learning Designers' of Cases A, C, D, the 'Digital Learning Team Manager' of Case G, and the 'MOOC Organiser' of Case E) regardless of the fact that their titles are different.

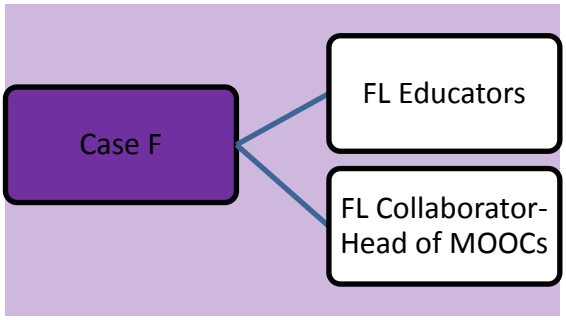

Figure 9 Organisational structure of Case F

Moreover, as Figure 9 shows, Case F (also a partnership between a university and a non-university partner) involved two FL Educators from the university partner, one of whom was interviewed, and a FL Educator from the non-university partner. A participant in this Case, appeared categorised as FL Collaborator and described themselves as 'Head of MOOCs' in the external organization of the MOOC. This was a unique category that was not met in other cases and their activities are discussed in chapter 5.

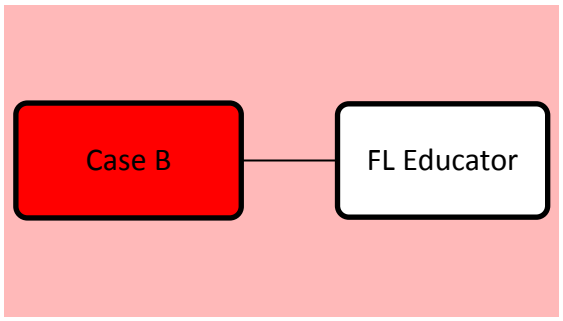

Figure 10 Organisational structure of Case B

In Case B, even though it had more than one FL Educators (three in total), only one was available for interview (see Figure 10). In chapter 5 it is shown that this FL Educator was responsible for a number of teaching activities.

Appendix 7: Transcription Guidelines

List of Acronyms and interviewees	Interviewees were anonymised by giving them numbers and the titles they appeared with the case involved and their role in FL (FL Mentor, FL Educator or FL Other)
Filler words, filled pauses, Nonverbal sounds	Words such as *hm, huh* were omitted as an intelligent verbatim transcription approach was followed
Inaudible Information	When the researcher identified parts of the recordings that were inaudible or difficult to understand, it was put in square brackets with the phrase 'inaudible segment' i.e. [inaudible segment]
Quotes	Single quotes '' were used when participants quoted something, such as what one of their colleagues had said
Square brackets use	-Information that would identify the Course, a university, an organisation or a Participant, were put in square brackets with the word *hidden* […hidden]. -Researcher's interpretation, or something that the participant earlier discussed and was meant, was put in brackets with the word *meaning* and what participants meant [meaning …] -When information was omitted, it was symbolised with three dots in square brackets […]

Appendix 8: Assessment activity

Assessment was only referred to very briefly, and was not discussed as an integral part of design although typically in face-to-face courses, assessment is a significant teaching activity to support learning and evaluate the degree to which learners achieved the learning outcomes of the course. Most types of participant mentioned the assessment only when they were asked about accreditation of their courses. In the cases where assessment was mentioned, they saw the importance of implementing assessment in their courses if these were to be accredited. Two of the cases did not have assessment quizzes (Case D, F). One did have quizzes (Case A) but found it difficult to create good multiple choice questions. The data suggests that assessment was only formative and in one case there was peer assessment.

In Case A, A1FLEducator referred to assessment saying:

> *'If it is to be offered for credits, then it has to have an assessment. And if it is to have an assessment, then we have to think really carefully about the nature of that assessment' A1FLEducator*

It seems, from the quote above, that assessment was not an activity that was taken into account in the design of the course. However, A2FLOther from the same case said:

> *'so.. thinking a good quiz questions was really hard work and on Case A, A3FLEducator was suggesting quiz questions to me and I was like 'no that's a dumb question', you know, it's too easy to answer or it's just testing people's recall and I was trying hard to look at the content and think about questions that would be more challenging to students and hopefully,.. mostly that worked.' A2FLOther*

This quote shows that A2FLOther was informed and spent time on creating assessment quizzes with one of the FL Educators of the course (A3FLEducator). A2FLOther did not specify whether learners simply expected to reflect on their marks, or if there were hints if they got it wrong, or references to the relevant learning material that the quizzes checked. However, he implied that they worked together with his colleague to find good questions to check whether learners had achieved the learning outcomes of the course and questions were not only about 'recall'.

On the other hand, A6FLMentor discussed the potential of accrediting this MOOC by implementing assessment:

> *'How you can recognize credit if there is no way.. I mean normally the credits are because you undertake an activity, and then you should pass or acquire skills, but then if you don't have any assessment how can you certify that someone is actually rich, so it's a little bit, I think it needs to be more structured, I think yes, this MOOC could have a credit attached, but then it needs to be some sort of, I don't know, test or something to make sure you actually took the course, you understood and you kind of reached your learning outcomes'*

A6FLMentor problematized summative assessment in order to offer credit to learners for certifying that learning was achieved and that a learner reached the learning outcomes. A6FLMentor implied that this was not happening at their course.

Further, Case D did not have any assessment, with D12FLOther saying:

> *'We didn't have quizzes in the MOOC because we thought, I think [D11FLEducator] was not quite convinced of multiple choice questions would be a good way of sort of exploring.. he wanted it to be much more discursive and he wasn't quite sure how we would implement multiple choice but at the end of the course we have got like a peer assessment'. D12FLOther*

Therefore, D12FLOther (learning designer) made it clear that they did not have quizzes because D11FLEducator- the lead educator of the course- did not think that multiple choice questions were appropriate and so, they only involved some peer assessment at the end of the course. In addition, D13FLEducator said:

> *I think there is an assessment function but I had no involvement in it and that's because I chose not to, so I don't know anything about the assessment and how it works.' D13FLEducator*

D13FLEducator mentioned that she was not aware about assessment in the course. Finally, a reference to assessment that related to the particular context of the MOOC was by F23FLEducator in Case F who mentioned:

'...we've not built in this particular MOOC any kind of quizzes or tests or opportunities for learners sort of test their knowledge as they are going through it, so it might be quite useful to do more of that ..Although it's not as subject go it's not really easy to do quizzes cause lot of it is about interpretation.. Certainly a lot of MOOCs are [inaudible segment] so learning how to do corpus linguistics or .. quizzes make sense there, because the learning outcomes are well defined. Here [meaning in Case F], we're just trying to persuade people to think about things in a slightly different way' F23FLEducator

F23FLEducator mentioned that in the particular context of their MOOC in Politics, they did not have any assessment, neither formative neither summative. He clearly said that this would be helpful but difficult in the context of this course where the learning outcomes are not well defined as in other contexts such as corpus linguistics.

Appendix 9: The cases in short descriptions

This appendix presents the seven cases studied and the roles of participants interviewed, the extended interdisciplinary groups of professionals that participants mentioned having worked in their MOOC.

Case A
Case A was a team-taught MOOC in History with three FL Educators (two of them were interviewed, A1FLEducator and A3FLEducator), a number of FL Mentors (three of them were interviewed, A4FLMentor, A5FLMentor, A6FLMentor) and a FL Collaborator (A2FLOther, who identified himself as a Learning Designer) who was part of the Learning Design/Media team. Case A was from the same university as Case C although Case A ran before Case C. Several professionals got involved in the teaching of this MOOC, yet the processes of building knowledge were not smooth, as its participants indicated. There was lack of explication in the activities of design, video presentation, editing and facilitation with participants creating theoretical knowledge mostly by engaging in problem solving processes. Collaboration among participants was fragmented in facilitation activity and thus one participant took initiative to face challenging situations and solve problems by creating a Facebook group to get help from colleagues to answer learners' comments. Facebook was a mediating tool to collaborate and integrate sociocultural knowledge. Case A involved filming outside the UK which meant that the course was under the legal jurisdiction (permissions and location agreements) of two different countries. Therefore, problem solving was a constant process for participants in building their knowledge in their effort to deal with the matter of legislation and rights clearance. Participants extended their roles and activity outside FutureLearn so as to share useful information with their learners. Their MOOC teaching experience prompted them to engage in processes of reflection and evaluation of their teaching activities. The forms of knowledge they integrated were practical and self-regulative and much less socio-cultural. They had gaps of theoretical knowledge, but they created new knowledge on copyright law on the job.

Case B

Case B was a MOOC in Politics that involved one interview with B7FLEducator, who was an experienced FL Educator. The other two FL Educators were not available. From B7FLEducator's reporting, the other FL Educators were not very much involved in the course. Videographers were mentioned as having worked with B7FLEducator. However, B7FLEducator designed, facilitated, presented and edited videos, to a great extent, on his own. The processes he used to build knowledge was mainly problem solving and dealing with uncertainty especially in the video filming and editing activities. It was significant that he built new knowledge on previous MOOC experience (practical knowledge). He also engaged in reflection and evaluation processes about the activities he undertook. The forms of knowledge that B7FLEducator integrated were practical and self-regulative. Time was an element that worked in favour of the FL Educator's course to complete the design.

Case C

Case C was a team-taught MOOC in History with an FL 'Educators' team', from which C8FLEducator was interviewed. A FL Collaborator, C9FLOther (who identified herself as a Learning Designer) had a management role of all teams involved in the MOOC and was part of the Learning Design team. Case C also involved a team of FL Mentors from which one (C10FLMentor) was interviewed. Interdisciplinary teams were mentioned as having worked closely with the previous teams in MOOC developments, but were not involved in interviews. These were: the media team, the librarians, the marketing team and the legal team. Experts from these teams met for a year to prepare the course. All participants presented similar views about their MOOC work and developments.

Analysis of the data relating to Case C suggests that regardless of their roles as an FL Educator, an FL Collaborator or an FL Mentor, the three participants developed a shared vocabulary and understanding about their roles and responsibilities (explication). They worked together, rather than separately as distinct teams of FL Educators, FL Mentors or Learning Designers. The most prominent process of knowledge building was explication. Processes of collaboration in design (i.e. authoring learning material and recording comments of learners that needed to be facilitated in discussions) were also noticed in participants' reports. The processes of collaboration and explication were supported by mediating tools. These were their meetings and the use of Google Docs through which they could see each other's work synchronously (dynamic collaboration).

They got involved in an interpersonal reflection process between colleagues that led them to decisions on the design process. Moreover, one of the participants engaged in an evaluation process about the facilitation activity and the educators' presence. Another participant's work also involved challenging situations that they had to resolve and thus, problem solving was also a process of building knowledge. Finally, they had to deal with uncertainty from which they also benefited and built knowledge. The forms of knowledge they integrated were mostly practical and sociocultural while they also developed knowledge that could be transformed to theoretical and used in future MOOC environments.

Case D

Case D was a course in History with 12 Educators. These Educators were part of a big project in the same research area. Six of them were interviewed (D11FLEducator, D13FLEducator, D14FLEducator, D15FLEducator, D16FLEducator, D17FLEducator) as well as an FL Collaborator who identified herself as a Learning Designer (D12FLOther), and the only FL Mentor (D18FLMentor). Although there were many FL Educators, it was implied that participants did not work together, and learning material was designed primarily by the Learning Designer. Explication processes were fragmented, as FL Educators never met as a group to develop a shared understanding about the teaching activities. The FL Collaborator engaged in a process of problem-solving to build knowledge in design activity. There was an absence of mediating tools. Video presentation was challenging for some participants so they built knowledge through dealing with uncertainty, as the explication processes were fragmented. Some participants engaged in processes of reflection and evaluation of knowledge, building on their teaching practices. Collaboration in facilitating the courses or in design was incoherent and the only FL Mentor was hired midway of the course. The forms of knowledge participants integrated were practical and self-regulative.

Case E

Case E was a MOOC in Politics that was taught just by one FL Educator (E20FLEducator). There was a FL Collaborator, E19FLOther, who identified himself as MOOC Organiser. His role was similar to what other cases would call 'learning designer'. There was also a FL Mentor (E21FLMentor) who contributed to the facilitation activity. Story-telling experts were mentioned to have contributed to this course. This was the only non-UK course and the only one in the whole dataset who used terminology that was closer to the FutureLearn definitions. Participants in this case reflected on their practice in the design activity as well as in video editing and facilitation activities. Participants engaged in processes of reflection and evaluation, while collaboration between the FL Educator and the MOOC designer was limited. The forms of knowledge participants integrated was practical and sociocultural knowledge.

Case F

Case F was a team-taught MOOC in Politics resulted from the collaboration of a non-university partner and a university institution. Interviews were conducted with 2 of the 3 FL Educators (One was part of the non-university partner -F22FLEducator and the other from the university F23FLEducator). The Head of MOOCs (non-university partner) was also interviewed. In addition, they had FL Mentors who were not available for interviews. There was not a dedicated professional collaborating on learning design in this case but FL Educators were involved in this. They engaged in processes of explication with regards to 'learner-centred approaches to design for learning'. A collaboration process was also present between the two partners involved in the MOOC. The non-university partner participants engaged in the reflection and evaluation process to assess if it was worth doing the MOOC. The forms of knowledge participants integrated were practical, self-regulative and socio-cultural.

Case G

Case G was a team-taught MOOC in History with five FL Educators (three of them were interviewed, G26FLEducator, G27FLEducator and G28FLEducator). They were all led by G26FLEducator. The course was in collaboration with a non-university organisation, but no interviews were conducted with the latter. Case G also involved FL Collaborators. These were identified as the 'Digital Learning Team' (which had a Manager, a Course designer, a Project Coordinator, a Learning technologist, and an Animator). The manager of the Digital Learning Team was interviewed (G25FLOther). In addition, they had FL Mentors who were not available for interviews.

FL Educators worked together in the design activity but the process of collaboration for FL Educators' knowledge building from the non-university organisation came with a delay. So the non-university organnisation offered advice to FL Educators in later stages when they had already drafted learning material (linear collaboration). It became apparent that FL Educators gained skills in broadcasting while developing the course (practical knowledge). These skills were integrated in their practice from the part of the experts who gave their advice. Meetings were a mediating tool that supported successfully the integration of knowledge from the different experts (FL Educators and experts of the non-university organisation) and sociocultural knowledge. However, training did not support knowledge building for everyone as there were gaps of explication.

FL Educators did not collaborate with each other in facilitating learners' discussions, resulting in this being very time consuming. Time was an element that influenced FL Educators' participation in the activity of facilitation. However, they took the decision to facilitate the steps that they developed to solve this problem in later runs and changed their practice as they gained practical knowledge but sociocultural knowledge was limited at this stage.

Appendix 10: MOOCs experiences: quotes and analysis

Significant quotes from the interviews with regards to MOOCs experiences are analysed in this section.

In Case A, the A2FLOther discussed:

> *We've actually kind of work on lots of them, so particularly in the early phases when we launched the first one, [name of course hidden] and the [name of a second course hidden] I had some involvement in those as well […] I've been interested in the whole idea, area of MOOCs for some years, so I follow Stephen Downes' blog and email newsletter and I had actually taken part in the CCK08 MOOC. […] All of us learning designers took part in the Edinburgh MOOC, the E-Learning Design and that was really interesting and influenced us quite a lot...' A2FLOther*

So, it is evident from the above quote that A2FLOther had extensive experience in creating other MOOCs but also had previously engaged with the ideas of MOOCs from Steven Downes, one of the organisers of the first MOOC. Thus, engaging with Downes' blog and newsletter suggests an engagement with what led up to MOOCs. It is also apparent that A2FLOther used the pronoun 'we' to discuss MOOCs to be a collective, team experience, and he and his team had not only developed MOOCs together, but had also studied MOOCs together (the E-learning Design MOOC).

Moving on to Case B, B7FLEducator discussed his experience in two more MOOCs as an FL Educator, before Case B. This was unique as no other FL Educator from the other six cases happened to have had this extensive experience that B7FLEducator mentioned:

> *'My experience with MOOCs is more than my conventional teaching experience. I was a tutor in [name of the course hidden] last year which was interesting but that's my extensive conventional teaching experience... In terms of MOOCs, I've been involved in 3 different MOOCs, this one being the most recent' B7FLEducator*

B7FLEducator's experience, as he described in the quote above, was richer than his experience in face-to-face teaching. It was also significant that B7FLEducator who had this MOOC experience did not discuss it as teaching. He distinguished MOOCs from teaching.

Going further to Case C, C8FLEducator had some involvement in Case A:

'..my MOOC experience is [Case C title hidden] and then to a lesser extent with the [Case A title hidden]'. C8FLEducator

Similarly, C9FLOther mentioned:

'I did some work on it [meaning in Case A] for a brief period but it was mainly dealt by another learning designer'. C9FLOther

Therefore, both C8FLEducator and C9FLOther had engaged with the idea of MOOCs with Case A which was in the same university as Case C. These two participants were familiar with the idea of MOOCs without having been hugely involved. Case C came after Case A at the same university.

Moving to Case D, the FL Collaborator (D12FLOther) participated in some MOOCs as a learner and took ideas for Case D:

'So for example Dan Ariely had a MOOC [this was a Coursera MOOC], I did that one. His idea, that concept at the end of each week, they had the feedback video […] that was something I have seen on that course and said why don't we try that' D12FLOther

D12FLOther indicated in the quote above, her participation in a course of Dan Ariely, a professor of Psychology and Behavioural Economics (Conway, n.d.) who had done an unusual course on Irrational Behaviour. In that course, he used feedback videos which D12FLOther was influenced by and adapted. This course was not the same as the one of Downes that A2FLOther mentioned earlier, but in both cases, the learning designers (D12FLOther and A2FLOther) took ideas of what it is to be developing MOOCs.

In Case E, the FL Educator who did not have any MOOC experience described his first ever MOOC experience (Case E) as follows:

'…designing this course I was not able to imagine open courses... I could not see them in my mind. So, what I was trying to do, I was trying to sort of replicating my experience and tried to put that in a different format. […] so my problem was that I was trying to translate the kind of things I was doing in class into this sort of … so any teacher, any educator moving from eye to eye [meaning face-to-face] education into a MOOC he will not do it properly the first time. He will not be satisfied the first time. He will be very frustrated the first time because it's a

complete different experience, it's a complete.. It's not a format. It's a completely different experience. It's a different learning experience and therefore, it is not a question of translating content to a format.. It's a way of designing this learning experience in a complete different way'. E20FLEducator

Thus, it is evidenced from E20FLEducator that designing a MOOC for the first time and trying to replicate a face to face course was not a good strategy. E20FLEducator critiqued the way he worked for Case E even though he had said earlier in his interview that Case E was a successful course. In his comparison between face-to-face courses and the MOOC, he thought that designing a learning experience in MOOCs is not the same as what he already knew and had done. Working on a MOOC for the first time, E20FLEducator found it hard to conceptualize how the MOOC would look. Also, when he discusses this experience, it seems that it was not a team effort but rather an individual one (i.e. he was the only Educator in the course).

Moving on to Case F, F24FLOther had no experience with MOOCs before, nor had she taught any other courses when she was asked about her teaching experience before Case F. She mentioned:

'I have certainly paid for them and I grade how we got to taught them [meaning she evaluated them], I'm not in them (i.e. the videos) […] This is the very first MOOC for the [name of organisation hidden] so, there was no pre-set procedure as such, because the whole idea was to trial and see how this actually might work. So, the one... The procedure we didn't have is co- partnering with universities because for the very first MOOC we did [meaning Case F], we run a competition process to find the best partner but after that the procedure has very much developed, partly by using the structure the [university name hidden] already had and partly by making it as we went.' F24FLOther

In this quote, F24FLOther reflected that she had not taught on a MOOC, and developing a MOOC was not the only new process for her. There was also the experience of working together with a university to develop a course. F22FLEducator, who was part of the non-university partner of the same Case F, also had no experience with formal courses. F23FLEducator, on the other hand, was running another MOOC at the same time as Case F but had no prior experience either.

Finally, in Case G, there was one participant, G25FLOther, with extensive experience:

'I think every MOOC we produce, I think we've now produced probably over 30 […]'
G25FLOther

The G25FLOther had experience of 30 MOOCs, and she was therefore a MOOC expert compared to the FL Educators (experts in the subject matter) of her course, who only developed their first MOOC with G25FLOther.

FL Mentors did not discuss any prior experience in MOOCs in any of the cases.