Imperial College London

Online learning design in higher education: a holistic investigation of people, processes and pedagogy

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A thesis submitted for the degree of

Doctor of Philosophy

Centre for Higher Education Research and Scholarship

Imperial College London

June 2022

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Statement of Originality

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Abstract

The design and provision of online learning by universities has gained traction globally as a strategic move towards flexible education maximising students' learning opportunities. A promising approach for designing high-quality online learning is collaborative design where educators work with interdisciplinary digital learning professionals. However, to date, studies that have taken a holistic approach to examine the nature and outcomes of the design work between these key university actors in a single project are lacking. This thesis addresses this gap by investigating the decision-making processes of educators and digital learning professionals during online learning design, the factors influencing their decisions, and the rationale behind their pedagogic choices.

Cultural-historical activity theory was adopted as the theoretical framework to enable a thorough investigation of educators' and digital learning professionals' online learning design work within their broader sociocultural context. A multiple case study was employed as the overarching methodology with data collected from seven design teams ('cases') across six UK-based universities involved in ongoing online learning design cycles. One-to-one interviews in two stages (before and after the design of online modules) and non-participant observation of design meetings were conducted to capture participants' insights. Relevant documents were also analysed as secondary evidence sources.

Findings revealed participants' decisions were made through framing, sharing insider knowledge and expertise, forward-looking, and breadth-first design processes. Their decisions were influenced by four levels of interacting and interdependent factors: individual, team, community and network, and institutional. The pedagogic rationale behind participants' decisions indicates their practice re-culturation and has been conceptualised in this research as holistic, multivoiced and connected. Collaborative design also proved to support educators' professional development in (co-)design, pedagogy, and learning technology. These findings contribute to a multifaceted and contemporary understanding of online learning design and highlight practical implications for educators, digital learning professionals, university leadership, industry partners, and researchers.

"No one is born fully-formed: it is through self-experience in the world that we become what we are."

– Paulo Freire

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List of Abbreviations

ADDIE   Analysis, Design, Development, Evaluation

ALT   Association for Learning Technology

CHAT   Cultural Historical Activity Theory

CoI   Community of Inquiry

GTA   Graduate Teaching Assistant

HE   Higher Education

HEA   Higher Education Academy

LD   Learning Design

MOOC   Massive Open Online Course

OER   Open Educational Resource

PG   Postgraduate

TA   Thematic Analysis

TEL   Technology-Enhanced Learning

TPACK   Technological Pedagogical Content Knowledge

UG   Undergraduate

UK   United Kingdom

US   United States

VLE   Virtual Learning Environment

ZPD   Zone of Proximal Development

Glossary

Actors - used within this thesis to mean a range of stakeholders such as educators, digital learning professionals, students, researchers, and administrators that impact design practice. These actors may reside inside a university or in associated community and network groups.

Degree - in the UK, a degree is a qualification awarded to students upon successful completion of a course of study in HE. Degrees typically consist of several modules (see definition below).

Digital learning professionals - HE professional staff, whose roles include learning designers, learning technologists, media producers, learning analytics experts, administrators, and leadership. Their work aims to support and enhance digital learning and teaching activities. Other terms used for digital learning professionals in different settings and the literature include EdTech team, TEL team, and elearning professional staff/service.

Educational sustainability - the ongoing change to an educational innovation, which would continue in response to needs and intention of key stakeholders (e.g. educators, learners, institutions) (Niederhauser et al., 2018).

Educator - the person who is responsible for designing, teaching, and evaluating UG and PG level programmes in universities. Educators are also referred to as academic staff.

Epistemic - relating to knowledge or knowing.

Framing - refers to the creation of a novel standpoint to tackle a challenging design problem (Dorst, 2011). It involves the creative analysis, (re)conceptualisation, and broadening of the design's system borders for directing action (Dorst, 2011; Schön, 1983).

Holism - the consideration of the 'whole', through identifying relations, connections, and an underlying unifying principle which groups things together, rather than treating them as individual disaggregated parts (Nelson & Stolterman, 2014).

Integration - the act of combining parts in ways to produce a larger whole.

Learning designer - refers to a digital learning professional with expertise in learning design, pedagogy and learning technology. Although educators can also be termed learning designers, given the context of the study where educators work with expert learning design professionals,

the term learning designer is used to refer to this specific role. Other terms used in the literature for this role include, but are not limited to, instructional designer, learning experience designer, and course designer and developer.

Learning and teaching modes: definitions on different learning and teaching modes are provided below to bring clarity on their use in the present research.

- **Online learning and teaching** - describes the learning mode in which 'teaching is delivered using the Internet, and students and educators are not required to be available at the same time and place' (Siemens, Gašević & Dawson, 2015, p.100). An online module is one in which the majority of learning and teaching is designed to be implemented in an online medium and interactivity can be asyncronous and synchronous (Allen & Seaman, 2016).

- **Remote learning and teaching** - is a temporary shift to remote instruction due to the COVID-19 outbreak that would otherwise be delivered as on-campus or blended learning. Over time, these teaching activities may return to their initial format (Hodges et al., 2020).

- **Blended learning and teaching** - is the purposeful combination of online and on-campus learning and teaching that can take various forms based on defined educational rationales.

- **Hybrid learning and teaching** - describes the new synergies that simultaneously exist between two or more distinct contexts or activities (e.g., online/on-campus, working/living/learning, synchronous/asynchronous) (Cohen, Norgard & Mor, 2020). The new hybrid is a result of blurring boundaries among contexts and invites rethinking the conception of place and space.

- **On-campus learning and teaching** - refers to the educational activities designed to take place in a particular physical classroom, lab, studio, or other place-based learning space.

Module - in the UK, a module is self-contained blocks of learning that may be compulsory or optional for the completion of a degree. Modules typically contain a range of learning activities, content, and assessment distributed across 9-13 weeks.

Novice online educator - an educator who is new to university teaching in any learning and teaching mode (on-campus, blended, online), or a mid-career/experienced educator who is new to online learning design and teaching specifically (Kilgour et al., 2019).

Online pedagogy - pedagogy is defined as 'any conscious activity by one person designed to enhance learning in another' (Watkins & Mortimore, 1999: p3). The term online pedagogy has been used to locate pedagogy in the online learning context and reflect an evolving digital culture (Bayne, 2004). Another term used as a synonym in the literature is digital pedagogy.

Readiness for online learning - 'a state of faculty preparedness for online teaching' (Martin, et al., 2019, p. 97) representing knowledge, skills, attitudes, beliefs and facilitating conditions.

Scaffolding- a metaphor widely used to capture the guidance given to educators, learners and/or other HE actors during their design work and learning processes. It proposes providing 'just the right amount of cognitive support to bring them closer to a state of independent competence' (Warwick, Mercer & Kerschner, 2013, p.43) based on their specific needs and current state of expertise in a domain.

Sense making - the 'social processes by which local actors seek to resolve ambiguity and conflict' among different sources of information and guidance' (Penuel, 2015, p.9).

Synchronous and asynchronous learning - synchronous learning refers to educators, learners, (and sometimes other stakeholders) getting together at the same time and place (online or physical) and interacting in 'real-time'. Asynchronous learning refers to learners accessing learning materials and interacting with their peers and educators flexibly at their own pace and time.

Technology-Enhanced Learning (TEL) - an interdisciplinary domain of research and practice and a broad umbrella term for the interface and inseparable relationship between digital technologies (e.g., social media, virtual and augmented reality), learning and teaching (Bayne, 2015). TEL's aim is to enhance educational practice through the application of suitable digital technologies to teaching and learning (Kirkwood & Price, 2014). TEL is also seen more broadly as *'a complex system, which includes communities, technologies and practices that are informed by pedagogy'* (Scanlon et al., 2013, p.3). Online learning as well as hybrid and blended learning and teaching can be considered to be subsets of TEL.

Chapter 1 | General Introduction

1.1 Research rationale

1.1.1 The changing landscape of higher education: an increasing need for online education

Higher education (HE) can play a vital role in the advancement of a sustainable society and economy by developing well-equipped graduates through the provision of high-quality learning and teaching (Bennett, Lockyer & Agostinho, 2018). It, however, faces many challenges due to the rapidly changing world (Dalziel et al., 2016). The most pertinent pressures that impact the decisions of key university actors (e.g., educators, researchers, students, leadership, and professional staff) include greater internationalisation, higher competition among universities, ideologies of marketisation driven by government policy, employers' changing expectations, and growing dependence on digital technologies (Goodyear, 2015; Bayne & Gallagher, 2021).

Today's highly diverse learner group includes traditional learners, more mature learners with job responsibilities, and disrupted and displaced learners incorporating wide-ranging sociocultural differences and interests (Goodyear, 2015). These heterogenous learners require robust and sophisticated approaches to learning and teaching that meet their complex needs and have the potential to offer impactful learning experiences (Bare & Bexley, 2017). The complexity emerging from the above characteristics of HE, has necessitated the development of more flexible, adaptable and personalised learning and teaching by universities, usually in the form of blended, online, and more recently hybrid learning, to maximise students' learning (Allen & Seaman, 2016; Xu & Xu, 2019; Rapanta et al., 2021). This move towards contemporary and technology-enabled provisions has occurred in an era where universities are striving to increase the overall teaching quality (Bennett, Lockyer & Agostinho, 2018). Such efforts involve 1) introducing institution-wide change initiatives (Annala et al., 2020; Kandiko Howson & Kingsbury, 2021), 2) offering training opportunities for educators on how to teach (Bale & Seabrook, 2021), and 3) supporting the curriculum development with input from interdisciplinary university professionals (Bennett, Agostinho and Lockyer, 2017; Bower & Vlachopoulos, 2018). With the presence of these substantive, organisation-wide activities, it is important for research to investigate their impact on key university actors' practice and educational enhancement.

The present thesis focuses on online learning as an important learning and teaching mode that has received increasing attention more recently on a global scale. However, online learning is not a new phenomenon; it has a long history, with open universities and several US-based universities being early pioneers. It started as postal correspondence – the so called distance education – with one-to-one communication between students and educator(s), paper-based study materials, and didactic teaching strategies (Anderson & Dron, 2011). The emergence of digital technologies and intelligent databases has created opportunities for the development of more interactive forms of learning and teaching. Therefore, the current emphasis is on how to provide opportunities to students that encourage networked, active, collaborative, and inquiry-based learning in an online medium (Siemens, Gašević & Dawson, 2015).

In the UK, where this thesis is situated, the Open University long dominated the online learning HE market, with other universities only providing a small number of online degrees (Leon Urrutia, 2019). According to a large-scale survey[1], in the period that this research was envisaged (beginning 2019), only a small proportion of educators within UK universities had engaged in online learning design and teaching (Langer-Crame et al., 2019). Additionally, most of these educators considered themselves as early adopters of digital technologies for educational purposes. However, the landscape has shifted as both research- and teaching-focused universities have embarked on a journey to increase their online learning offerings (Webster, 2017; Leon Urrutia, 2019). Importantly and unexpectedly, during the present thesis data collection, the emergence of the COVID-19 pandemic brought an even wider adoption of online learning for the continuation of educational activities out of necessity (Rapanta et al., 2020). This is known as remote learning and teaching and has similarities with deliberately designed online learning although, arguably, its design may not always have a well-thought-out pedagogic underpinning (*ibid.*). Collectively, the more widespread expansion of online learning in universities globally, generates new challenges, possibilities, and dilemmas for educators who are at the front-line of educational provision (Colak, 2018; Kilgour et al., 2019). This widespread expansion capitalises the need for studies to provide a contemporary picture of how online learning is designed by focusing on the lived experiences of the key HE actors directly involved, which this research seeks to address.

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[1] by Jisc, the UK higher, further education and skills sectors' not-for-profit organisation for digital services and solutions.

1.1.2 Design in contemporary HE: importance, needs and challenges

The ever changing HE landscape, and the pressures outlined above, motivated key scholars to conceptualise 'teaching as design' (Laurillard, 2012; Goodyear, 2015; Bennett, Lockyer & Agostinho, 2018; Dobozy & Cameron, 2018). 'Teaching as design' focuses on productive engagement with design as a key strategy with the potential to enhance teaching quality and promote innovation (*ibid.*). It expands the core conception of what teaching work involves by going beyond educators' routine and intuitive planning of learning and teaching resources (e.g., content, assessment task, PowerPoint slides) and their observable work of teaching and assessing student work (Bennett, Lockyer & Agostinho, 2018). 'Teaching as design' encourages educators to invest time and resources on in-advance detailed thinking to embed good pedagogy principles into design artifacts, problematise existing practice, and make effective use of digital technologies (Goodyear, 2015). It, therefore, discourages the reproduction of outdated transmissive teaching approaches and disciplinary traditions which arguably, are unsustainable in today's changing society. Instead, it supports the conceptualisation and design of learning and teaching activities that are fit for purpose (*ibid.*).

The notion of 'teaching as design' proposes that design processes and methods applied by engineers, architects and professional designers can be useful in the education context (Laurillard, 2012; McKenney et al., 2015). These design processes and methods include reframing problems, engagement with creative, visual, and systematic thinking and approaches on how to deal with complex issues that could enable informed decisions (*ibid.*). Thorough in-advance design is crucial in online learning, the context of the present research, as there are limited opportunities for real-time fixes and student supervision (Goodyear, 2015). Therefore, the numerous decisions to be taken during design have a direct impact on students' engagement and learning (Rienties & Toetenel, 2016). That is why researching *in-situ* design practice to build a more comprehensive understanding of how key university actors make design decisions is a worthwhile endeavour to support educational enhancement.

Design is a key responsibility of educators who should possess relevant competencies and knowledge to successfully enact their role (McKenney et al., 2015; Bennett, Agostinho & Lockyer, 2017). This is also reflected in the UK Professional Standards Framework for teaching in HE ('Design and plan learning activities and/or programmes of study') (HEA, 2011, p.3). However, the current discourse in the sector has highlighted that HE educators may have

insufficient design knowledge, skills, and experience (McKenney et al., 2015; Voogt et al., 2016; Kali et al., 2018) and/or lack of time to meaningfully engage with design. They are often unfamiliar with productive design processes, tools, and associated educational vocabulary (McKenney et al., 2015). Consequently, they habitually make decisions based on tacit knowledge and unarticulated rationales (Toetenel & Rienties, 2016; Masterman, 2019) which may limit their capacity to make deliberate and innovative design decisions.

Importantly, designing for online learning has been partly seen as a different experience from learning and teaching in on-campus settings (Baran et al., 2013; Adnan, 2018; Halupa, 2019; Kilgour et al., 2019; Ní Shé et al., 2019). From a pedagogic perspective, it is argued that communication, interactions, course structure and the positioning of key actors (educators, students) present differences among the diverse modalities and require scrutiny to make full use of the affordances in each learning context (Kilgour et al., 2019; Ní Shé et al., 2019). For example, due to the physical distance online learning requires new interaction patterns among students, educators and resources and more enhanced scaffolding mechanisms to support students' learning. Being a confident or accomplished educator in on-campus teaching does not automatically translate to an online learning context if there is a lack of understanding of pedagogy and needs in online education (Adnan, 2018; Kilgour et al., 2019).

Given the relative novelty and dynamism of online learning for many educators, scholars have proposed that engaging in online learning design may prompt educators to rethink pedagogy and encourage them to use more contemporary approaches to learning and teaching, particularly if their practice is still mostly didactic (Beetham & Sharpe, 2013; Bayne et al., 2020). Furthermore, online learning involves material- and tool-mediated learning and interactions. To this end, it necessitates the acquisition of technology-related skills and knowledge (e.g., digital tools, systems suitable for specific purposes) (Dobozy & Cameron, 2018; Martin et al., 2019). Therefore, the lack of knowledge in these domains could have a detrimental impact on the implementation of pedagogically sound approaches to learning.

Existing studies have shown that when educators work in isolation to enhance their teaching practice, they often transfer structure, content and learning activities from on-campus teaching to the online medium (Saltmarsh & Sutherland-Smith, 2010; Baldwin, 2019) which may be a suboptimal strategy (Baran, Correia & Thompson, 2013; Ní Shé et al., 2019). Online learning instead, should be considered in its own right, with attention paid to its social,

cultural, and technological contexts and the new educational possibilities it might offer (Fawns, 2019; Bayne & Gallagher, 2021).

1.1.3   Collaboration in design

A collaborative approach to design, where educators work with digital learning professionals (e.g., learning designers/ technologists, media producers) or in larger interdisciplinary teams (e.g., including students, researchers) has gained momentum (Dalziel et al., 2016). It is proposed to be a promising mechanism for the design of high-quality online learning environments that go beyond the traditionally dominating individualist educator work cultures to design and teaching (Burrell et al., 2015; Newell & Bain, 2018; Richardson et al., 2019). In the frame of collaborative design, educators are encouraged to embrace innovative and pedagogically robust approaches (Olney et al., 2018). University staff may be enabled to learn from each other and combine their expertise via sharing ideas, explicating reasoning, and integrating interdisciplinary knowledge. Digital learning professionals can provide up-to-date insights into the use of educational technologies (e.g., learning analytics, collaborative tools, simulations) and pedagogies and work closely with educators to select those that are best fit for purpose (Olney et al., 2018; Richardson et al., 2019).

Despite the abovementioned benefits of such a collective approach to design, scholars have argued that there are limited studies in HE contexts that explore the nature of *in-situ* design practice and its outcomes (Burrell et al., 2015; Veletsianos, 2016; Newell & Bain, 2018; Westbroek et al., 2019). Comparably, there has been more research on collaborative design in school education contexts due to the long tradition of planning and design (Burrell et al., 2015; Gast, 2018). Although HE and school education present similarities and thus, insights from school educational contexts are useful, there are also significant differences. For instance, the way that school teachers are trained and prepared for teaching is different from that of HE educators. What is more, the relational dynamics between key actors (e.g., educators, leadership, other professionals) and structures among universities and schools present differences (Weiss et al., 2015) and, consequently, are less transferable. Therefore, more studies in HE contexts are needed to build a better understanding of the significant area of how the key actors involved in collaborative design for online learning work together to meet ambitious educational and institutional goals and overcome challenges.

Furthermore, most available studies have focused on a particular actor group; either on gathering only educators' perspectives and experiences (e.g., Lichoro, 2015; Bennett et al., 2017; Baldwin, 2019; Martin et al., 2019), or experiences and practices adopted by digital learning professionals only (e.g., Gibbons, 2014; Sugar & Moore, 2015; Kumar & Ritzhaupt, 2017; Morgan, 2019; Aitchison et al., 2020). The present thesis aims to bridge this gap by bringing together in a single research project the key university actors involved in online learning design. As argued by Ellis and Goodyear (2019) researching more than one actor group's standpoints and experiences may increase the ecological validity of findings and add richer understandings to the existing evidence base.

The collaborative approach to online learning design has not only been seen as a means for educational enhancement or – in the present research context – quality online learning but also as a professional learning opportunity for educators (Voogt et al., 2016; Sharpe & Armellini, 2019). To this end, the experience gained via designing online learning may inform and influence educators' practice in any other mode of learning and teaching (i.e. on-campus, blended, hybrid) and enable them to re-evaluate their pedagogic conceptions and beliefs (Baran et al., 2013; Kearns, 2016). This is important as the enhancement of educators' pedagogic capacity may lead to sustainable educational change (Bennett, Lockyer & Agostinho, 2018). Although there are several studies that state educators' pedagogical and design capacity building through collaborative design (e.g., Burrell et al., 2015; Horton et al., 2016; McInnes et al., 2020), these studies do not offer details of what this entails. To address this gap, this research examines how the situated design activity of educators in collaboration with digital learning professionals may enhance both their practice and development.

Altogether, the present work can be located at the intersection of *collaborative design* (processes, factors influencing design decisions), *quality online learning/ educational enhancement* ('what' is designed, online pedagogy conceptualisation, how educational practice is enhanced to ensure quality online learning), and *educator learning* (see Figure 1.1 below). To the best of the researcher's knowledge, this is the first attempt to connect and combine empirically these key components of online learning design practice (what, how, why, and who) in one project in the UK context.
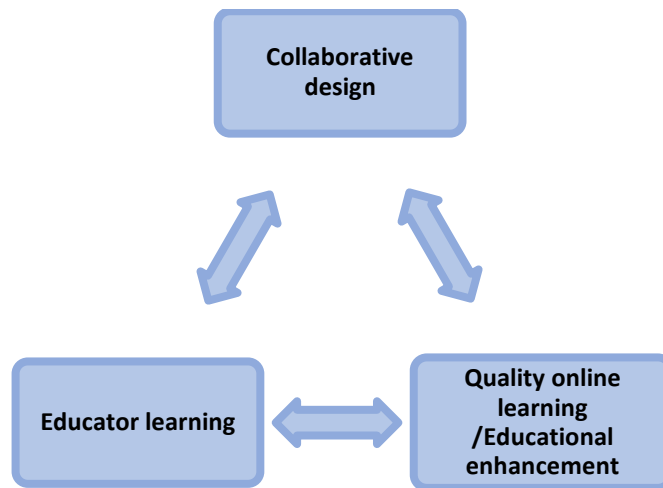
Figure 1.1: Intersecting domains of work (based on Voogt et al., 2016)

1.1.4 Researcher personal motivation and background

Alongside the identified research gaps presented above, this research was also motivated and shaped by my own interests and experiences in the core areas of the field. Having a background in education, my curiosity to develop knowledge and skills on how to effectively use digital technology to enhance learning and teaching led me to undertake a Master's degree in 'Learning, technology and education' in 2014-2015. Through this Master's I gained deeper knowledge on a range of topics in the Technology-Enhanced Learning (TEL) domain, including online learning and design that this research focuses on. The degree itself followed a flipped classroom approach, which required online engagement with various activities before the on-campus teaching sessions. This pedagogic approach and design provided rich opportunities for self-directed and guided, collaborative, inquiry-led, and reflective learning mediated by various digital technologies. From this experience, I became inspired by the power of online learning, and appreciated the impact that a well-designed learning environment had on my own learning as a student.

My interest in, and understanding of the key role of design in students' learning and the different factors that influence decision-making stems primarily from my experience as a school teacher, as well as my roles as a learning designer and educator in HE. As a school teacher, I had opportunities to work both individually and in collaboration with colleagues to design learning activities. When working with colleagues, I experienced the benefits, but also some challenges (e.g., tensions, lack of time) of collaborative design. I realised that working

with others allowed the design of imaginative and authentic learning activities by building on each other's ideas that finally increased our students' engagement and learning.

My most relevant roles with online learning design in an HE context have been in the last few years where I worked as a learning designer and educator (see also section 4.9) focusing on the design of online and blended learning. In these roles, I worked in collaboration with educators and interdisciplinary colleagues (e.g., media producers, learning designers, project managers). This experience drew my attention to important aspects of online learning (e.g., structure, interaction, relationships, role of technology) and ways in which educators new to online learning can be supported to create pedagogically sound online learning and enact their role as designers. The value of knowledge integration among colleagues with diverse backgrounds, experience and expertise was a highlight of this experience that enabled the generation of novel pedagogic approaches. As a practitioner, I observed how various factors such as the institution's educational strategic vision, existing on-campus teaching experiences, and working relationship among the team members influenced the way we made decisions during design. Educators also shared with me how our collaborative design work impacted their pedagogic practice in any learning and teaching mode conceptually, but also through re-using designed learning assets. These more anecdotal insights made me realise the potential for the personal development of team members through *in-situ* collaborative design.

My collective experiences and personal interests led me to pursue the outlined research to capture in-depth and with scientific rigor the important work of educators and digital learning professionals when they design for online learning. I saw an opportunity to learn and increase awareness across the sector of how these different actors come together during online learning design, what their needs and challenges are, what informs their design decisions, and the outcomes of their collective efforts.

1.2   Research aims, questions and approaches

The aim of this thesis is to examine how educators and digital learning professionals work together to make decisions when they design for credit-bearing online learning. It investigates the processes they follow, the factors that influence their design decisions, and the nature and educational rationale behind their pedagogic decisions. It also aims to explore the potential impact of interdisciplinary collaborative design on educator learning and future practice.

To accomplish these aims, this work is undertaken to address the following research questions:

1. How do educators and digital learning professionals make decisions when they work together to design for credit-bearing online learning?

    1.1 What design processes do educators and digital learning professionals follow?

    1.2 What are the driving factors behind educators' and digital learning professionals' design decisions?

    1.3 What are the pedagogic decisions educators and digital learning professionals take and the educational rationale behind those?

2. How may, if at all, the experience of collaborative design for online learning contributes to educators' learning and inform their future educational practice?

This research is guided and interpreted by using Engeström's (1987, 2001) Cultural Historical Activity Theory (CHAT) as the main theoretical framework. CHAT, as will be explained in depth in Chapter 3, has been selected as a lens to enable a holistic investigation of the complex relationships, processes, and contributions of educators and digital learning professionals when they work in synergy. Importantly, it helps to keep sight of the broader socio-cultural aspects (e.g., rules, artifacts, community) of online learning design that impact these key HE actors' decisions. CHAT was utilised alongside conceptualisations of what design for learning entails and the knowledge and skills required to enact it skillfully by drawing from the classical design fields' (e.g., engineering, architecture, product design) literature to offer a stronger ground for findings interpretation.

A qualitative multiple case study methodological approach is deemed to be suitable to address the above research questions. To allow for an in-depth investigation, data from seven university interdisciplinary teams working towards the design of credit-bearing online learning were gathered through multiple methods and at different stages of their design. These include two sets of interviews with each participant, non-participants observations of design meetings, and analysis of documents with relevant information (e.g., design documents, learning and teaching strategies). This was seen as a fruitful research design that complements existing studies that relied mainly upon educators' or digital learning professionals' self-reports of recalled past experiences through one-off interviews or observational data only.

1.3   Significance of the thesis

The significance of this research lies in its detailed, context-focused, and holistic analysis of an important and under-researched aspect of higher education – namely, the online learning design by educators when working with digital learning professionals.

This research expands the evidence on collaborative design for online learning by drawing an empirically grounded and rich picture of 1) the people involved in decision-making along with the knowledge, skills, and attributes they bring and their positioning in the HE ecosystem, 2) the process they follow to make design decisions, and 3) the wider factors that impact their decision-making. It attempts to reveal relationships and complexities among these components and how they all work together, rather than the mere presence and absence of certain characteristics and factors that may be an overly simplistic way of understanding the phenomenon under investigation. The findings from this research have practical implications and can assist educators, digital learning professionals, university leadership, industry partners (e.g., MOOC platform providers), and researchers in becoming more articulate about significant aspects of design work in an online learning context and taking informed actions. Based on these insights, universities may also be able to develop more effective support strategies that enable evidence-informed practice, a collegial culture among key HE actors, and work efficiency based on educational vision and available resources.

This research also provides a contemporary view of the landscape and potential changes in online pedagogy which, to date, were not fully understood (Wilcox et al., 2016). Finally, this thesis insights can be useful in supporting scholars' calls to shift the attention from developing the product (educational enhancement) towards developing both the product and the people involved in it for a more sustainable educational future.

1.4   Thesis structure

This thesis is structured in 10 chapters that collectively paint a complex picture of the phenomenon under investigation.

Chapter 1 introduces the research rationale, the nature of the research problem and its key aims. It also presents the significance of this thesis.

Chapter 2 provides a review of the literature on core areas for this research including design (process, influencing factors for design decisions), online pedagogy, and collaborative design. It draws connections among these areas in the context of online learning. It brings together relevant foundation theoretical knowledge and empirical studies and identifies the literature gaps that underpin the focus and importance of this work.

Chapter 3 presents the key principles and rationale behind the selection of CHAT as the main theoretical framework used. It outlines the strengths and weaknesses of the framework as well as its application and polyfunctional role within this study's lifecycle.

Chapter 4 details the overarching methodological approach and methods employed in this research. It covers sampling methods, data collection instruments and processes, and ethical considerations. The chapter closes with approaches to data analysis and a critical account of trustworthiness issues.

Chapter 5 describes the characteristics of the different 'cases' (university design teams) that this research consists of, to set the context for the presentation of findings. It provides information about the participants, their prior experience, institutional context, and relevant features of the online module(s) under investigation.

Chapter 6, Chapter 7 and Chapter 8 present the empirical findings of this research by adopting a cross-case synthesis approach. Each chapter emphasises different research components and includes key themes that were constructed during data analysis. *Chapter 6* focuses on the socio-cognitive design processes and the different spheres of influence during online learning design. Chapter 7 describes how online pedagogy is conceptualised and reflected in participants discourse (design activity object). Chapter 8 demonstrates the value creation of interdisciplinary collaborative design for educators' learning and practice.

Chapter 9 draws upon the whole thesis and synthesises the findings presented in Chapters 6-8 into a critical discussion to address the research questions. The main findings are contextualised within the literature and the adopted theoretical framework and constructs.

Chapter 10 concludes the thesis by providing a summary of the key findings along with its contributions to knowledge, practical implications, limitations, and recommendations for future research directions.

Chapter 2 | Literature Review

2.1 Introduction

This chapter provides a review of the existing literature on design and online learning in HE. It is a synthesis of previous theoretical, conceptual, and empirical work that guided the research design of this PhD research. This literature review comprises of four major sections. The first section conceptualises design alongside the knowledge and skills required to enact it skilfully. The second section focuses on online pedagogy in HE to establish the context of this research and uncover conceptions and practice perspectives. The third section examines factors that impact the decision-making of HE educators and digital learning professionals. It identifies support sources and challenges faced during design activities. The final section reviews the literature on collaborative design as a potentially effective approach for high-quality online learning and educator learning. Despite the acknowledgement of the social nature of design and the benefits from interdisciplinary design collaboration, this review revealed a lack of empirical evidence in HE contexts which this research seeks to address.

It should be noted that in this research I perceive online learning to be a subset of the TEL (see definition in the Glossary) and educational technology research and practice domains. Therefore, in addition to the specific literature on online learning, literature from the wider TEL and educational technology domains has been considered and integrated within this chapter wherever applicable. For example, the skills and knowledge on how to design technology-mediated environments (section 2.2.3) as well as the people involved in designing those environments (section 2.5.2) are applicable to online learning specific contexts of practice. Therefore, overall, the wider literature helped to situate this research in its broader context and elaborate on key concepts, actors, and practices that are relevant.

2.2 Design for online learning: definitions, scope, and attributes

There is no single definition of design that can adequately cover the diversity of ideas and methods simultaneously. An early influential work was that of Simon (1996) who focused on the technical and empirical nature of design, characterising it as a 'science of design'. Simon defined design as a process of rational problem-solving and decision-making that aims to change existing situations into preferred ones (Simon, 1996). He argued the wide applicability

of design in multiple situations and professions and proposed that design requires systematic methods of investigation. Simon's positivistic underlying epistemological view was, however, criticised as boosting a technocratic view of designers (Dorst, 2004) and focusing on prescriptive practice that may not represent designers' actual work (Cross, 2001; Kimbell, 2009). He also overlooked the social nature of design that requires collective action.

To address these limitations, Schön (1983, 1987) introduced a new epistemology of design practice underpinned by pragmatism and constructionism. He built on John Dewey's theory of inquiry and established the notion of reflective practice, which is characterised by reflexivity, creativity, and experimental thinking to construct meaningful ideas, knowledge, and/or products. Although Simon's and Schön's approaches are distinct, they were both pioneering and combined, offer a more complete view. Cross (2001, 2006) joined and extended Schön's and Simon's epistemological frames by introducing designerly ways of knowing to describe cognitive skills, processes, and designers' mindsets (see section 2.2.2 for an in-depth discussion). In line with Cross and Buchanan (1992), the present research considers design as an integrative process, taking together knowledge from the sciences and the humanities (art, culture, social).

Inspired by these rich conceptions of design in other disciplines including engineering, architecture, and product design, design gained increasing traction in education as a key part of educators' work (Laurillard, 2012; Beetham & Sharpe, 2013; Goodyear, 2015). The field of learning design in the early 2000s emerged as a response to the shift towards a constructivist educational paradigm to move away from the dominant didactic content-focused approaches and a greater emphasis on design and TEL practice (Dalziel et al., 2016; Dobozy & Cameron, 2018). Consequently, it aimed to develop approaches for improving the quality of learning and teaching and supporting educators' design practice. To date, learning design research has primarily focused on the development of learning design tools, frameworks, and approaches to guide educators' informed design decision-making (Maina, Craft & Mor, 2015). Although these learning design tools and approaches can be useful, the present research focuses on design practice from a holistic perspective instead of examining how a specific tool or approach supports educators' work; this has been termed as 'learning design practice' or 'design for learning' (Dalziel et al., 2016). The term design for learning has been used in the present research context and is defined as a multi-layered, deliberate, and social process where

designers (educators, digital learning professionals or other actors with relevant expertise) transform 'ideas and knowledge into artefacts, products, or services with the goal of facilitating and supporting other people's learning' (Carvalho et al., 2019, p.3).

Based on this definition, design for learning is both a process of thinking, judging and decision-making and a product (Conole & Wills, 2013), as it leads to the creation of artifacts (an online learning environment in this study's context) to be used by students, educators and/or other university actors.

Design = Process + Product
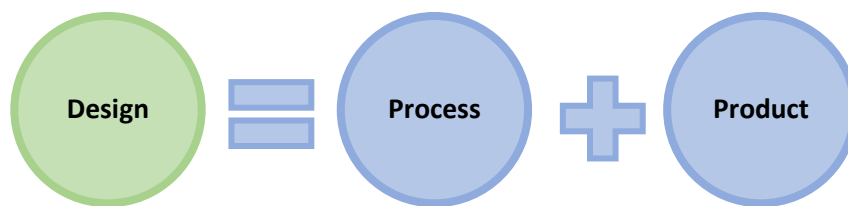
Figure 2.1: Design is both process and product

Design is about decision-making (Walker, 1971). Learning design decisions are defined as the corpus of choices regarding learning, teaching, and assessment made by HE educators and other actors involved. Learning design decisions should be made through deliberate processes involving reasoning, debate, and justification of choices by blending beliefs, information, and principles to overcome the limitations of mere verbal or symbolic arguments (Walker, 1971; Buchanan, 1992). In this research, learning design decisions are not examined from a strict 'decision-making' perspective which is a field of study that draws primarily from cognitive traditions (Borko, Roberts & Shavelson, 2008). The decision-making research field typically uses think-out-loud datasets and systematic observation approaches to analyse patterns in the ways decisions are made (Bearman et al., 2016). This research instead investigates design decisions in their wider context by acknowledging key actors' capacities to make decisions about online learning and teaching in a broader sense. This approach is, therefore, less reductive and not based on, for example, selecting branches of a decision tree to reach an optimal outcome, such as in healthcare or aviation sectors.

Design also has a pragmatic nature (Sharpe & Oliver, 2013). This means that design decisions may be based on practical challenges (e.g., large student numbers, resource availability) and requirements rather than on theoretical (e.g., principles, learning theories) or evidence-based

insights. For example, several studies by Goodyear (2020) and colleagues demonstrated how educators sometimes prioritise ergonomics and apprenticeship over pedagogy when designing hybrid learning spaces (Goodyear, 2020). This is not necessarily perceived as a weakness in the context of real-world constraints.

Design for learning also includes underlying assumptions about learning and teaching and directions on how learners should engage with their learning (Koh et al., 2015; Bearman, Lambert & O'Donnell, 2020). It is acknowledged that learning experiences cannot be wholly designed. Indeed, what students actually do might be different from what has been designed or was intended by the educators (Goodyear, 2015). Nevertheless, this observation does not take away educators' responsibility to create a robust and pedagogically sound learning environment in which learners can find themselves immersed and enabled to learn (*ibid.*). Finally, design for learning is *social* and given that this research is focused on collaborative design, an extended and complete definition and articulation is provided in section 2.5.

2.2.1   Design scope and process

The process of design for learning involves pedagogic thinking and decision-making which can have an important impact on student learning and experience. Overall, it is well-established that the design process is iterative (Manzini, 2015; McKenney et al., 2015). This means that educators-designers work back and forth between different design ideas and through cycles of development and refinement (Goodyear, Carvalho & Yeoman, 2021). Design's scope in education is, however, less clear and there is diversity in the terminology[2] used (Goodyear & Dimitriadis, 2013). Muñoz-Cristóbal et al. (2018) reviewed the design processes by key researchers and concluded that different lifecycles were proposed. Without an intention to provide an exhaustive list of approaches from the reviewed literature, a sample from researchers in the domain has been included in Table 2.1 below to demonstrate this diversity in both the terminology and lifecycle conceptualisations.

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[2] For example, 'instantiation' and 'assemble' are used to refer to the development of specific learning components (e.g., activities, videos). Terms including 'enactment and 'management' refer to the enactment of design and teaching facilitation during learning time.

Table 2.1: Design conceptualisations and lifecycle

Researchers	Design conceptualisation and lifecycle
Conole (2013)	vision, gather, assemble, run, evaluate, adapt (design scope)
Bennett, Agostinho & Lockyer (2017)	before, while, and after a unit is taught (design scope)
Muñoz-Cristóbal et al. (2018)	conceptualisation, authoring, implementation (design scope)
Koper & Tattersall (2005)	design-time, enactment-time (lifecycle)
McKenney & Visscher (2019)	design, enactment, evaluation (lifecycle)
Rodríguez Triana (2014)	design, instantiation, management, evaluation (lifecycle)
Villasclaras-Fernández et al. (2013)	design, instantiation, enactment, evaluation (lifecycle)

Based on the above works, this research conceptualised the broad teaching lifecycle where design is embedded, as follows:

- design: the in-advance pedagogic conceptualisation and the development of different learning components to compose an online learning environment,

- enactment and facilitation: student engagement with the designed activities and educator facilitation during learning time, and

- evaluation: reflection on practice and gathering of insights to inform redesign cycles.

The present research explicitly focuses on design; however, the above conceptualisation and terminology are used throughout this thesis, whenever applicable, to draw relationships and conclusions among these key activities within the lifecycle. As Goodyear (2015) asserted, design is more powerful when considered as the 'intelligent centre' of the whole teaching lifecycle and also includes insights gathered from all the activities to feed the subsequent cycle of design decisions (redesign).

There have also been several normative design models that attempt to define design scope and describe systematic design processes. For example, among others, ADDIE is a popular design process model which proposes five design phases: 1) analysis (e.g., student needs, review of existing resources), 2) design (use of tools for high level design), 3) development (final product/service/course), 4) implementation (student engagement with learning and teaching), and 5) evaluation. Although the ADDIE model and other similar models have been used as design guides in various contexts including education, they have been criticised as

being oversimplified versions of design practice and comprising isolated phases which cannot adequately represent the complexity of real-life learning design (Goodyear & Dimitriadis, 2013; McKenney et al., 2015).

When moving on from the broader scope of design to its more detailed processes, the use of outcome-based models in education, such as backward design (Wiggins, Wiggins & McTighe, 2005) and constructive alignment (Biggs & Tang, 2011), is widespread. These models conceptualise the desirable learning design process and qualities to guide educators' practice. They suggest that the learning design process must start from clearly defining the learning outcomes (what students should be able to demonstrate by the end of a period) and moving backwards through the design of assessment and learning activities. According to constructive alignment, designers should ensure that learning outcomes are neatly aligned with the learning activities (learning opportunities and supports for achieving the learning outcomes), and assessment (opportunities for learners to demonstrate whether and to what extent they achieved the learning outcomes). While scholars, such as Fung (2017), may recognise the internal logic of constructive alignment, they express their opposition to learning design that overemphasises narrowly pre-defined outcomes. This is because the outcome-based models imply a logic of consistency and rationality with a fixed end-goal in mind. This logic is closer to a conceptualisation of learning and teaching as a product (i.e. producing student competencies for the job market) (Annala, Lindén & Mäkinen, 2016), rather than as a process, which more contemporary educational thinking advocates (O'Neill, 2015). Learning as a process moves the narrow and pre-packed view of learning and teaching and considers students as co-creators who exercise agency over what to learn, based on their interests and needs (*ibid.*).

From an empirical perspective, there is currently a limited body that describes the naturalistic design processes of educators (Bennett, Agostinho & Lockyer, 2017) and university actors which can be different from processes described in normative frameworks. The existing studies suggest content-focused (or teacher-centred), learning-focused (or learner-centred), and top-down design processes, based on a sequential description of design approaches followed by educators. For example, Postareff & Lindblom-Ylänne (2008) who interviewed 71 Finnish HE educators across different disciplines reported two broad design approaches; a learning-focused and a content-focused approach. The former approach was described as starting from the identification of learner needs and their prior knowledge, while following a

flexible-to-adaptations design approach. To this end, it acknowledged students' agency in co-configuring learning (learning as a process). In the latter approach, educators' interests and knowledge formed the basis for design. The design process focused on content and was more prescribed (rigidly specified activities based on individual educators' experience) and, therefore, less flexible to change during enactment.

The qualitative interview-based studies by Bennett, Agostinho and Lockyer (2017) and Baldwin et al. (2018) added to these preliminary insights by revealing the adoption of a top-down design process by most of their participants. Bennett, Agostinho and Lockyer (2017) defined this as an approach starting from a broad view of the unit and moving towards the detailed specification of activities, assessment, and resources. Different starting processes were noticed between educators designing a new learning unit and those redesigning existing units. The former group started from learning outcomes, content and initial ideas on assessment and activities (backward design logic), while the latter adopted a concern-driven approach by focusing on the issues that triggered the unit's redesign. Detailed design of activities, content, and assessment and selection of resources and reading followed as a next step in both groups with multiple cycles of elaboration. To this end, the design process was conceptualised as being iterative, with design taking place before, during, and after the unit was taught. Although these studies and normative frameworks are informative and provide a good foundation on design scope and processes, they provide descriptions that are relatively simplistic (e.g., outcomes-based, binary distinction between teacher-centred and student-centred, stage-based design process). Therefore, studies are needed to demonstrate real-life complexities in design by focusing on deeper epistemic and social design processes.

2.2.2   Design habits of mind

This section provides a synthesis of key design processes and characteristics drawn from designerly ways of knowing (Cross, 2001, 2006) and design thinking literature (Razzouk & Shute, 2012). This section's goal is to build a more in-depth understanding of what design may entail as a theoretical basis for the present research. In the following sub-sections, I detail different design habits of mind and contextualise them in the education field (see Figure 2.2 for a visual representation of my synthesis of the reviewed literature).
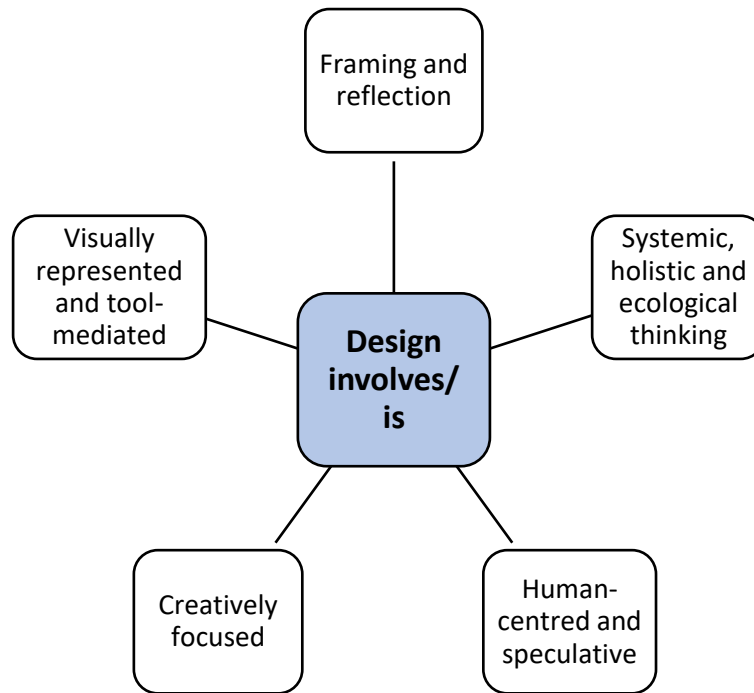
Figure 2.2: Design habits of mind

2.2.2.1   Framing and reflection

Design problems are seen as wicked and ill-defined and thus, they lack explicit definition (Cross, 2006). Emerging changes in the educational landscape including diverse students, technological advancement, and an uncertain future due to the pandemic and workplace changes make learning design challenging (Goodyear, 2022). Therefore, there are no immediate or straightforward solutions to designing for quality learning and teaching. Although many scholars describe design as a problem-solving activity (Luka, 2014; Koh et al., 2015; Matthews & Wrigley, 2017), others (McKenney et al., 2015; Svihla, 2021b) do not support this view, claiming that conventional problem-solving fails to consider complexity and focuses on well-defined problems with optimal solutions. Instead, the latter scholars' positioning is in line with Schön's (1983, 1984) proposed shift in thinking from problem-solving to problem-setting, which is known as framing.

Framing is considered a core process in the design literature and refers to the creation of a novel standpoint to tackle a challenging design problem (Dorst, 2011). It involves the creative analysis, structuring and(re)conceptualisation of the problem, placing it in context and setting its boundaries (Schön, 1983; Buchanan, 1992; Dorst, 2011). Framing aims to provide an understanding of what happens in the wider problem arena and allows the emergence of

themes for directing action, thereby broadening the existing system borders (Dorst, 2011). Framing can be triggered by surprises that fall beyond normal expectations (Stompff, Smulders & Henze, 2016) or the use of new tools and knowledge sharing among key actors working together (Cash & Gonçalves, 2017). It is seen as a constant state of mind where designers take ownership of the problem and engage in the construction of working principles, values, and visions (Donaldson & Smith, 2017). Framing may be particularly influential in novel design tasks such as those required for online learning that may require designers' reconceptualisation of teaching and learning.

During framing, designers move through iterative phases of thinking and doing, or reflection and action that are inseparable and aim to tackle live design problems as they unfold, the so-called reflection-in-action (Schön, 1983, 1987). Reflection-in-action is a highly influential theoretical construct which is applied in educational contexts to describe educators' inquiry process as a natural part of their practice (Cochran-Smith & Lytle, 1999; Michos, Hernández-Leo & Albó, 2018). Reflection-in-action involves internal and continuous thinking, interpretation, self-questioning, and sense-making of old and new situations during design in ways that would determine action-taking (Schön, 1987). Past experiences may hold new meanings or give rise to novel ideas and solutions related to the new context. Reflection-on-action was also developed by Schön to describe reflection on past experiences to realise what worked well or not and allow for an evaluation of the approaches taken in the past. It is therefore a retrospective, subjective process that may be challenging to articulate; however, it enables learning from the past to make better decisions in future situations (Lachheb & Boling, 2021). Both reflection-in-action and reflection-on-action are central constructs to this work.

2.2.2.2 Systemic, holistic, and ecological thinking

Design is systemic and holistic (Razzouk & Shute, 2012; Nelson & Stolterman, 2014; Luka, 2014). Therefore, it is suggested that designers should treat design problems as system problems (Razzuk & Shute, 2012). They should be able to keep the big picture in mind while working on specific aspects to generate holistic solutions that are related to the larger systems in which the designs are embedded (*ibid.*). The holistic character of design has been articulated by Nelson and Stolterman, 2014 as 'a complex ensemble of relations, connections, and an underlying unifying force or principle — that causes things to stand together — that when taken together results in emergent qualities' (p.93). Emphasis is placed on building a

relationship among individual parts to compose a whole (Hutchins, 1991) which is greater than distinct standalone parts (e.g., in learning design this can be an activity, videos, resources).

Systemic and holistic design approaches have been overlooked in learning design, particularly in empirical works (McDonald, 2021). A few exploratory studies on educator design have shown that their approach is often less holistic and systematic compared to professional designers (Bennett, Lockyer & Agostinho, 2017). This may partly be due to their difficulty in talking about design explicitly, but also, due to challenges in bringing macro, meso and micro[3] elements of learning design together into a cohesive design process (Carvalho & Goodyear, 2018).

Systemic and holistic thinking and the accompanying ideas of connectivity, relationships, and interdependence between design elements align with the educational conceptualisations of ecologies of learning and practice (Barnett & Jackson, 2020). These conceptualisations have received increasing attention in the broader education field over recent years and particularly more recently (e.g., books dedicated to ecological constructs: Ellis and Goodyear, 2019; Barnett & Jackson, 2020; Railean, 2019, and Luckin, 2010 with the ecologies of resources model). Etymologically, the word ecology comes from the two Greek terms 'oikos', which means 'house', and 'logia', which means 'the study of'. The ecological idea originates from the biological sciences and deals with the interactions and relationships of organisms with one another and their environment as well as the necessary conditions to sustain life (Ostroumov, 2002). Analogously, ecological thinking in education proposes that learning environments and their inhabitants (e.g., students, educators, networks) are interconnected and form complex systems of interactions to enable learning. An ecological thinking approach also draws attention to the potential fragility that may disrupt a system alongside its adaptive and collective nature that allows maintenance and development (Jackson, 2016).

In their recent book on ecologies of learning and practice, Barnett and Jackson (2020) point to two interrelated directions that are relevant to the present research. The first focuses on educators' efforts to create ecologies of learning and practice to enable students' learning. In this respect, ecological thinking encourages a holistic consideration and combination of interrelated elements that have been visualised through the development of a heuristic (see works of Jackson, 2016, 2020). These elements are contexts, purpose, affordances, resources,

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[3] Macro level refers to degree-level or wider context (global, university, community), meso refers to module-level and actors involved in it (e.g., educators, students, professional staff) micro to individual activity level learning design.

spaces, places, relationships, and processes. The designers' role is to connect and integrate these elements in new and meaningful ways to achieve something that their individual parts cannot achieve alone (Barnett & Jackson, 2020). Regarding the nature of designers' decisions, learning ecologies suggest that students continuously learn:

- in a variety of spaces and contexts (physical, virtual, formal, informal, psychological, liminal and within cultural, historical, and emerging social contexts),

- with people (peers, educators, communities, other social structures, and stakeholders)

- using various resources (tools, artefacts, knowledge, ideas), and

- by being engaged in different activities and processes (e.g., research, making, inquiry and project-based learning).

Ecologies of learning and practice also advocate for the blurring of boundaries between different sites of learning that have previously been seen as dichotomies, such as informal and formal learning, virtual and physical spaces and organise activities that are part deliberate and part opportunistic (Barnett & Jackson, 2020). It is also increasingly recognised that learners must be empowered to be the co-architects of their learning (Barab et al., 2020) and organically create their own learning ecologies to achieve their personal goals (*ibid.*). Therefore, ecological thinking focuses on the relationships and interactions between learners and their learning contexts in a broad and more inclusive sense by embodying notions of life and growth.

The second focus of ecological thinking is seen from an 'ecosystem' perspective to demonstrate the different levels of organisation, actors, and their interdependencies in a university setting where educators and/or interdisciplinary teams may be enabled to create ecologies for students' learning (Jackson, 2020). Such an emphasis on key actors' work within their university and wider systems is further elaborated in section 2.5 and Chapter 3.

2.2.2.3   Human-centred and speculative design

Design is human-centred and designers must continually consider how to address the needs and experiences of their target group(s) (Razzuk & Shute, 2012). In design, being empathetic refers to the exploration, envisioning, and translation of users' concerns, feelings, and motivations to generate actionable insights for human-centred decisions (Razzouk & Shute, 2012; Baran & Alzoubi, 2020). Human-centred design also includes the consideration of previous experience with students (e.g., discussions with students, behavioural observations) and ethical imagination of their potential actions (Costanza-Chock, 2020). However, it is equally

significant to acknowledge limits to 'knowing' others' (students) perspectives (Heylighen & Dong, 2019). The latter point is in line with Ross and Collier's (2016) suggestion to adopt speculative design methods. With this approach, they invite designers to embrace mess and not-yetness due to the complex and indirect nature of design (Ross & Collier, 2016). This is the case when designing new learning environments in which successful and less successful approaches may not be known yet and thus, there is uncertainty. To this end, Ross and Collier (2016) suggested perceiving student activity as emerging giving rise to a responsible, reflexive, and open-ended mindset where design is under continuous scrutiny.

2.2.2.4 Creatively-focused

Design involves creative thinking which is defined as designers' ability to generate original and novel ideas and solutions that are often subjective and context-specific depending on the individual's or team's prior practices (Dorst & Cross, 2001; Nelson & Stolterman, 2014). Creativity is related to brainstorming and ideating processes (*ibid.*). It is an organic part of design instead of a planned action and involves risk-taking to move away from the status quo and bring about change. It involves divergent thinking by seeking multiple potential solutions that are inspired by analogical thinking, the use of metaphors and/or the creation of innovative perspectives conceptualised during framing (Cross, 2018). However, creativity may be hindered by design fixation, an unconscious psychological phenomenon where a specific solution is highly prominent, thereby preventing the designer from thinking of other original solutions (Jansson & Smith, 1991; Cross, 2018). For example, in HE, educators' assumptions linked with disciplinary and/or teaching traditions can make solutions look self-evident (Goodyear, 2015). That is why co-designing with interdisciplinary stakeholders can potentially promote the exchange of diverse ideas and argumentation and lead to creative solutions (Nelson & Stolterman, 2014).

2.2.2.5 Visually represented and tool-mediated

The ability to visualise work and to systematically develop and document ideas, from abstract to concrete, are key skills of designers (Cross, 2006; Razzuk & Shute, 2012). The use of visual representations and tools (e.g., mapping and diagrammatic representations, sketches, models, prototypes) can guide and advance designers' thinking while they manage complexity (Manzini, 2015). Visual representations can act as external stimuli and resources that may reduce designers' cognitive load during design thinking (Koh et al., 2015).

By following the success and key role of tools and visualisations from other design professions, the learning design community developed a wealth of LD representation tools, models, and approaches to support educators in conceptualising, enacting and repurposing designs to facilitate innovation in learning and teaching (Bower & Vlachopoulos, 2018; Pozzi et al., 2020). Nonetheless their use has been limited or without having a significant impact on the in-situ design practice of educators in HE (*ibid.*). Some of them may focus on the design process, while others on the design product (McKenney et al., 2015), or a combination. Examples[4] include, the ABC learning design (Young & Perović, 2016), Carpe Diem Learning Design model (Salmon & Wright, 2014), and the Integrated Learning Design Environment (Hernández-Leo et al., 2018). For example, the ABC learning design, developed at University College London (UCL) by Young and Perovic (2016), encourages a hands-on, creative, and collaborative approach to learning design. Specifically, design teams work together to create a visual storyboard representing their learning and teaching by using a set of cards. These cards are based on Laurillard's conversational framework (see page 48) and represent different types of learning (acquisition, collaboration, discussion, investigation, practice and production) that can be combined in different ways to represent the learning experience of a session, module, or course. Each card has a short description, some ideas/examples for inspiration, and is coloured differently to allow designers to evaluate the diversity of activities. The use of these cards during design can act as a visual and tool-mediated stimulus for team thinking, guidance, and discussion to enable informed design decisions.

It is important to note that the design habits of mind introduced in this section should be considered in combination to create an optimal thinking and decision-making environment. Indeed, designers' imagination, reflections, and holistic thinking during design are valuable for the consideration of real-world limitations and educational enhancement while, systematic and visually represented approaches are important for coherence and quality assurance (McKenney et al., 2015).

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[4] Earlier efforts include the Educational Language Modelling (EML) (Koper et al., 2004) and the Learning Activity Management System (LAMS) (Dalziel, 2003). More recent examples include the OULDI (OU Learning Design Initiative) (Cross et al., 2012), Course Map (Conole, 2012), 4Ts model (Pozzi & Persico, 2013), Persona Cards (Chacón-Pérez, Hernández-Leo, Mor, & Asensio-Pérez, 2015), the Learning Design Studio (Law et al., 2017), the scaffolded TPACK LD model (Chai & Koh, 2017), the Learning Designer (Laurillard et al., 2018), the edCrumble (Albó & Hernández-Leo, 2018).

2.2.3 Educators as online learning designers: knowledge, skills, and competencies

Educators have been conceptualised as designers (Laurillard, 2012; McKenney et al., 2015; Persico et al., 2018) to emphasise design as a key part of their roles. Nevertheless, many educators, including those who are highly experienced teachers, can be considered novices in online learning design and experience challenges (McKenney et al., 2015; Huizinga, Nieveen & Handelzalts, 2019). This section presents conceptualisations on knowledge, skills, and competencies that educators require to productively engage in design and quality teaching.

One well-established framework is the Technological, Pedagogical, Content Knowledge (TPACK) framework, developed by Mishra and Koehler (2006). TPACK describes the integrative and transformative knowledge that educators should have to effectively integrate technology in learning and teaching (Koehler et al., 2014). Koehler and Mishra (2009) argued that effective TEL design requires an understanding of the relationships between the three primary forms of knowledge – Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) – as well as their interplay and intersections rather than having knowledge on isolated components (Figure 2.3).
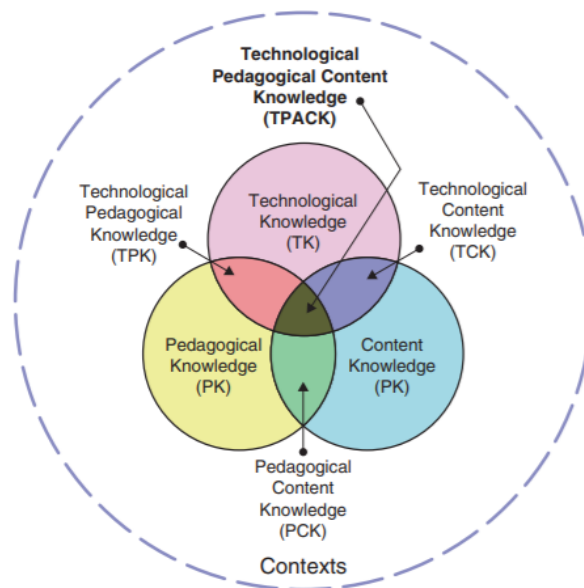
*Figure 2.3: TPACK framework (*Koehler & Mishra, 2009*, source:* http://tpack.org*)*

Although TPACK provides a good grounding on educator knowledge, it appears to perceive design as a given without including any related skills that educators need to develop for productively engaging in design. The importance of design knowledge has been emphasised by researchers including Huizinga (2014), McKenney et al. (2015), Dobozy and Cameron (2018)

and Persico, Pozzi and Goodyear (2018). For example, Persico and colleagues highlighted the need for educators to develop an LD mindset. In their conceptualisation, they suggested an LD mindset to encompass educators' ability to: 1) use design tools and approaches to make informed decisions, 2) mobilise the potential of learning technologies to enhance learning and teaching, and 3) build on and get inspiration from community-based knowledge. Community exchanges, sharing of practice, and the use of visual tools lie at the core of the LD field. These foci on educator knowledge are important as educators usually do not have a learning design mindset and associated epistemic resources (Asensio-Pérez et al., 2017) and therefore, further support may be required to develop those.

McKenney et al. (2015) introduced the ecological framework, which offers a more rounded view on educators' design knowledge than the works cited above. It combines areas discussed in previous sections about design habits of mind, including systemic design approaches, use of tools, creative and reflective thinking, framing, the need for deliberate decisions, and contextual considerations. It also added the dimension of accessing relevant expertise to enhance knowledge and practice as per the design task needs. The ecological framework's key domains are summarised below based on McKenney et al. (2015).

- **Know-what**: Educator fundamental knowledge base for TEL design. Knowledge of design thinking processes and what tools and models to use in a given situation.
- **Know why:** Educator productive beliefs; articulated principles and experience-based wisdom when making decisions. The underpinning of design decisions.
- **Know how:** Educator repertoire for action. This includes knowledge about how healthy design processes proceed, their own design schemas develop, and their available TPACK knowledge is used and influences their pedagogic design capacity.
- **Know when:** Educator tacit and reflective ability to judge which ideas, processes and activities are more suitable for adoption in different contexts and with certain people.
- **Know who:** Educator awareness for consulting relevant expertise to guide them on the design process, design product, and underpinning of decisions in specific contexts.
- **Know where:** Educator ability to understand design work in its local and broader system contexts. This includes awareness regarding locally relevant policies and frameworks, influences of leaders and colleagues on values and goals, and scale of design work.

A focus on the social nature of design was highlighted more explicitly by Huizinga (2014) who, in addition to TPACK and design process components, proposed interpersonal skills as increasingly important for educators' ability to make collective design decisions. This not only includes collaboration and exchanges with colleagues from the same discipline or department but also with a variety of other interdisciplinary stakeholders. Indeed, designers' affinity for teamwork in design is well documented in the design literature (Razzuk & Shute, 2012). The social context of design, with the knowledge brought by interdisciplinary partners and its impact on design and educators' development, is examined in section 2.5. In summary, although the reviewed conceptualisations on educator knowledge and skills for productive engagement with design emphasise different aspects, by bringing them together, they can provide a stronger conceptual grounding for this research. Such a grounding includes an LD mindset (process, tools), individual's knowledge (TPACK) and consciousness (reflection, deliberation), and the ability to collaborate with colleagues and multidisciplinary stakeholders as key areas for educators to be able to perform their role as designers competently.

2.3 Design as a product: online pedagogy

Thus far, this literature review has focused on the scope of design, the productive habits of mind embodied in the processes of designing, and the knowledge, skills, and competencies of educators as designers. As defined above, design is both a process and a product (section 2.2); this section focuses on design as a product. In this thesis, the design product is operationalised by focusing primarily on designers' conceptions and their resulting decisions related to online pedagogy going beyond its material dimension (i.e. an online module artifact produced as a result of the design process). Online pedagogical thinking can be viewed as both the motivator and the problem space for the key HE actors' participation in online learning design. This thesis posits that when researching online learning design, it is important to capture not only the design processes and the knowledge and skills of those involved (process and people), but also their pedagogical thinking to build a rounded understanding.

Pedagogy in this thesis is defined as 'any conscious activity by one person designed to enhance learning in another' (Watkins & Mortimore, 1999, p.3). It focuses on the relationship between teaching, learning, and assessment, which are inseparable from each other (Loughran, 2013). It bridges theoretical assumptions on how people learn and practice. Pedagogy is seen as a

lifelong project that starts from school education, progresses into university, and is ongoing throughout one's life. The term 'online pedagogy' in this thesis has been used to locate pedagogy in the online learning context and reflect an evolving digital culture (Bayne, 2004). Online learning opportunities should be designed by purposefully, creatively, and critically interconnecting digital technologies with learning and teaching activities that have a sound rationale. To provide grounds for online pedagogy, this section presents an overview of relevant learning theories and frameworks alongside insights from empirical studies[5].

2.3.1 Theoretical foundations

Understanding how humans learn should be the starting point of any design activity (Crook & Sutherland, 2017). Various learning theories have been developed and inspired practice over the years; some have been generated more recently, as our understanding has evolved. Behaviourism, one of the oldest theories espoused by key thinkers such as Watson,Pavlov, and Skinner, supports teacher-centred approaches focusing on shaping behaviour through repetition, reward and punishment to achieve desired actions (Burton, Moore & Magliaro, 2004; Mayes, 2020). Learners are perceived as passive recipients of information provided by knowledgeable educators who are the only authority figures (Anderson & Dron, 2011). The provision of instant feedback (Skinner, 1968) through 'teaching machines' (i.e. e-assessment tools) is a key aspect widely used in online teaching to reinforce students' actions positively or negatively. Behaviourism has been criticised by educationalists for encouraging positivistic and reductive approaches to learning and teaching (Crook & Sutherland, 2017), and focusing on constantly testing knowledge. Nevertheless, it still has application in educational practice.

Constructivism and cognitive theory, while similar to behaviourism, support individualised learning approaches; they shift the focus to internal human cognition (rather than external conditions) and confer an active role to students (Crook & Sutherland, 2017). Constructivism is based on Piaget's developmental psychology and Bruner's educational applications with an emphasis on knowledge construction through ongoing processes of exploration, problem-solving, and mastering autonomy (Savery & Duffy, 1995). Cognitive theory perceives learners as 'information processing systems' (Miller, 1956) with prior knowledge organised in

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[5] Section 2.3.1 combines theoretical foundations based on mainstream literature (applicable to any learning mode) with frameworks and ways of thinking specifically developed for online learning and/or TEL. Regarding section 2.3.2 (empirical perspectives), given the abundance of literature on pedagogy and its varied contexts, the selected studies focus on pedagogic practices in online learning as the domain of this thesis. However, it is acknowledged that the outlined practices may apply to the wider TEL pedagogy domain.

'schemata'. It is through conscious and reflective actions that the learners adapt their existing 'schemata' to fit new information or create new ones to cope with new learning situations (Mayer, 1996). Cognitive theory has been highly influential and inspired the design of simulations and intelligent tutoring systems. Based on cognitive load theories, Richard Mayer introduced multimedia learning principles (e.g., signalling, segmenting, coherence) (Mayer & Mayer, 2005) and Kelley and Whatson (2013) introduced the principle of spaced learning, which have both been used as foundations in online learning design for the creation of meaningful media and organisation structures.

A shift in attention from the individual to the social and relational nature of learning was marked by the emergence of social constructivism and socio-cultural theories, inspired by the work of Vygotsky and Dewey. Both theories perceive learning as a social experience that arises as a result of context-dependent interactions among learners, between learners and educators and their environment (Cole & Wertsch, 1996). Collaborative and project-based learning are typical examples of activities where learners co-construct knowledge and develop shared outputs through ideas exchange, negotiations, knowledge integration, and co-decision.

Socio-cultural learning theories (e.g., situated action by Suchman (1987); distributed cognition by Hutchins (1991); cultural-historical activity theory by Engeström, (1987)) extended social constructivism to include culture and representation systems with the goal to further support knowledge construction. Proponents of these theories posit that communication, thinking, and learning activities are shaped by culture (Säljö, 1999). Mediating tools, such as language and digital technologies have an influential power in structuring learning activities and supporting students' meaningful learning and social interactions (*ibid.*). Lave and Wenger introduced communities of practice that added interesting dimensions to the situated and participatory conception of learning and focused on apprenticeship learning (Lave & Wenger, 1991). The formation of communities of practice for domain-specific, informal, and collective meaning-making is also important in online learning (Gunawardena et al., 2009) as students may feel isolated and lack a sense of belonging (Peacock et al., 2020). Importantly, these theories positioned educators from authoritative figures to facilitators of learning, which has been a highly influential shift in contemporary education (Crook & Sutherland, 2017).

Following these earlier theories, Siemens and Downs introduced connectivism in 2005 to bring fresh perspectives on how learning occurs in a digital age. Connectivism asserts that learning

is dynamic and emergent and that knowledge rests in diversity of opinions and is distributed across networks (Siemens, 2005). Learners are perceived as self-organised seekers of opportunities to develop new experiences (Downes, 2012) by connecting and critically evaluating specialised and distributed information sets (e.g., people, digital artefacts, and content) that matter for their learning (Siemens, 2005). Continuous learning is facilitated through the maintenance and nurturing of networked connections. Connectivism suggests that problem-solving and mental processing can, and should be, off-loaded to machines (*ibid.*) and therefore, it rejects the recall of information (as in behaviourism) whilst highlighting the role of non-human agents.

Undoubtedly, connectivism added new perspectives that challenge earlier conceptions about learning and teaching, and takes advantage of the affordances of digital technologies and open publishing (Bell, 2011). However, it is not without its criticisms and has been characterised as ubiquitous (Anderson & Dron, 2011). Although a shift in power dynamics between learners and educators is observed, the role of the educator is not clearly defined (Kop & Hill, 2008; Garcia et al., 2015). In this context, educators appear to have less influence on the learning process which is now primarily dependent on learners' maturity, drive, and experience in using knowledge from their networks. The lack of structure and direction in online learning might lead to learners' disengagement as online learners typically come from different cultures, and educational systems with different values and levels of autonomy (Anderson & Dron, 2011). Therefore, a scaffolded learning environment may be considered more suitable to account for these differences.

Each grand learning theory comes with principles and assumptions which, taken together and by considering the purpose of a given learning context, can contribute to a comprehensive understanding of what it takes to learn (Laurillard, 2012; Mayer, 2020). Notably, based on these foundational theories, multiple theoretical frameworks (e.g., Community of Inquiry, Conversational framework, Connected Curriculum) and good practice principles for online learning, have been introduced by scholars (e.g. Chickering & Ehrmann, 1996; Miller, 2014; Margaryan et al., 2015). These frameworks have been developed to convey principles in a more accessible way for the key HE actors, to inform their practice. In their majority, these frameworks advocate active, collaborative and problem-based learning, the provision of prompt feedback, respecting students' diverse needs, and the establishment of good

relationships. For example, Laurillard's Conversational framework (2002, 2012) is a theory-informed framework developed when technology was emerging to describe learning and teaching as a cyclic process that involves interactions between educators, students, and the learning environment. A key contribution of Laurillard's work is the introduction of six learning types – learning through acquisition, inquiry, collaboration, discussion, practice, and production – which act as building blocks for creating the student learning experience. A rich learning experience is conceptualised as one where educators use all these six learning types by making purposeful combinations along with the selection of suitable digital technologies in their designs. Each of these learning types is presented in Table 2.2 along with indicative examples of learning activities and their theoretical foundations.

Table 2.2: Laurillard's (2012) learning types based on the Conversational framework

Activity type	Activity examples	Theoretical foundations examples
Acquisition	Watching a video, listening to a podcast that explains key subject-matter concepts, reading from books and OERs.	Behaviourism (transmission of knowledge) and cognitive theory (design & selection of multimedia).
Inquiry	Exploring, comparing and critiqying ideas. The use of organising and analytical digital tools may enhance meaning-making.	Constructivism (inquiry and problem-based learning), cognitive theory, community of practice.
Collaboration	Participating in collaborative activities and aiming to produce a shared output. Social media, presentation and brainstorming tools may be used.	Social constructivism, socio-cultural learning theory, community of practice.
Discussion	Content-specific discussions for externalising thinking and receiving peer/educator feedback through email, in online seminars, and discussion boards.	Social constructivism, socio-cultural learning theories.
Practice	Practicing learning via engagement with quizzes, problem-solving in virtual/mixed reality environments, lab work.	Constructivism, cognitive theory (e.g., design of simulation environments), behaviourism (instant feedback), community of practice.
Production	Producing artifacts to consolidate, assess, and receive feedback on learning- e.g., production of a video, creation of an online portfolio with smaller projects.	(Social) constructivism, socio-cultural learning theory, community of practice, cognitive theory, behaviourism.

The Community of Inquiry framework is another very well-known framework developed to conceptualise good practices on online and blended learning inspired by social constructivism (Anderson et al., 2001). It proposes a process for creating meaningful learning through the

development of the interdependent elements of social, cognitive, and teaching presence. Specifically, social presence is defined as the ability of learners to socially interact and build on each others' ideas and be members of learning communities (Garrison, Anderson & Archer, 2010). Cognitive presence concerns knowledge construction through sustained reflection. In an online context, this involves the design of activities that require student exploration, critical thinking, and application (Garrison, Anderson & Archer, 2001). Finally, teaching presence involves educators' careful design and course organisation, facilitation, and guidance on the social and cognitive processes for learners' engagement (*ibid.*). These interdependent elements of social, cognitive, and teaching presence have been widely used as guides for design but also in empirical research for the analysis and evaluation of the quality of online learning and teaching. (e.g., Stenbom, 2018; Castellanos-Reyes, 2020).

2.3.1.1 Moving towards postdigital perspectives

In more recent years, and after the inception of this research, a shift towards a postdigital perspective in education has emerged. This turn was clearly marked with the 'Postdigital Science and Education' journal (first issue published in April 2019) dedicated to creating a scholarly community with an explicit focus on postdigital conceptualisations. As the term 'postdigital' denotes, digital is no longer viewed as new, due to its widespread use in different domains across the world (Macgilchrist, 2021). The digital space is, however, still worthy of attention whilst recognising its ubiquity (Sinclair & Hayes, 2019). It invites the adoption of a more mature stance to educational practice. A stance that moves away from earlier narratives around the use of technology to supplement learning and teaching, or the technological innovation and determinism (Dafoe, 2015) to online education that may be overoptimistic on the role of technology for learning and teaching. As argued by Ball and Savin-Baden (2022), the postdigital focuses on uncovering the disruptive and liminal spaces of learning and teaching, and calls for a 'critical inquiry into the state of the digital world that is characterized by its ungraspability'.

Specifically, a postdigital perspective suggests that online experiences should not be seen as disembodied and detached from the physical and material; rather, they involve co-presence and an inextricable link between the digital and the physical and material (Gourlay, 2021). As Goodyear (2021) argued in a blogpost, learning does not happen online, but happens where the learner is. To this end, a postdigital positioning avoids sharp binaries, such as between

online and offline/on-campus, virtual and physical, technological, and human, old and new media, digital and analogue, and biological and informational (Fawns, 2019; Macgilchrist, 2021). It proposes that education can never be fully online or fully in-person. Every design and teaching scenario, no matter how it is conceptualised (e.g., online, blended, hybrid, on-campus), should explicitly and thoroughly consider hybrids of digital and non-digital, material, social and biological (Jandrić et al., 2018; Fawns, 2019). It is aligned with ecological thinking (see section 2.2.2.2) and encapsulates complex entanglements between these various components that are important in educational practice.

Vivid examples that support postdigital perspectives can be found in the context of COVID-19 online teaching from both the educator and learner perspectives (e.g., Gourlay, 2020; Wardak, Vallis & Bryant, 2022). A study by Gourlay (2020) on the changes of educators' practices during homeworking provided critical accounts of arrangements (personal, private, professional, mental) and repurposing of spaces, devices, furniture, and other materials used. For instance, educators reconfigured their living spaces, such as the bedside table into a miniature desk and the use of a professional background to perform their online teaching responsibilities. This improvisation led to new combinations of the material, social, mental, and space domains. The same research also provided insights into educators' professional, verbal, and embodied performance to enact their roles in an online learning context. For example, video calls were significantly increased in educators' daily routines and several of them shared that they had to perform a particular type of identity in these calls, outwards via the screen. This reveals the complex assemblages of human and non-human actors and the relationships between material, spatial and human in digitally mediated practices which are essential to consider in any learning and teaching scenario beyond modality characterisations and dichotomies.

2.3.2 Empirical perspectives

This section moves the focus to empirical studies regarding educators' pedagogic approaches during their transition to online learning. Most of the studies to date (COVID-19 research has been excluded) have drawn on experienced and/or award-winning educators' practices as an attempt to provide empirical guidelines on what good practice looks like (e.g., Bailey & Card, 2009; Baran et al., 2013; Kumar et al., 2019; Martin et al., 2019). Their overarching assumption was that designing for online learning, and teaching online is not the same as on-campus teaching and learning and involves considerable adjustments. It is experienced as a learning

curve for educators, particularly for those new to this medium (Kebritchi, Lipschuetz & Santiague, 2017; Kilgour et al., 2019; Shé et al., 2019). Key findings of the reviewed literature are thematically presented below.

2.3.2.1 Structuring learning and being consistent

Studies have shown that when educators moved to online learning and teaching they focused on creating a thorough online course structure (Major, 2010; Baran, Correia & Thompson, 2013; Kearns, 2016; Colak, 2018; Martin et al., 2019; Caskurlu et al., 2021). They shifted from spontaneous, organic, and less structured teaching to carefully organised sequences of activities and content. This more structured approach to online learning by educators contributed to reimagining their teaching by introducing new activities and making different combinations of social, teaching, and cognitive learning aspects. Chunking the content into smaller units and creating short videos was a common practice of experienced online educators (Colak, 2018; Kumar et al., 2019). Consistency through adopting a set online course structure for students' easier navigation and familiarisation with the learning process was reported as important to compensate for the educators' lack of physical presence and the lack of incidental continuous feedback from student visual cues (Colak, 2018; Baldwin, Ching & Friesen, 2018). However, studies have indicated a tension between structure and flexibility (Major, 2010; Baran, Correia & Thompson, 2013; Kumar et al., 2019). For example, in a study by Baran et al., (2013), although all the interviewed educators valued structure, half of them preferred a more flexible approach that allowed them to adjust their structure and add activities 'on the go' depending on students' needs.

2.3.2.2 Designing online learning activities

In HE, there has been a widespread boost of active learning for student engagement with deeper and more meaningful learning processes, while its benefits for student learning have been documented (Freeman et al., 2014; Pilkington, 2018). Active learning refers to instructional activities involving students in problem solving, discussions and reflection, rather than passively listening to an expert (Bonwell & Eison, 1991). The examined empirical studies demonstrated that the transition to online learning motivated educators, particularly those with traditional, lecture-style prior experience, to create various activities for student engagement (Chittur, 2018; Colak, 2018). For example, a qualitative study by Baran et al. (2013) revealed that the experienced online educators included in their study designed a range

of activities such as quizzes, collaborative projects, and structured online learning discussions to promote active learning and increase social interaction among students.

The inclusion of real-world and job-related activities within the active learning structures was seen by educators as important, as they provide authentic learning experiences and allow risk-taking in low stakes environments (Chittur, 2018; Kumar et al., 2019; Martin et al., 2019). For instance, in her study, Chittur (2018) offered several examples drawn from those participants (educators and learning designers) who designed project-based activities, the outputs of which could be used by real-world audiences or resembled real-world professional practice. A pair of participants also described asking students to create their own company and learn accounting practices while managing their company with scenarios and information provided by the educator. Kumar et al.'s study also reported educators' efforts to design opportunities for students to take control of their own learning by creating digital content (e.g., digital stories, resources for professional use), engaging in peer reviews, and working on projects with students from other universities (Kumar et al., 2019). Overall, the reviewed studies revealed a range of learner-centred approaches where students had an active role, and educators were responsible for the design of scaffolded online learning environments.

2.3.2.3   Designing online assessments

In recent years, increasing focus has been placed on how to transform assessment to be better aligned with diverse students' needs while taking advantage of digital technologies (Elkington, 2020). The concept of *assessment for learning* has attracted attention as it aims to promote students' learning and does not solely assess it for accountability purposes (Wiliam, 2011). It typically involves feedback cycles and requires students to take action, thereby allowing improvements and development of ownership over their learning (*ibid.*). Examples of assessments that promote learning include patchwork portfolio-based assessments that encourage in-between feedback provision, co-construction of assessments and marking criteria with students, peer assessment (Conrad & Openo, 2018; Bearman, 2020) and assessments that consider the degree experience holistically (Jessop, El Hakim & Gibbs, 2014).

Notably, traditional assessment methods (*assessment of learning*) such as exams and essays are still dominant and several educators are resistant to change (Bearman et al., 2020). This is mirrored in the online learning literature, as assessment appears to be the least developed component in educators' learning design (e.g., Scagnoli et al., 2009; Hatzipanagos & Tait,

2019), with educators often transferring traditional methods from their on-campus teaching to the online medium. Only a minority of participants reported changes towards more diverse and new assessment forms. For example, in a study by Martin et al. (2019), participants combined various assessment methods such as peer and rubric-based assessment, quizzes and projects. Overall, the careful design of assessment is key to enhancing student learning; however, educators may need support to rethink their existing practice.

2.3.2.4 *Fostering student-educator relationship and ensuring teacher presence*

Educator presence through regular interaction, prompt feedback provision, and formation of positive working relationships with students are regarded as significant success factors for online learning (Chickering & Ehrmann, 1996; Margaryan, Bianco & Littlejohn, 2015). Educator presence refers to rounded support, including academic and non-academic matters; this in turn appears to be critical in ensuring student retention and addresses potential issues of isolation that may emerge in online learning environments (Martin et al., 2019). In several studies, educators employed both synchronous and asynchronous strategies to increase their presence and guide their students' learning (e.g. Baran, Correia & Thomson, 2013; Baldwin, 2019; Martin et al., 2019). For example, they designed synchronous online sessions and included whole class and group-level activities to energise students' learning and build interpersonal relationships (Baran, Correia & Thomson, 2013; Cohran, 2015). Setting up online office hours to encourage one-to-one communication and address students individual needs has also been reported as a common strategy (Baran, Correia & Thomson, 2013; Cohran, 2015; Colak, 2018;). Further mechanisms for supporting learning were educator participation in online discussions for timely feedback and posting announcements to direct student attention (Bailey & Card, 2009; Martin et al., 2019).

The use of more indirect techniques for the creation of a positive, intimate, and friendly learning atmosphere has also been reported as key. For example, educators in studies by Baldwin (2019) and Baran, Correia & Thomson (2013) highlighted the use of videos with educator presence (i.e. the lecturer appears in full screen or in a video window embedded in an expository background) so that students can make a personal connection between tutor and content, and their learning experience. The use of invitational and welcoming language in text-based communications is also regarded as important for building rapport (Bailey & Card, 2009). Although the visibility of face and synchronicity in time are still prevalent and

considered as replications of on-campus exchanges, educator presence can take different forms, which, as encouraged by Bayne et al. (2020), requires rethinking by the key HE actors.

Despite the above insights from studies drawing mainly from experienced educators, other studies have shown that educators with less experience or support may simply replicate on-campus practices (Saltmarsh & Sutherland-Smith, 2010; Baldwin, 2019). Nevertheless, online learning should not be viewed merely as a deviation from the 'real' on-campus learning experience. As Bayne et al. (2020) highlighted in their latest Manifesto for teaching online, 'digital education reshapes its subjects' (p. 146) and should be viewed on its own merits.

2.4   Factors influencing design decisions

Design for online learning is a multifaceted activity that is influenced by a variety of factors. The investigation of factors that shape key actors' design decision-making is a significant area as it can reveal the rationale behind their practice and help identify their needs and challenges for further support. This section provides a review of relevant studies that focus on this subject. As it can be seen from the selected studies in Table 2.3, there is a degree of overlap between the identified factors. The central themes that emerged from close examination include: 1) educator-related factors, 2) student-related factors, 3) learning theories, frameworks, and research, 4) colleagues and communities, and 5) institutional factors. These factors are discussed below along with complementary points derived from other relevant studies.

Table 2.3: Empirical studies on factors that influence design decisions in online and blended learning

Study	Factors identified	Context	Methodology and Participants
Mahon (2014)	• Educators' capacity and intentions • Student-centred factors • Collaboration with colleagues and community • Research and scholarly activity • Institutional factors: policies, over-regulation and standardisation.	• On-campus/ online/ blended learning • Australia	• Interviews, observations & reflections • 7 educators • 1 university
Bradey (2014)	• Educator beliefs, experiences, perceived affordances of digital technologies • Student-centred factors • Contextual and social structure influences: workload issues, limited availability of expert support, institutional learning and teaching culture, policies.	• Blended/online learning • Australia	• Interviews (individual & group), observations, document analysis • 4 experienced educators • 1 university
Bennett, Agostinho and Lockyer (2015)	• Educator-focused: beliefs, prior experience, receptivity to new ideas, learning theories • Student-centred factors • Contextual factors: collegial relationships, online learning as different, institutional rules, workload.	• On-campus/ blended/ online learning • Australia	• Interviews • 30 educators (27 experienced/mid-career, 3 novices) • Different universities

Lichoro (2015)	• Educators' preparedness for online learning • Online student characteristics • Time and level of effort • Institutional support and availability of resources (e.g., partnership with learning technology support professionals, learning designers).	• Online learning • US	• Interviews • 8 educators • 4 universities
Agostinho, Lockyer and Bennett (2018)	• Colleagues (spontaneous/deliberate interactions) • Literature, workshops, online resources, formal training, attendance of conferences • Institutional support.	• On-campus/ blended/ online learning • Australia	• Interviews • 30 educators • Different universities
Hulett (2018)	• Educator experiences, preferences, beliefs, skills, pedagogical orientations • Need for training in online learning • Institutional context: student number, spirit of collaboration and sharing within departments, no sufficient provision of expert support.	• Online learning • US	• Interviews • 11 educators • 1 university
Masterman (2019) *Insights from collection of studies*	• Student-centred factors • Nature of disciplines (unclear impact) • Educational theories and frameworks • Research-informed teaching • Sociocultural context: formal/informal communities of practice, collaboration with interdisciplinary experts such as learning designers/ technologists.	• On-campus/ blended/ online learning • UK	• Mostly interview-based studies • Various roles • Different disciplines and universities
Nguyen, Rienties & Whitelock, (2020)	• LD process involving redesign and co-design • Developing study skills in LD • Workload as a key issue in LD • LD varied across modules & disciplines • Institutional factors: policies, strong management threatening educator autonomy.	• Online learning (Open University) • UK	• Interviews • 12 educators • 1 university
McCarthy, Glassburn, & Dennis (2021)	• Educators' personal beliefs, qualities, satisfaction • Focus on student learning and characteristics • Institutional factors: educators' losing autonomy and power dynamics, level of support and resources, workload capacity.	• Online learning • US	• Interviews • 17 educators • 1 university

2.4.1 Educator-related factors

Educator beliefs about learning and teaching, prior experience, attitudes, and readiness for TEL, or specifically online learning were identified among the factors that influence decision-making. Studies put more emphasis on some over the others.

There is a widespread agreement that educator personal beliefs about learning and teaching and what makes learning effective serve as personal guides during design decisions (e.g., Bradey, 2014; Mahon, 2014; Bennett, Agostinho & Lockyer, 2015; Tondeur et al., 2017; Hulett, 2018; McCarthy, Glassburn & Dennis, 2021). Educator beliefs about learning and teaching can positively influence decisions but also reinforce counter-productive educational assumptions. Two broad patterns were evident in the reviewed studies. On the one hand, there is the argument that educators' pedagogic beliefs are relatively stable and coherent and can

therefore, act as an epistemological framework to shape decisions (Brownlee, Schraw & Berthelsen, 2012). For example, studies reported that educators who generally hold teacher-centred beliefs with emphasis on content transmission and skills acquisition transfer this rationale to all the design contexts. Educators who have more (socio) constructivist orientations tend to adopt active learning pedagogies (Bruggeman et al., 2021) and consequently a more complex use of supporting technologies (Ertmer et al., 2012).

On the other hand, other researchers suggest that pedagogic beliefs and conceptions may be seen as fragmented, flexible, and context-dependent and thus, they cannot be classified into a unified belief system (Bradey, 2014; Markauskaite & Goodyear, 2014). In their empirical study, Kali, Goodyear and Markauskaite (2011) argued for educators' activation of 'knowledge-in-pieces' during design, rather than a belief system with set assumptions that determine decisions. This means that educators often hold a diversity of beliefs about pedagogy and the use of learning technologies which they activate and bring together intuitively. Another interpretation is that beliefs are open to change throughout the stages of educator growth and increasing expertise during their career as shown by a collection of studies by Trigwell and Prosser (2020). These understandings are in line with Tondeur et al.'s (2017) systematic review recommendation that suggests viewing the relationship between educators' pedagogical beliefs and practice as bi-directional rather than static. This is a useful point, which is in line with some evidence supporting that when educators transition to online learning design and teaching, their overarching assumptions and beliefs about learning and teaching can change to reflect the needs for this medium (Redmond, 2011; Philipsen et al., 2019).

Decisions are also dependent on educators' prior experience as teachers, learners, and professionals (e.g., industry experience) (Bradley, 2014; Bennett, Lockyer & Agostinho, 2015). Relevant experience with online learning and the use of technology for learning and teaching is particularly informative for educators' decisions (Lichoro, 2015) and linked with their self-efficacy (Scherer et al., 2021). Several studies have shown that more experienced educators in these domains had a wider variety of options, were more flexible in adapting their approaches, and underpinned their decisions based on their educational goals (Hulett, 2018; Bradey, 2014).

Equally, the absence of relevant experience with online learning, results in educators' lack of confidence that can impede quality decision-making (e.g., Scoppio & Luyt, 2017; Bolliger, Shepherd & Bryant, 2019). Kilgour et al. (2019) attempted to specify what the threshold

concepts[6] for novice online educators are. Novice online educators were defined by Kilgour et al. (2019), as educators new to HE teaching and to online teaching or experienced educators who were new to online learning design and teaching. Examples of threshold concepts from this study included: learners' ability to learn without the educator's direct (physical/synchronous) presence; the differences between online and on-campus presence; new interaction modes among facilitators, learners, and resources; and an understanding that thorough online course design and structuring can compensate for the loss of on-campus interactions. These are useful points for reflection based on which support can be provided to those novice online educators to make informed decisions. The definition of novice online learning education appears to be in line with other scholars (e.g., Kumar et al., 2019; Ní Shé et al., 2019) who have suggested that irrespective of educators previous teaching experience (novices or experienced) of on-campus teaching, both educator groups may face similar challenges and require new skills when they move to online learning. It is important to examine this controversy about educators' prior experience and the assumptions made about novice online educators from the limited available studies to understand its role on design decisions.

Finally, research on pedagogical change and innovation is also relevant as educators are often required to change their pedagogic approaches based on institutional guidelines (Kopcha, Rieber & Walker, 2016). Therefore, openness and acceptance towards, or rejection of, new pedagogic approaches can impact design decisions. Different models have been developed to capture the different levels of change (e.g., SAMR by Puentedura, 2014; Diffusion of Innovations by Rogers, 2003). However, resistance to change by a large proportion of educators is well reported (Partridge, Ponting & McCay, 2011; Antunes, Armellini & Howe, 2021). This is often attributed to educators' strong beliefs formed over years of experience (Voogt et al., 2016) or accepted practices within their departments (Sharpe & Armellini, 2019). In line with this view, Englund, Olofsson and Price's (2018) phenomenographic study on educators TEL practices found that novice educators demonstrated greater readiness to change their pedagogic practice and conceptions in comparison with more experienced educators that showed little or no change. Other relevant studies have revealed that educators who were working on the design of online programmes that had an identical pre-existing on-

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[6] defined as 'crucial stages of learning, the acquisition of which enables learners to progress from one level of achievement to another' (Kilgour et al., 2019, p. 1417)

campus version were the ones that applied less changes. Conversely, educators working on new courses made the most of the changes in their practice (Lowes, 2008; Dikkers, 2015).

2.4.2 Student-related factors

Student-related factors also greatly influence key university actors' design decisions. Specifically, the consideration of student characteristics, and interests are components discussed in the majority of studies (e.g., Mahon, 2014; Binns, 2015; Nguyen, Rienties & Whitelock, 2020; McCarthy, Glassburn & Dennis, 2021). Educators think about student characteristics based on prior experiences to make decisions. Widely reported characteristics in these studies include student level of study, background, home/overseas students, and other responsibilities they may hold (e.g., full/part-time job, caring responsibilities). These are discussed for justifying the creation of learning and teaching structures that are sensitive to student backgrounds and interests. Informal (e.g., through discussions and comments) and/or formal (e.g., through evaluation) feedback from students has also been reported to prompt educators to rethink specific parts of their teaching and apply adaptations whenever required (Mahon, 2014; Nguyen, Rienties & Whitelock, 2020). However, interestingly, in contradiction with these studies, a recent study that analysed conversations among two academic teams revealed that specific student characteristics were mostly neglected by educators (Gast et al., 2020). This study may signal the need for more fine-grained studies that are not dependent on educator one-off self-reported data to shed more light on educator learning design foci.

2.4.3 Learning theories, frameworks and research

Evidence-informed decisions, based on research, LD frameworks, learning theories, and principles from learning sciences have been seen essential for decision-making (Herodotou et al., 2019; Hrastinski, 2019; Neelen & Kirschner, 2020), whilst contradicting tendencies towards technological determinism[7]. However, there is evidence to suggest that educators find little value and relevance in consulting educational empirical literature or in explicitly using research for their decisions (Price & Kirkwood, 2014; Hrastinski, 2019; Lloyd, 2019). Educators also find it challenging to utilise generic principles about 'good learning' to make context-specific decisions (Laurillard & Ljubojevic, 2011). In addition, educators do not use, or are unaware of,

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[7] Design decisions are driven by the use of digital tools rather than by sound pedagogical principles and evidence-informed practice.

LD frameworks developed to guide their design process (e.g., Bennett et al., 2017; Baldwin, Ching & Friesen, 2018). A recent qualitative study exploring the role of learning theories for 25 HE educators revealed that learning theories played a minor role in educators design decision rationales, while only social constructivism was reported as informing decisions by some participants (Drumm, 2019). Instead, it was mostly 'pseudo-theories' and folk pedagogies (e.g., learning styles, digital natives, experiential conceptions) that contributed to educators' conceptualisations, which present a threat to critical perspectives on online learning.

A more favourable stance to the use of research and learning theories has been revealed in a few studies (e.g., Bennett, Agostinho, & Lockyer, 2015; Masterman, 2019), although these studies do not necessarily suggest that participants used them consistently and systematically. For example, the study by Agostinho, Lockyer and Bennett (2018) revealed that two-thirds of participants accessed relevant academic literature to gain ideas about learning and teaching, keep up-to-date with the latest debates, and justify their own decisions. However, the majority of educators accessed discipline-specific literature, rather than educational literature and/or drew from their own research interests to inform content-related decisions. Therefore, only a few participants underpinned their decisions with learning theories and research, while most decisions were based on their individual beliefs and logistic considerations.

2.4.4 Colleagues and communities

Accessing and interacting with colleagues and communities has been influential for educators' design efforts in multiple contexts to a varied extent (Mahon, 2014; Agostinho, Lockyer, & Bennett, 2018; Masterman, 2019). In a study by Hulett (2018) organic interactions between educators and other colleagues within their department were influential and perceived as mechanisms that could partly compensate for identified institutional deficiencies (e.g., no expert support). In their studies, Bennett, Agostinho, & Lockyer (2015) found that educators perceived colleagues working in similar teaching contexts (discipline, university context) as credible support for their design work. Educators' interactions with colleagues ranged from more spontaneous (e.g., corridor discussions) to establishing support networks that had an ongoing character and scheduled discussions. Such interactions led to sourcing of teaching ideas, receiving feedback, and accessing knowledge from more experienced colleagues (e.g., mostly regarding technology-related concerns).

Other studies, such as Jonker (2019), putting a lens on the influence of networks on educator design teams revealed that colleagues and institutional networks were accessed by educators primarily based on individuals' relationships. These colleague-based interactions generally functioned as advice networks and appeared to have a rather limited contribution to core participants' decisions. Although the above studies' insights may have shown the importance of collegial relationships, they need to be considered cautiously in the context of actual design decisions as the nature of contributions (e.g., level, content) is mostly absent. Therefore, more studies with finer-grained details may shed further light on this issue.

2.4.5 Institutional factors

A range of institutional factors have emerged in the literature as playing a key role and influencing university actors' design decisions. To start with, the majority of studies have revealed the impact of learning and teaching institutional policies and rules, such as assessment regulations, rigid quality assurance procedures and accountability measures, on educators and other actors' practice (e.g. Bradey, 2014; Mahon, 2014; Hulett, 2018; Nguyen, Rienties & Whitelock, 2020; McCarthy, Glassburn, & Dennis, 2021). Although these rules have been introduced by institutions with supposedly good intentions to fulfill external quality standards and new 'educational enhancement' agendas, they may work against their aim (Mahon, 2014). In several of the studies reviewed, educators often perceived the requirement to comply with, and conform to, policies as leading to standardisation and over-regulation of their practice (e.g. Mahon, 2014; Hulett, 2018; McCarthy, Glassburn, & Dennis, 2021). Participants in these studies also raised concerns over diminishing their agency and devaluing their professional judgement and creativity. This is attributed to the additional layers of bureaucratic procedures focusing on documentation and prescribed LD processes (Nguyen, Rienties & Whitelock, 2020). The creation of an atmosphere of surveillance to conform with specified rules rather than focusing on deeper pedagogical considerations aligned with educators' specific disciplinary or programme orientations was another key factor contributing to limited educator agency (Mahon, 2014; Bayne & Gallagher, 2021). Therefore, the imbalance between centralised (top-down) and localised educator-driven (bottom-up) activities and needs can inhibit the development of a productive environment for design decisions.

Furthermore, emerging narratives of the marketisation of HE have led to partnerships with private providers (e.g. Online Programme Managers, technology providers) by introducing new conditions to educators (e.g., unbundling of roles and responsibilities) and other HE stakeholders' work (White, 2018; Williamson, Macgilchrist & Potter, 2021; Czerniewicz et al., 2021). Currently, studies investigating the impact of such changes and rules on educators' practices are scarce, however, a general shift towards managerialism and top-down decision-making has been widely reported (*ibid.*). A recent study with 44 educators from eight universities in South Africa and England conducted by Czerniewicz et al. (2021) demonstrated that despite the appeal of the promise for educational change through introducing innovative approaches, student choice and flexibility (e.g., to tackle societal injustice, respect student needs), in reality, educators felt their voices were lost in these new highly regulated work contexts. More studies in such contexts are needed to better understand how key university actors are affected by new partnerships, and whether and how they may successfully work for the benefit of universities, core academic and professional staff, and students.

Institutional policies regarding academic/professional rewards and promotions may also increase/decrease educator motivation to participate in specific activities. They shape the norms and ideologies at institutional and departmental levels (Price & Kirkwood, 2014). For instance, in research-focused universities, promotion criteria may focus on research output evidence, which downplays teaching-related activities (Fitzpatrick & Moore, 2015). Policies identify what is valued by each university and set the tone and culture for research and teaching activities (Price, Kirkwood & Richardson, 2016). This is interpreted by departments and educators and shapes their priorities and day-to-day decisions.

University learning and teaching strategies have been seen as important for guiding pedagogic practice and building a shared educational vision at an institutional level (Orr, Weller & Farrow, 2018; Mercader & Gairín, 2020; Sailer, Schultz-Pernice & Fischer, 2021). In the UK, educational strategic documents are available in the majority of universities (Gibbs, 2013), while several universities have also developed specific digital learning strategies (Fry & Tinson, 2019). These strategies typically include a) a set of generic pedagogic approaches (e.g., active and inquiry-based learning), b) a range of graduate attributes and skills, such as critical thinking, problem-solving and teamwork, and c) institutional values about learning and teaching (e.g., partnership with students or industry), and the strategies based on which the above can be achieved.

However, to date, research on their impact on *in-situ* pedagogic decisions has provided inconclusive and diverse insights (Sailer et al., 2021). For example, while the existence of learning and teaching strategies would assume a strong influence on educators' practice, an international study on strategic curriculum change conducted by Blackmore and Kandiko (2012) demonstrated that participants rarely cited their institutions' educational strategic priorities when discussing their pedagogic thinking. This shows that their impact may be questionable and/or less visible in some universities than in others.

Institutional support and resources can also play a vital role in online learning design work. A clear message across the reviewed studies was that (perceived) limited or no institutional support was inhibiting quality design decisions due to the lack of educators' necessary skills, confidence, and online learning experience (e.g. Hulett, 2018; Bolliger, Shepherd & Bryant, 2019). Undertaking formal training in university learning and teaching and attending seminars and workshops have also been reported as additional support for educators (Hulett 2018; Agostinho, Lockyer & Bennett, 2018; Binns, 2015). The provision of sufficient support, through the opportunity to collaborate with, or get assistance from learning design and technology staff or access departmental mentors had a positive influence on design decisions (e.g., Lichoro, 2015; Agostinho et al. 2018; Masterman, 2019); this is discussed in depth in the next section.

Finally, the most widely reported factor that negatively influences quality design decisions, is educators' lack of time to sufficiently engage with design and innovate due to work intensification (Mahon, 2014; Clapp, 2017; McCarthy, Glassburn & Dennis, 2021). This is even more pressing in an online learning context as it requires more time due to its in-advance preparation and development of digital artefacts (Hulett, 2018; Kilgour et al., 2019). Limited time may lead to uncritical decision-making, or the adoption of what Hartman and Darab (2012) called 'speedy pedagogy', which encourages superficial and transmissive pedagogic approaches, due to the sense of rush to complete work and move on to the next task.

2.5 Designing with people: interdisciplinary collaboration for online learning design

To address some of the outlined challenges that educators face when transitioning to new work contexts, in this case, online learning, along with the need for high-quality education provision, universities' attention has shifted towards collaborative approaches to design (Könings, Seidel

& van Merriënboer, 2014; Burrell et al., 2015; Matthews, 2019; Richardson et al., 2019; Newell & Bain, 2020). Collaboration among educators, digital learning professionals and other actors with interdisciplinary expertise has been recognised to be a promising approach for attending to the complexities of online learning and bringing about educational enhancement, but also for contributing to educator integrated professional growth (Burrell et al., 2015; Voogt, Pieters & Handelzalts, 2016; Sharpe & Armellini, 2019). This relationship is illustrated in Figure 2.4 below. This section focuses on this relationship and specifically, on key actors involved in online learning design in terms of their roles and the knowledge they bring, as well as the approaches they adopt during design.
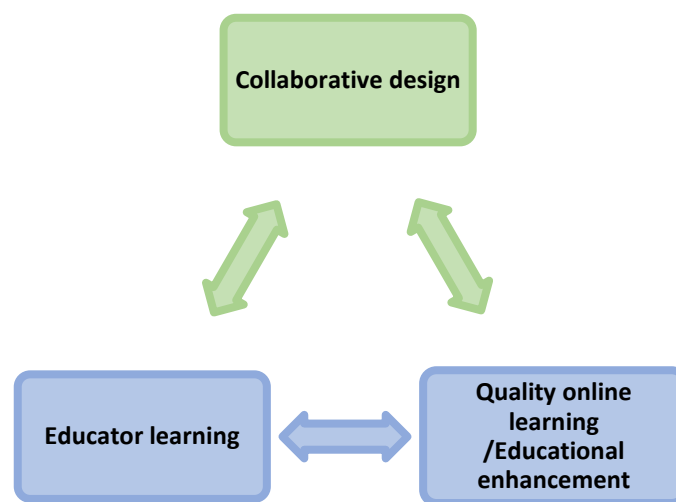
Figure 2.4: Relationship between collaborative design, quality online learning/ educational enhancement, and educator learning

2.5.1 Defining collaborative design

A range of terms are used to describe how different actors (e.g., educators, students, learning designers, researchers) come together to bring their expertise, experience, and knowledge during design. Widely used terms across the literature include 'collaborative design' (e.g., Kali et al., 2011; Voogt et al., 2015; Richardson et al., 2019; Luo et al., 2020), 'team-based design' (e.g., Burrell et al., 2015; Gast, 2018), 'participatory design' (e.g., Könings, Seidel & van Merriënboer, 2014; Cober et al., 2015; Bratteteig & Wagner, 2016), and co-design (Penuel, Roschelle & Shechtman, 2007; Sanders & Stappers, 2008; Wilson, Huber & Bryant, 2021).

These terms are similar, and many researchers have used them interchangeably, while others make distinctions emphasising certain aspects of design and the ways different actors work together (Martens et al., 2019) based on their different historical roots and motivations

(Zamenopoulos & Alexiou, 2018). For example, collaborative design, co-design, and participatory design are often used as synonyms (Martens et al., 2019). However, a detailed examination of the literature revealed that participatory design and co-design typically include a wide range of actors throughout the design process, such as educators, researchers (leading the design process), technical staff, and students as the end-users (Sanders & Stappers, 2008; Cober et al., 2015). Although the involvement of these different actors including student participation, can have a significant impact on online learning design, this research was set up to explore the phenomenon ecologically. To this end, there was no intention to pre-determine the different actors' participation as in the abovementioned strands of work. Additionally, the scope of participatory design and co-design is often larger scale and/or more technical in nature than is the case of this present research. It may, for example, focus on the design of university spaces (e.g., Bratteteig & Wagner, 2016; Konings et al., 2017), school-level educational systems, and/or educational software to be used by multiple educators across a university or school. Based on these variations, the present research adopts the term collaborative design to locate it within the most relevant research in the HE context.

Collaboration is perceived as the 'joint interaction in the group in all activities that are needed to perform a shared task' (Vangrieken et al., 2015, p. 23). It requires interdependency and joint contribution of participating actors to reach a common goal or mutual benefit (Newell & Bain, 2018). Collaboration involves a process of meaning-making and social construction of knowledge through interactions among its members to enable action-taking (Stahl, Koschmann & Suthers, 2006). Dillenbourg (1999) proposed that although collaboration should be highly interactive, the degree of interactivity among key participating actors should not be defined by the frequency of interactions but by the extent to which their interactions influence their decision-making processes. Continuous negotiation among collaborators is essential and according to Dillenbourg and Baker (1996), it can occur on three main levels:

> '(1) communication (meaning, signification of utterances, words, ...), (2) task (problem-solving strategies, methods, solutions, ...) and (3) management of the interaction on previous levels 1 and 2 (coordination, feedback on perception, understanding, attitudes) ' (p.188).

By bringing together collaboration and design, some of the definitions of collaborative design included in existing research can be found below:

Luo et al. (2020)	'the collective expertise, communication, and effort all members dedicate in order to discuss, set up, and complete project objectives.' (p.89)
Burrell et al. (2015)	'more than two people with different expertise working together to produce a collective outcome.' (p.754)
Voogt et al. (2015)	'teachers create new or adapt existing curricular materials in teams to comply with the intentions of the curriculum designers and with the realities of their context. Often, external experts are involved in the process and provide the teams with up-to-date insights concerning the underlying rationale for the intended changes.' (p.260)

The above definitions highlight important features of collaboration for design, such as the joint work among design actors to co-construct a shared output, the use of interdisciplinary expertise to enable improved design outcomes, and the context-sensitive nature of design. Combining these key features, the operational definition of collaborative design in this thesis is, two or more people with different expertise, experience, ideas, and skills coming together to collectively design for online learning by considering the realities, vision, and characteristics of their context. Collaborative design is a mechanism for empowering actors to take control over their design decisions by blending, connecting, and developing their knowledge, ideas and expertise to enhance their practice and bring pedagogical change (Zamenopoulos & Alexiou, 2018; Wilson, Huber & Bryant, 2021).

Although many researchers locate their research in collaborative design which reflects the vision for a collaborative relationship during design, the *in-situ* design work and positioning of the different actors in online learning design can be varied. Therefore, it does not always match with the key features of collaboration. For example, in Chen & Carliner's (2021) review, although a collaborative relationship dominated in the studies reviewed, other potential relationships between educators and digital learning professionals (specifically learning designers) were discussed. These included *consultations* (learning designers are positioned as mentors, coaches, and support); *customer-service relationships* (learning designers provide services to educators as per their needs); and *administrative endeavours*. Similarly, Drysdale (2019) described the distribution of power in the working relationship between educators and learning designers. This ranged from a collaborative endeavour perspective where both actor groups work collaboratively with equal and shared authority over decisions, to a more support-

level perspective, according to which educators have authority over decisions while learning designers' responsibility is to provide pedagogical and technical support.

In a similar vein, of relevance is Little's (1990) seminal work on educators' levels of interdependency. It describes relationships and interactions depending on their nature and strength on a continuum from independence (storytelling and scanning of ideas) to interdependence (joint work) (see Table 2.4). A collaborative relationship could be conceptualised as joint work in Little's work. On the other hand, the first three levels of interdependence provide different degrees of interaction among people working together. These may be more opportunistic, individualist with limited influence on decisions (e.g., storytelling & scanning and aid & assistance), to more influential though stronger collegial relationships of sharing that inform the individual's and team's decisions (sharing).

Table 2.4: Levels of interdependence on educators' professional interactions (based on Little, 1990)

Storytelling & scanning	Interactions with colleagues are opportunistic (one way communication). A central approach adopted by educators in design is 'trial and error' driven by a culture of individualism and independence.
Aid & Assistance	One-to-one interactions among colleagues when needed. The boundaries between offering advice only when asked and interfering in unwarranted ways are preserved.
Sharing	Open exchanges of ideas, opinions, and debates among colleagues. This mode includes the routine sharing of materials, approaches, and mutual support among colleagues.
Joint work	Shared responsibility and collective decision-making to pursue a single course of action. Alternatively, co-defining priorities, building shared understanding that in turn guide the choices of individual actors.

The abovementioned nuanced understandings can be useful in this research to allow a more detailed view of the interactional aspects of working relationships that are largely missing from empirical works to date. Elements of and perspectives about collaborative design from the literature are therefore employed as terms of reference for the present investigation.

2.5.2   Who are the key actors and what are their roles?

The roles and combinations of interdisciplinary actors involved in collaborative design vary among universities (Wilson, Huber & Bryant, 2021), while there is fluidity in their definition and boundaries (Mitchell et al., 2017). As seen in Figure 2.5, they can be broadly categorised into actors with expertise in: i) disciplinary subject matter (educators); ii) design and pedagogy (e.g.,

learning designers, educators); iii) technology and media production (e.g., learning technologists, media producers); iv) project management; v) educational research (e.g., educational researchers and academic developers), and vi) other specialised stakeholder expertise (e.g., librarians, copyeditors, industry partners) (Burrell et al., 2015; Adachi & O'Donnell, 2019; Halupa, 2019). Sometimes students or alumni are also involved in design activities to provide their perspectives and input.

Figure 2.5: Actors in collaborative design

In collaborative design, the educators' role is seen as that of subject-matter expert and implementer of their learning designs (Voogt, Pieters & Roblin, 2019). Educators are perceived as dominating actors for not only providing their disciplinary knowledge, but also pedagogic insights based on their existing teaching experience (*ibid.*). Their role as designers and the skills they need to possess to meaningfully engage with design have been discussed in section 2.2.3.

Learning designer is another significant and multifaceted role that has received increasing attention in the literature recently (Richardson et al., 2019; Hart, 2020; Chen & Carliner, 2021). Most reviewed works emphasise learning designers' pedagogical and TEL knowledge (Kumar &

Ritzhaupt, 2017; Altena et al., 2019). Their expertise comprises of knowledge of learning design, learning technologies, online pedagogy, assessment, and learning analytics (Aitchison et al., 2020). They are seen to be process-oriented by using various design tools and models to guide design and development activities (Drysdale, 2019). Several works also refer to the technical skills they should possess to be able to use a range of learning platforms and digital tools (Ritzhaupt & Kumar, 2015; Morgan, 2019; Aitchison et al., 2020), while others attribute such a skillset to technical-oriented professionals. Learning designers are also expected to be involved in educational evaluation activities (Mitchell et al., 2017), provide evidence-based practice recommendations, keep up with research, and act as co-creators of innovative pedagogic approaches (Kumar & Ritzhaupt 2017; Richardson et al., 2019). That is why they have been characterised as change agents by many authors (Burrell et al., 2015; Bayerlein & McGrath, 2018; Slade et al., 2020) and can play a key role in building institutional capacity through initiating and sustaining educational innovation.

The learning designers' role is extended to 'behind the scenes' responsibilities related to project management and stakeholder engagement for building productive working relationships with educators and other community members (Kumar & Rizhaupt, 2017; Altena et al., 2019; Hart, 2020). To this end, relevant interpersonal skills such as negotiation, consensus-building, and brokerage have been seen as key for the successful enactment of a learning designer's role (Altena et al., 2019; Hart, 2020). Oliver (2012, p.222) characterised them as a relatively new 'tribe' whose role includes crossing 'boundaries of disciplinary tribes, [and] to share and develop learning and teaching through the use of technology'. This is in line with Whitchurch's (2008) conceptualisation of 'third space' practitioners that can describe the academic and professional staff working in these roles as residing in a 'third space'. The third space is a complex and hybrid space where the new blended 'third space practitioners' move laterally across boundaries. This is, for example, between pedagogical, technological, and institutional as well as traditional academic and professional domains to progress activities comprising elements from different domains (Mitchell, Simpson & Adachi, 2017; Slade et al., 2020). Therefore, their role is dynamic, complex, and contextual to their universities regarding the scale of their design work and how centralised or decentralised they are (Ren, 2019).

Learning technologist is another role found in the literature that has been mostly used in the UK (Oliver, 2012; Altena et al, 2019). In early works, learning technologist was a catch-all term

(e.g., Beetham, Jones & Gornall, 2001; Oliver, 2002). However, more recently the boundaries between role responsibilities and job titles are blurred and terminology is not always used consistently (Mitchell, Simpson & Adachi, 2017). In some works, it has been interchangeably used with learning designers or grouped as part of a TEL/learning technology professionals' categorisation (e.g., Altena et al., 2019; Aitchison et al., 2020). In others, it has been seen as distinct and explicitly linked with technology-focused and technical responsibilities. This ambiguity is also reflected by the UK's Association for Learning Technology (2020) which deliberately define learning technology rather than learning technologist so that they do not exclude individuals with different academic and professional titles that have relevant expertise and work responsibilities and are part of the learning technology community.

Furthermore, technical support professionals and other specialised stakeholders (e.g., game developers, librarians, copyeditors) may be involved to enable the development of technically complex and high-quality multimedia resources and learning environments (e.g., simulations, serious games) (Hixon, 2008). However, these professionals typically have peripheral roles and are not at the core of collaboration (Mitchell, Simpson & Adachi, 2017). Other stakeholders identified include project manager and/or coordination staff to organise design activities and oversee time management for the success of the collaborative design process (Hixon, 2008). Educational researchers and/or developers may also be part of a design team, with the role of conducting systematic investigations to develop new knowledge and providing research-based insights and scaffolds for sound pedagogic thinking (Kali et al., 2018). Despite their important role, limited studies report on their inclusion in collaborative design for online learning.

Increasingly, students are seen as important design partners (Könings, Seidel & van Merriënboer, 2014; Bovill et al., 2016), also referred to as 'co-creators' and 'co-producers' of their learning. Students' involvement can be valuable for motivating them by reinforcing their feelings of engagement and ownership, getting a better understanding of key actors (students, educators, other stakeholders) perspectives and motives, and avoiding making assumptions about students' needs and digital fluency (Martens et al., 2019). However, numerous challenges have also been expressed. As summarised in Martens et al. (2019) these include, but are not limited to, students' lack of process and content expertise, power relationships, and educators changing roles and scepticism about the partnership's value. The students' role has also been described in four continuum-type categories by Druin (2002) (Table 2.5)

depending on their involvement; from an indirect role as users to equal partners. Although their role as equal partners has been recognised recently, their participation can often be limited (Sharpe & Armellini, 2019).

Table 2.5: Four possible roles of students as design partners (adapted from Druin, 2002)

User	who can be observed and/or assessed
Tester	who is asked for comments and feedback
Informant	who offers feedback and input
Design partner	who is considered as equal stakeholder in the design process

Overall, in the literature, it was notable that the role definitions were based on perceptions of key actors (mostly professionals' perspectives) and on job advertisements' analysis rather than what they actually do in specific contextual activities (Fox & Sumner, 2014; Matthews, 2019). This is part of what this research aims to bring, enlightening the *in-situ* practice of collaborative design through the eyes of the actors involved. At the same time, recent reviews (e.g. Altena et al., 2019; Chen & Carliner, 2021) have demonstrated that the vast majority of works were found in North America with a small proportion in other countries. This reveals the need to conduct more research to further understand contributions in the contemporary UK context.

2.5.3   Collaborative design process in empirical studies

Activities between those actors involved in collaborative design are both epistemic and social. To better understand the nature of collaborative design, empirical and conceptual insights are discussed in the remaining sub-sections to inform this research.

An informative multi-method (meeting observations, interviews, team emails) ethnographic case study of three university interdisciplinary teams by Kali et al. (2011) revealed that educators and digital learning professionals conducted a multi-dimensional exploration before they propose any solutions and make decisions. This was characterised as a balanced process where all domain expert participants (educators, learning designers, technologists) were equally involved, by continuously seeking and providing their specific TPACK expertise to make design decisions. Notably, team members occasionally crossed their domain expertise to provide ideas emerging from the collaboration. However, this was always followed by domain expert feedback cycles to be able to shape decisions.

Similar results, by adding further details, were reported by Rapanta et al. (2013) in a study adopting an instrumental case study design to explore how two interdisciplinary teams of experienced designers in two distance universities worked to design for online programmes. Findings demonstrated that team members continuously commented on each other's viewpoints and presented alternatives based on constraints and requirements. Solutions emerged through extensive epistemic negotiations between designers. This research expanded the knowledge base by describing three different problem-framing approaches adopted by designers: 1) a 'sandwich' problem approach where problems appeared during the process of considering a solution; 2) a 'hidden' problem approach in which team members primarily focused on solving known problems; and 3) a 'broadening problem space' approach where problems generate solutions and then methods. The combined findings from the two reviewed studies suggest that collaborative design work is a complex process that involves continuous interaction and knowledge integration among key actors. However, as Kali et al. (2011) admitted, their study represents a more 'idyllic' stance to the collaborative design as some challenges described in the literature were absent. On the other hand, Rapanta et al. (2013) focused on experienced designers only. Therefore, they may be closer to articulating productive collaborative design acts rather than what happens in most naturalistic HE settings.

Other studies have put more emphasis on the complementarity of skills between team members and their responsibilities by acknowledging however, that not all team members contributed equally, in the same domains, or to the same extent as others (e.g., Xu & Morris, 2007; Bayerlein & McGrath, 2018; Dalton et al., 2019). For example, in their study of one multidisciplinary team, Xu and Morris (2007) demonstrated that educators were emphasising content, learner characteristics, and learning resources selection. On the other hand, the learning designer (with a job title as project coordinator in this study) focused on course structure, interactivity, and technology integration. Despite the different expertise that partners brought, it was important for them to be able to challenge previously held assumptions and integrate their knowledge to enable design decisions that are suitable for an online learning context (Bayerlein & McGrath, 2018; King et al., 2019). The lack of knowledge integration, on the other hand, may lead to a visually attractive learning environment but may show poor quality from an educational perspective, or vice versa (Kali et al., 2011).

Finally, studies such as Xu & Morris (2007), Weiss et al. (2015) and Jonker (2019) have described collaborative design by focusing on the nature of collaboration, its forms, and its evolution throughout the design process. Weiss et al. (2015) distinguished three phases; first, the so called 'blind date' where participants got to know each other and shared initial broad ideas (student characteristics, collaboration process establishment). This was followed by the 'pushing through' stage in which efforts were made to integrate initial individual ideas through negotiation, brainstorming, questioning of each other's perspectives, and tension resolution. 'Authentic partnership' was the final stage where team members engaged in more critical and open discussions. In this phase, they appeared to be comfortable with conflict resolution and thus, worked more effectively. Similar insights were provided in Jonker's (2019) study which reflect Tuckman and Jensen's (1977) phases of team development, through the cycle of forming (orientation phase), storming (conflicts, negotiation), norming (cohesion between team members), and performing. These studies suggest that collaborative design is a gradual and lengthy process that requires time, commitment, and collective effort.

2.5.4 Characteristics and conditions

The reviewed literature revealed several characteristics and conditions that support and/or hinder collaborative design work and consequently the quality of decisions taken. These are discussed under the broader categories of scaffolding design work and working relationships.

2.5.4.1 *Scaffolding design*

As elaborated previously, educators typically do not have design expertise. To this end, it is generally accepted that design work is more productive when scaffolded by knowledgeable others that have the required expertise (Cober et al., 2015; Voogt, Pieters & Handelzalts, 2016; McKenney, 2019; Leoste, Tammets & Ley, 2019). 'Scaffolding' is based on Vygotsky's zone of proximal development (ZPD)[8] and is a metaphor widely used to capture the different forms of guidance to support educators/learners in their design work and learning progress. It proposes 'actively, temporarily and contingently providing with just the right amount of cognitive support to bring them closer to a state of independent competence' based on their specific needs and current state of expertise in a domain (Warwick, Mercer & Kershner, 2013, p.43).

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[8] 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers' (Vygotsky, 1978, p. 86).

Two forms of scaffolding were identified in the literature – the proactive and the reactive (Voogt et al., 2016). Proactive scaffolding includes the supports that have been determined and designed for use in advance to allow deliberate design thinking. Examples from studies include organisational (project management, team meetings), and design processes to structure thinking based on pre-specified activities and the use of tools (McKenney, 2019). Reactive scaffolding refers to the supports that emerge during the design process based on participants' needs. An example of reactive scaffolding includes *ad-hoc* expert feedback on pedagogy, learning technology, and/or technical aspects to enable dialogue and reflection (e.g., Cober et al., 2015; Lefstein et al., 2020). Several studies support that a combination of proactive and reactive scaffolding mechanisms can be optimal for quality decisions (e.g., Kali et al., 2018; Voogt et al., 2016), while others privilege the one over the other. For example, in the studies by Ziegenfuss and Lawler (2008) and Clapp (2017), informal design exchanges among actors were experienced as more useful than highly structured processes by participants. This may show the different preferences and needs of the core actors in various design contexts.

2.5.4.2 *Working relationship*

A recurring message in the literature is that building a good working relationship between educators and digital learning professionals can influence collaborative design (Stevens, 2012; Chittur, 2018; Aitchison et al., 2020). In section 2.5.1, collaborative design was defined along with some nuances on how the working relationship between these key actors may unfold during design. This section adds specific components of their working relationship that may impact design work, including the act of decision-making.

The working relationship has been discussed in terms of both positive relationship aspects and challenges that actors encountered during their collective work. Good communication among educators and digital learning professionals through active listening, respect for diverse perspectives, and sharing of a common vocabulary are core conditions for allowing knowledge integration and cohesive collaborative working (Burrell et al., 2015; McInnes et al., 2020; Chen & Carliner, 2021). Interdisciplinary actors should be able to meaningfully exchange their expectations, ideas, and experiences. This is important given that they come from diverse educational backgrounds and are familiar with their disciplinary vocabulary and specific work cultures (*ibid.*). To this end, studies have shown that preserving disciplinary silos, due to

'disciplinary cultural gaps', and using jargon can create communication breakdowns that bring about challenges in working relationships (Kali et al., 2011).

The development of mutual trust and rapport can enhance the working process (Bayerlain & 2018; Richardson et al., 2019). For example, in Stevens' (2012) study, it was notable that educator resistance was overcome once team members had established a trusting working relationship which assisted them in productively negotiating ideas. However, building trust in team members' abilities and intentions may be a slow process and dependent on both individual and team attitudes (Bayerlain & McGrath 2018; Jonker, 2019). Jonker's (2019) qualitative case study that explored the perceptions of six participants in collaborative design revealed that even within the same team, not all participants experience working relationships in the same way. Some participants shared a positive stance, while others a relatively negative stance and one member dropped out from collaborative working. Therefore, Jonker concluded that collaborators' experiences were dependent on individuals' attitude towards collaboration, the team atmosphere, and the participants' approaches towards the cognitive tasks.

A good understanding of actors' roles, responsibilities, and capabilities can be critical for preserving power balance and team working (Bayerlain & McGarth, 2018). Establishing boundaries between involved actors based on their expertise had a positive impact on collaborative working, as it allowed for clarity and ease during exchanges among participants in the study by Albrahim (2018). However, studies have also revealed that misinterpretation and/or outdated views on roles, especially the roles of learning designers and technologists, is common and one of the biggest challenges (Drysdale, 2019). For example, in Richardson et al.'s (2019) study that interviewed 15 academic and professional staff from one US university, educators were unclear about the role of learning designers in the beginning of the partnership and/or believed that they had an evaluative role. The perception of learning designers as being 'techies', or online platform administrators (Ritzhaupt & Kumar, 2015) and a scepticism about their value can also negatively impact the quality of design outputs (Scoppio & Luyt, 2017).

Other tensions among interdisciplinary actors that are well documented include the loss of authority, resistance, and increasing workload (Halupa, 2019; Chen & Berliner, 2021). The fear of loss of authority due to the unbundling of roles distributed across various actors is a concern expressed by educators in several studies (Hixon, 2008; Cowie & Nichols, 2010; Richardson et al., 2019). This is mainly because educators have been used to working independently and

having control over their teaching choices, and this may be partly lost when working with others. Similarly, digital learning professionals have shared that their role is often perceived as holding unequal power and authority over decisions when compared with educators and/or their contributions may remain unnoticed or undervalued (Halupa, 2019; Aitchison et al., 2020). Finally, the overwhelming number of studies (e.g., Xu & Morris, 2007; Stevens, 2012; Clapp, 2017; McInnes et al., 2020) revealed that the increased workload due to the nature of collaborative design (e.g., regular meetings, design workload) often created a negative and stressful climate among participants. This was contrasted with educators' prior design experiences that were individual, more informal, and flexible. Altogether, the literature suggests that although a positive, open, and trusting relationship among collaborating actors is vital to enable quality design decisions, it is not always a straightforward process. It requires a good understanding of roles and respect for different actors' contributions.

2.5.5 The potential for educator learning

This final section focuses on the relationship between collaborative design among interdisciplinary actors and educators' learning.
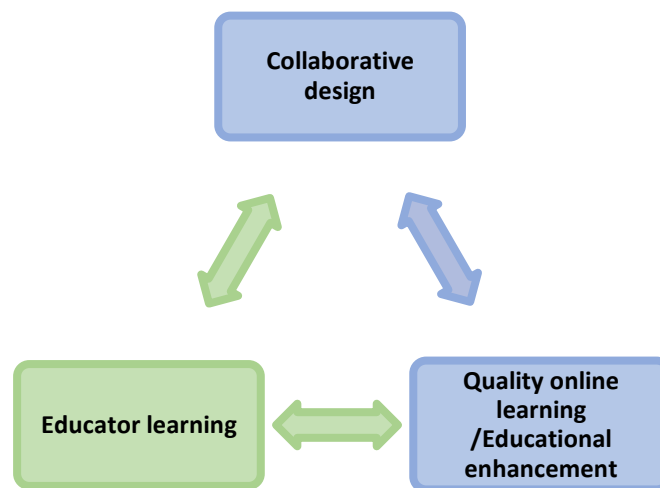
Figure 2.6: Relationship between collaborative design, quality online learning/ educational enhancement, and educator learning (emphasis on this section)

The proposition about educator learning and its relationship with collaborative design is theoretically underpinned. The main constructs that can support it are 'learning by design' (Kalantzis & Cope, 2005; Koehler & Mishra, 2005), 'situated learning' (Lave & Wenger, 1991), and key concepts of CHAT (e.g., possibility of expansive learning and boundary crossing) focusing on learning opportunities emerging from interdisciplinary collaborations. These

underpinnings overlap but also complement each other. Since CHAT is the main theoretical framework in this research, it is reviewed in greater detail in Chapter 3.

As already discussed, when conducted skilfully, design engages its key actors in epistemic, reflective, creative, and deliberate thinking processes to generate novel and robust solutions. It involves continuous cycles of sense-making and experimentation for improvement that are compatible with the iterative process of learning and change and beneficial for educator lifelong learning (Koehler & Mishra, 2005). Design is also situated, in terms of engaging educators in authentic activities and producing concrete artifacts to be used with their students (*ibid.*). From a situated perspective, for learning to take place, emphasis should be anchored within meaningful social exchanges with collaborators and community members (Lave & Wenger, 1991). The aforementioned components align with key characteristics of effective professional development (Borko, 2004; Desimone, 2009).

Although there is a strong theoretical basis to support a symbiotic relationship between collaborative design and educator learning, limited studies have explored this concern empirically (Voogt et al., 2015). Currently, there is a wealth of studies evaluating specific formal professional development programmes and interventions. Although such programmes may offer essential support for enhancing educators' pedagogic knowledge, they typically target educators at an individual level and focus on skills acquisition that is assessed (Asensio-Pérez et al., 2017). Thus, they adopt a 'training' approach (Koehler & Mishra, 2005; Salmon & Wright, 2014), rather than learning from situated collaborative inquiry that this research focuses on.

Overall, relevant studies conducted to date have been diverse and somewhat disjointed. A strand of studies within the scope of this research (e.g., Xu & Morris, 2007; Burrell et al., 2015; Horton et al., 2016; McInnes, Aitchison & Sloot, 2020), has confirmed that educators grew their expertise as a result of collaborative design. However, given their broader scope, such a claim was presented at a superficial level without evidencing what this learning may entail. Voogt et al.'s (2011, 2015, 2016) works have provided some evidence by conducting review studies on this topic drawing from various contexts (Voogt et al., 2011; Voogt et al., 2016) and from an empirical investigation perspective (Voogt et al., 2015). These studies supported educators' growth in pedagogy and technology along with a better understanding of reform goals. In their reviews, they also indicated additional components, including:

- further development of subject-matter knowledge through knowledge exchange with colleagues and industry partners,

- design expertise development which was defined as knowledge around the design process and increased clarity and awareness of curriculum's components, and

- growth in TPACK knowledge and skills.

Another relevant strand has investigated educators' transitions from online learning back to on-campus teaching and/or other modes of learning. Although these studies' focus is on online learning and its impact on educators' conceptions and practice, the component of collaborative design was not explicitly addressed. A further limitation of this research body is that most studies were US-based (e.g., Scagnoli, Buki & Johnson, 2009; Kearns, 2016; Graham, 2019), which may present some differences with the UK context given their different level of maturity in online learning. The findings of this research strand are summarised in Table 2.6.

Table 2.6: Empirical studies on benefits of online learning design and teaching to educators' practice

Benefits and growth components	Studies
Becoming more reflective on learning and teaching practices	Kearns, 2016; Hatzipanagos & Tait, 2019; Redmond, 2011; Sanders, Brooks & Dawson, 2020
Adopting new pedagogic approaches. Experiencing changing role from 'sage on the stage' to facilitator	Graham, 2019; Scagnoli, Buki & Johnson, 2009; Hatzipanagos & Tait, 2019; Redmond, 2011; Sanders, Brooks & Dawson, 2020; Juarez, 2019
Using diverse communication strategies with students	Graham, 2019; Scagnoli, Buki & Johnson; Kearns, 2016; Juarez, 2019; Redmond, 2011
Becoming familiar with the use of learning technologies	Scagnoli, Buki & Johnson, 2009; Kearns, 2016; White, 2018; Hatzipanagos & Tait, 2019; Graham, 2019; Sanders, Brooks & Dawson, 2020; Redmond, 2011
Re-using produced artefacts in other teaching contexts	White, 2018; Hatzipanagos & Tait, 2019; Kearns, 2016; Graham, 2019; Scagnoli, Buki & Johnson, 2009; Sanders, Brooks & Dawson, 2020
Increasing confidence and ability to teach	Kearns, 2016; Redmond, 2011; Graham, 2019

In brief, most of the studies revealed that educators became more reflective in their teaching as they were 'forced' to critically examine whether and how existing practices can be re-used, adapted and/or transformed in an online context. Being reflexive was a quality transferred to subsequent design efforts of any learning and teaching mode, demonstrating the lasting effect on educators' practice (Kearns, 2016). Overwhelmingly, studies also reported the adoption of

active learning approaches and new feedback mechanisms (e.g., automated feedback, adding comments to online discussions) for supporting student work (Kearns, 2016; Graham, 2019; Hatzipanagos & Tait, 2019; Saunders, Brooks & Dawson, 2020).

Few studies demonstrated increased educator confidence and abilities in teaching (Redmond, 2011; Kearns, 2016; Graham, 2019). For example, a large-scale quantitative survey revealed that about 75% of the participants who have designed for and taught online, experienced improvement in their jobs (Jaschik & Lederman, 2019). The adoption of more multimodal practices by using a wider range of learning technologies and media, including but not limited to, video, online quizzes, simulations, and collaborative tools was also evidenced in many studies. Consequently, they reported an increased knowledge and motivation for employing these in other teaching contexts (Scagnoli, Buki, & Johnson, 2009; Redmond, 2011; Graham, 2019; Saunders, Brooks & Dawson, 2020). Finally, direct re-use of produced online artefacts in other teaching contexts was reported as expanding existing practice (White; 2018; Hatzipanagos & Tait, 2019; Saunders, Brooks & Dawson, 2020).

Notably, a few studies have also shown that educator learning is dependent on well-coordinated and evidence-informed conversations among collaborators, the manifestation of which is dependent on their skills and experience (McKenney et al., 2016; Gast, 2018; Lefstein et al., 2020). Therefore, poor exchanges among collaborators that are superficial and focused primarily on practical concerns have been shown to lead to limited or no learning opportunities (McKenney, 2019). To conclude, currently only limited studies offer insights on this topic in collaborative design contexts in HE in the UK, a gap which this research aims to address.

2.6 Chapter summary

This chapter has provided a detailed account of the core areas of this thesis bringing together the overlapping and somewhat disjointed bodies of literature on design (nature, process, knowledge and skills of educators as designers), online pedagogy, and collaboration in design. To summarise, design has been seen as a key activity for ensuring quality learning and teaching. There is progress in the understanding of educators' approaches to design, however, more studies are needed to focus on *in-situ* design practice to enhance the emerging evidence base (Bennett, Lockyer & Agostinho, 2017; Macfadyen et al., 2020).

As Persico, Pozzi and Goodyear (2018) argued, understanding design practice along with the pedagogic decision-making as enacted by the key university actors is an important condition 'to devise better strategies for sustainable, large-scale pedagogical innovation' (p. 978) and therefore, it is a worthwhile direction for research. In this respect, this literature review offered a rounded view of factors that influence design decisions particularly, in TEL contexts since only limited studies focus exclusively on online learning (see Table 2.3). One observation was that the identified factors within each study were often presented in isolation rather than drawing connections among them. Another interesting observation was in relation to educators' prior teaching experience and its influence on online learning design decisions. Some scholars (e.g., Kilgour et al., 2019; Kumar et al., 2019) posited that educators may be considered as novices in the online learning medium if they have not previously engaged with online learning design and teaching. In parallel, the overall online learning literature has paid more attention to investigating experienced online educators practices to provide guidelines to less experienced educators. Combining these two insights, in this thesis I decided to focus on novice online educators' design practice by adopting Kilgour et al.'s (2019) definition (see section 2.4.1 and Glossary) to better understand their work patterns and needs which is largely missing from the current literature.

The reviewed literature also highlighted a range of challenges that educators face including, but not limited to, the lack of time, limited expertise, knowledge and skills in practice domains that have a significant impact on how they make decisions. Therefore, there was a general agreement about the need for further institutional support, including collaborative design as a fruitful strategy to support educators in their work and enable the design of quality online learning. Despite the increasing interest in collaborative design, there was a scarcity of studies investigating *in-situ* design practice and how key actors make design decisions, particularly in HE. The following observations were made regarding the existing studies:

- Most studies focused on a narrow view of particular aspects of collaborative design, such as the roles of different actors and their working relationship (Richardson et al., 2019; Aitchison et al., 2020), or the design process (Kali et al., 2011) in isolation. Although some studies focused on design processes and key actors' work patterns, they did not capture their actual online pedagogic decisions to provide a rounded view of the impact of design processes on the conceptualisation of online pedagogy.

- In their majority, studies focused on only one group; educators or digital learning professionals involved in design instead of capturing the key actors' experiences together. The studies bringing insights from digital learning professionals, typically focus on the role and experiences of learning designers and were mostly US-based.

- Studies typically drew from a limited number of collaborative design settings (e.g., 1-3) and participants were often based on one university only. This gap can be further confirmed by researchers (Voogt & Pieters, 2018; Masterman, 2019; McInnes et al., 2020) who recommended that studies be conducted in multiple university contexts to build a broader evidence base. It can be argued that investigating the experiences of key actors in different universities could enable the building of a better understanding of the role of university-level factors in key actors' online learning design decisions.

To address these identified gaps, this thesis adopted a holistic stance to investigation by bringing together people (both educators and digital learning professionals), processes, and pedagogy in online learning. It also recruited participants from more than three university contexts (see details in section 4.6.1 and Chapter 5) to identify the potential impact of different university-associated aspects on key actors' design decision-making. This thesis specifically investigated the process and knowledge that educators and digital learning professionals use for making design decisions, the wider factors that shape their practice, and their conceptualisations of online pedagogy as embedded in their design products. It also sought to examine the potential benefit(s) of collaborative design for online learning for educators' future practice. To enable a robust investigation, the next chapter discusses how Cultural-Historical Activity Theory has been employed in this thesis.

Chapter 3 | Theoretical Framework

3.1 Introduction

This chapter presents the theoretical framework adopted in this thesis, namely the third generation of Cultural-Historical Activity Theory (CHAT). It begins by providing a summary of the historical development of CHAT to situate its origins and key constructs. It then moves on to justify the rationale behind its use and how it has been applied in this thesis. Next, it elaborates on its core theoretical concepts to contextualise their relevance to the research context by referring to relevant examples from the literature. The chapter closes with a discussion on the limitations of CHAT and how these have been addressed, as well as a summary of its polyfunctional use within the thesis lifecycle.

3.2 Historical development of CHAT

CHAT has its roots in sociocultural theory and originates in the works of Russian psychologists including Vygotsky, Leont'ev and Luria (Engeström, 2001). CHAT shifts focus from what happens inside the individual mind (Sfard, 1998) as described in cognitivism, towards deliberate collective activities (Sannino & Engeström, 2018). It can be understood as a succession of three generations of research and theorising (Engeström, 2001), with a fourth iteration currently under further development (Engeström & Sannino, 2021). Although the different generations share foundational ideas, evolution is observed regarding the articulation of the unit of analysis and agency within CHAT. These differences are outlined in this section to clarify how it has been used in the present research.

The first generation is embodied in Vygotsky's work and focuses on the concept of 'cultural mediation' (Vygotsky, 1978, p.40). It suggests that individuals' interaction with their environment is not direct, but instead, it is mediated through the use of cultural means, tools, and signs (Wertsch, Del Rio & Alvarez, 1995). The notion of mediated action was expressed through a triangular model (see Figure 3.1). Based on this, the subject (representing an individual) transforms an object (the activity's goal) through interacting with mediating artifacts (physical or cultural tools, signs, symbols, language) that lead to the activity's outcome. In this first generation, agency was seen as the historically evolving and emancipatory possibilities of an individual's actions (Sannino & Engeström, 2018).
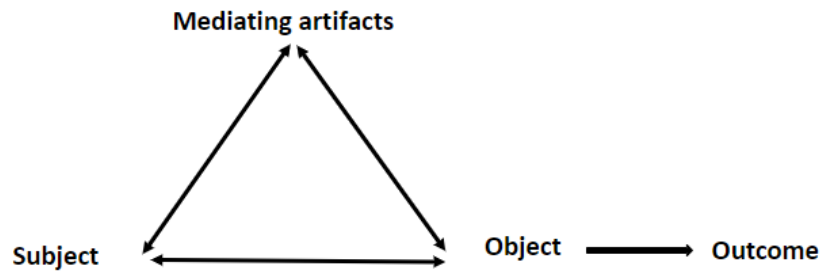
Figure 3.1: Vygotsky's model of mediated action representing the first generation of CHAT (based on Vygotsky, 1978)

Although this generation has been influential in education throughout the years, according to Engeström (1987, 1999, 2001), a key limitation was its focus on the individual as the unit of analysis. He argued that the partial lack of attention to the social nature of human actions, could not fully demonstrate the complexity of contemporary activities (Engeström, 1999).

Leont'ev (1978) sought to address this limitation by expanding the unit of analysis from individual *action* to a *collective activity system* in the second generation. He situated the activity within its broader sociocultural context by conceptualising how social structures (e.g., collaborative, societal, and community structures) influence the way people act. Leont'ev's work was transformed into a graphical representation by Engeström (Engeström, 1987, p.78), titled an activity system (see Figure 3.2).
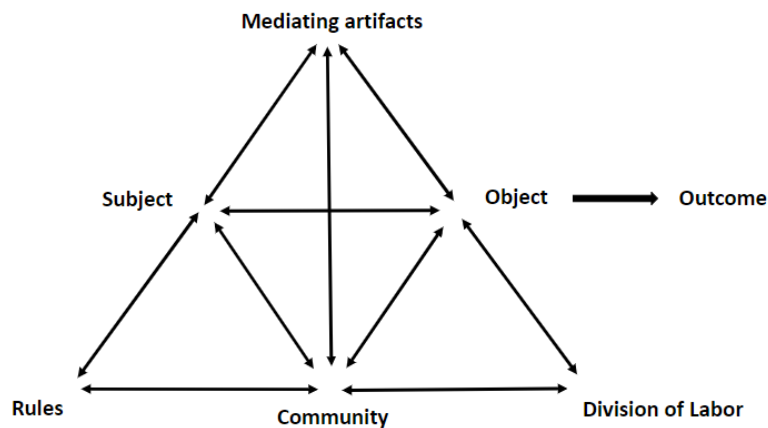
Figure 3.2: Second generation activity system as represented by Engeström (1987, 1999)

The upper part of the triangle consists of Vygotsky's individual-driven mediated action, expanded by 'rules', 'community' and 'division of labour' (bottom triangles) that represent the social basis of the activity. It supports the engagement of subjects in an object-oriented activity which is mediated and influenced by artifacts, rules, community, and division of labour to reach the activity's outcome (intended and/or unintended consequences) (Engeström, 1999). The

focus in this iteration of CHAT lies on the interactions and interdependence between activity components that dynamically shape its object.

Agency in this generation was seen as a movement from individual subjects working in isolation and having agency over their actions (first generation), towards subjects working collectively to transform the entire activity (Engeström & Sannino, 2020). The second generation has been used by several studies in learning design (e.g., Peruski, 2003; Bradey, 2014; Czerniewicz, Trotter & Haupt, 2019). In these works, the investigation focused on a single and relatively well-bounded activity system, with educators typically being defined as the activity subjects and whose actions were interpreted within and in interaction with their surrounding context.

Engeström (2001) developed the third generation of CHAT to conceptualise the increasing complexity of social activities and put a focus on multiple perspectives, and networks of interacting activity systems. To this end, a substantial advancement was the move of the unit of analysis from a single activity system (second generation) to a constellation of two or more interconnected systems that have a partially shared object (Engeström & Sannino, 2010) (see Figure 3.3). The shared activity between two systems is oriented towards an object that is mediated by artifacts and social structures arising dynamically.
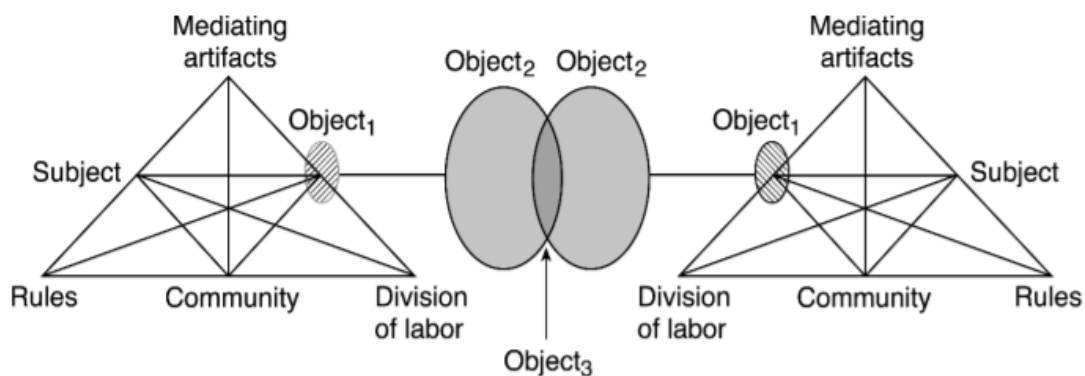
Figure 3.3: Third generation representation: Two interacting activity systems as a minimal unit of analysis (Engeström, 2001, p.136)

Engeström (2001) formulated that the object shifts from an initial state of unreflected and situationally given material (object 1) to a collectively meaningful object (object 2) constructed by the activity system. This then transforms into a potentially jointly constructed object (object 3). He conceptualised the shared activity's object as a moving rather than stable target which is dependent on the subjects' short-lived actions.

Agency in the third generation is seen as human beings' ability to act and is embedded within the object-oriented activity (Haapasaari, Engeström & Kerosuo, 2016). Although agential actions are introduced by individuals, their meaning and consequences are shaped by the interplay between individual(s) and their collective through negotiations (*ibid.*). The articulation of agency in the third generation CHAT recognises the complementary, but differing nature of expertise of individuals and/or teams and communities involved, and their continually shifting positions (Sannino & Engeström, 2018). To assist with defining the interdependent and changing agency of the participating actors in complex practice contexts, Engeström introduced the concept of knotworking.

Knotworking enables the conceptualisation of the fluid combinations of expertise 'knots' (Engeström, 2008), within and across activity systems. It refers to efforts of collaboration, coordination and/or orchestration between loosely connected actors and activity systems. 'Knots' function by tying separate threads of expertise for rapid improvisation and longer-term planning (Engeström & Pyörälä, 2021). It requires the acknowledgement that power, control, and the centre of the initiative are not always stable entities, but are open to reconstruction based on the changing needs of the object (*ibid.*). However, as Engeström and Sannino (2020) argued, the transition from compartmentalised bureaucracy and past individualised practice to knotworking and co-configuration can be both an opportunity and a risk.

This third iteration of CHAT has facilitated the examination of partnerships between different activity systems in HE and school education (e.g., Yamagata-Lynch, Cowan & Luetkehans, 2015; Englund, Olofsson & Price, 2018; Potari et al., 2019). Its use has been particularly popular in school education research, where partners from different sites (e.g., school, university, ministry of education, industry partners) work together in reform settings, or when co-developing a technology for use in schools.

3.3   Rationale for using CHAT

In the present thesis, CHAT has been employed as the main theoretical framework to explore how educators and digital learning professionals work together to make design decisions for online learning and the factors that influence their decisions.

Specifically, CHAT examines human activities as systemic and socially situated phenomena (Nardi, 1996). Thus, it can recognise the social nature of design (Conole, 2015; Bennett, Lockyer

& Agostinho, 2018) where more than one actor group, is involved in shaping online learning design decisions. CHAT will facilitate a holistic investigation by taking into account not only the subjects (educators, digital learning professionals or a design team), but also their broader social context (e.g., rules, community, tools) in which the online learning design decisions occur. This is significant as previous research with a similar emphasis on social aspects of design primarily focused on the micro-level interaction among partners and thus, researchers rarely attended to the cultural and historical contexts of their activity (Lefstein et al., 2020). The adoption of CHAT seeks to address this limitation by conceptualising the online learning design activity as object-oriented, artifact-mediated, and collective.

Being part of systems theories that embrace complexity, CHAT can assist with a thorough examination of the dialectic relationship between the defined activity systems and their contexts (Crawford, 2006). This relational and context-dependent view that CHAT offers is key in this research, as it goes beyond approaches that provide deterministic interpretations of phenomena (Yamagata-Lynch, 2010), such as by discussing the factors that influence online learning design decisions in a narrow and isolated fashion (Sannino & Engeström, 2018). It can instead provide a strong explanatory lens of the underpinning of key actors' actions.

It specifically helps penetrate troubling dualisms such as between the individual and collective, material and mental, structure and agency, and praxis and theory (Roth & Lee, 2007; Nicolini, 2012). For example, it does not consider individuals, such as educators on their own, but it relates their actions with those of digital learning professionals and other community members to explain their decision decisions and their underpinning. It also reduces the dualism between agency and structure; CHAT views agency and structure as being in a dialectical relationship based on which the one pre-supposes the other (Giddens, 1984; McFadden, 1995). This means that structures shape people's practices, and people's agency reproduces, establishes, or transforms structures. This is significant to avoid uncritical claims that may privilege the one over the other, particularly in this research which involves a range of actors with different skills, motives, and work structures. In addition, CHAT avoids a techno-centric angle (Murphy & Rodriguez-Manzanares, 2008) without however, ignoring the role of technology, which is important given this thesis focus on online learning.

3.4 Application of CHAT in the present thesis

As argued above, CHAT is a suitable lens for the present thesis as it enables to view the activity of online learning design holistically. It aims to explain the nature of design activities and decisions of those involved through multiple perspectives and traditions (Mwanza & Engeström, 2005). It can successfully capture the new 'rule' introduced to the educators' activity system; this requires them to work with digital learning professionals rather than in isolation, as would typically be the case in their past well-established design activities.

Despite the vision for collaborative design, the third generation and not the second generation has been deliberately employed as more suitable. This means that, in this investigation, the focus is on two interacting activity systems: one focused on educators (or an academic team) and the other on digital learning professionals along with their associated contexts. These two interacting activity systems act as the unit of analysis in the present research. This choice was based on the reviewed literature which demonstrated diverse and emergent forms of working relationships and collective action between educators and digital learning professionals (e.g., collaboration, but also service and/or support provision) (Richardson et al., 2019; Halupa, 2019). In addition, researchers (e.g., McKenney et al., 2015; Bennett, Agostinho & Lockyer, 2017) have discussed several differences between the two groups based on their roles (e.g., teaching responsibility for educators), and design approaches (e.g., educators' lack of use of visualisations for design versus learning designers' process-driven and LD tool-mediated approaches). Therefore, placing educators and digital learning professionals into one activity system would fail to account for aspects that are important and may provide interesting insights to further advance the field.

Figure 3.4 below shows how CHAT has been applied in the present thesis using its representation. The reviewed literature acted as a starting point to define and map the components of the two interacting activity systems.

Literature in subject area and textbooks
Literature & research in learning & teaching
On-campus modules and teaching resources
Disciplinary and pedagogic vocabulary
Platform, meeting spaces
Discourse between educators & collaborators

Potentially shared object

Design of high-quality credit-bearing online learning

Literature and research in learning design, online learning, learning theories
LD tools, templates and visualisations
Vocabulary used in relation to learning design/media production
Platform, meeting space
Discourse between team members & educators

Mediating artifacts

Mediating artifacts

Educators
(beliefs, skills, attitudes, knowledge)

Subject — Object

Object — Subject

Digital learning professionals
(beliefs, skills, attitudes, knowledge)

Rules — **Community** — **Division of Labor**

Division of Labor — **Community** — **Rules**

University culture, rules, policies
Learning & teaching strategy
Collaboration with other stakeholders
Discipline-specific professional requirements
Platform requirements

Colleagues (within university, other universities)
Wider HE & TEL communities
Guest lecturers
Students

Roles involved in the design process:
-academic staff making design decisions and working on content production
-learning designers providing pedagogic advice, feedback and co-deciding
-learning technologists and digital media producers for designing media assets
-quality assurance reviewers

Colleagues within the team (other LDs, DMP)
Digital learning networks
Wider HE & TEL communities

University culture, rules, policies
Digital learning team culture & norms
Learning & teaching strategy
Collaboration with other stakeholders
Platform requirements

Figure 3.4: Application of CHAT in the present research (adapted from Engeström, 1987, 2001)

To begin with, the ***activity's subject*** is an individual or a group of people who work together to achieve a shared object (Engeström, 1996). In this research, as stated in previous sections and based on the research questions, the subjects are educators/ academic teams interacting with digital learning professionals (e.g., learning designer/technologist, media producer, project manager). As reviewed in sections 2.4 and 2.5, individuals enter the activity with experience and knowledge from historic activities, beliefs about learning and teaching, and attitudes towards online learning and innovation that may impact their work. These are useful points of departure that can mediate subjects' interactions and shape their attempt to accomplish the activity's object. The role and manifestation of those components, if at all, will be investigated in more depth later in this thesis.

The ***activity's object*** is the key motivator for the shared activity. In this research, the object is to design high-quality online learning. This object is seen to include both 1) the formation of conceptual thinking on and the underpinning rationale of online pedagogy- with a potential for educational enhancement, and 2) the material construction of online module(s) (as represented in digital platforms) to be used by students and university staff. Although this may seem to be well-defined from the outset, this research subscribes to Engeström's (2001) argument that the shared object should be seen as a moving target that is reshaped and

transformed by short-term actions of its subjects and the surrounding context. This is a useful point for investigation to understand how it plays out to influence the defined activity.

Mediating artifacts are culture-specific tools (physical, technological, symbolic, mental) that shape the ways people act and think and mediate the relationship between the subject and the object (Engeström, 1999). Therefore, it is essential to understand the utility, nature, and contributions of artifacts during design. A range of artifacts have been mapped in Figure 3.4 based on the literature review (see sections 2.2.2.5, 2.4.3, and 2.5.4). These are, for example, subject-matter literature, educational research, LD tools, and resources from educators' existing modules that can act as internal and external representations to inform decisions.

Community consists of individuals and groups of people who engage socially, professionally, corporately, and/or officially to shape the object. The subjects may be members of multiple communities (Jonassen, 2000). Communities of practice has been influential construct which is defined as '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-Trayner & Wenger-Trayner, 2015, p.1). Communities of practice involve an ongoing learning partnership which can be informal or formal, with explicit or implicit intentions and its members can have multiple levels of participation (e.g., core, active, peripheral) (Wenger, 1998). Based on the literature (see sections 2.4.4 and 2.5.2), community may refer to colleagues within the department and wider HE and TEL communities (e.g., students, other stakeholders).

Finally, *rules* and *division of labour* may also play a key role in how subjects act to enable or constraint their decisions. Rules can be explicit and/or implicit policies, strategies, regulations, norms, values, and standards (Engeström, 1999) introduced by universities. Division of labour is the horizontal division of tasks based on the subjects' and community members' roles and expertise in different contexts. Based on the dominant narrative in the literature this may be for example, academic staff bringing their subject-matter and pedagogy expertise and developing content while learning designers providing pedagogic design expertise (see Figure 3.4). However, 'division of labour', also gives rise to potential issues of power based on the actual or perceived status of the different actors involved (vertical division), as reviewed in section 2.5.4.2, which deserves further scrutiny in this research.

3.5 Key theoretical concepts and principles

In this section, the focus is on explaining the key and interrelated concepts and principles of CHAT by contextualising their relevance in the present thesis.

3.5.1 Contradictions and historicity

Contradictions is a fundamental concept in CHAT. Contradictions can be defined as 'historically accumulating structural tensions within and between activity systems' (Engeström, 2001, p. 137). Conflicts, dilemmas, disturbances, and tensions within and between activity components and between activity systems are examples of how contradictions may manifest (Sannino & Engeström, 2018). Cole and Engeström (1993, p.8) argued that in activity systems, 'equilibrium is an exception and tensions, disturbances, and local innovations are the rules and the engine of change'. Contradictions may lead to disruptions of routine functioning and practice, forcing individuals and/or teams to adopt a more creative or reflective stance that enables the development of new solutions (Engeström, 2001). However, contradictions do not always lead to transformation as they may not be identified or transparently discussed by those experiencing them (Murphy & Rodriguez-Manzanares, 2008). In addition, the inability of key participants to tackle disturbances and conflict can lead to breakdowns with negative consequences for a collaborative relationship and/or the activities object(s). This is particularly relevant to this thesis as the literature has shown that tensions and conflicts can emerge due to the different understandings of key actors' roles and their expectations (see section 2.5.4.2).

As seen in Figure 3.5, contradictions are classified into four different levels (both within and between activity systems) that can be used to explain a situation in greater detail.

Primary
Contradictions within components of an activity system

Secondary
Contradictions between components of an activity system

Tertiary
Contradictions between the objects of two activity systems

Quaternary
Contradictions betweem components of two activity systems
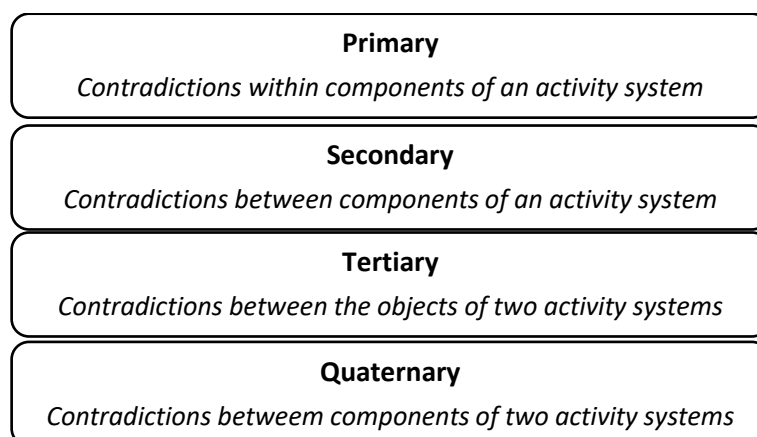
Figure 3.5: Four levels of contradictions in CHAT (Engeström & Sannino, 2011)

Primary contradictions arise within components of an activity system. For example, a tension within rules might emerge when the learning and teaching strategy highlights the importance of a specific pedagogic approach which may contradict with the internal quality assurance agency rules. Secondary contradictions arise between components of the activity. For example, tension between the subject and the rules might emerge when a university has introduced a new learning and teaching strategy for adoption, some of the principles of which are not in alignment with some educators' current pedagogic beliefs. Tertiary contradictions arise between the objects of two activity systems. For example, tensions may emerge between the activity objects of educators' historic on-campus design with the new activity objects of the online learning design. New work patterns and principles introduced in the new activity may generate resistance based on old habits, forcing the new work model to be modified. Quaternary contradictions arise between components of two activity systems. For example, a learning designer may support the inclusion of reflective learning activities in an online learning environment, however, the educators they work with (belonging to another activity system) may have a different view of their suitability for their subject-area. Conflicts and misunderstandings might emerge in their exchanges.

It is critical to highlight that contradictions are historical and should be examined against this backdrop to attach meaning to them (Sannino & Engeström, 2018). Historicity is a core preposition in CHAT. It suggests that to understand the challenges and potential of an activity system, it is essential to first appreciate the way in which this has been developed and changed over time (Engeström, 1999). To this end, it is seen in terms of the local history, accumulation of past experiences and established practices of key actors. Sannino & Engeström (2018) have argued that if historicity is dismissed when trying to understand an activity, then there is a risk that explanations may remain arbitrary and somehow not representative of the phenomenon.

Studies using CHAT typically foreground their analysis on the identification of contradictions to unearth the relationships between systemic components which support or challenge their actions. This is the most commonly stated advantage of using CHAT among others (Murphy & Rodriguez-Manzanares, 2008; Yamagata-Lynch, Cowan & Luetkehans, 2015; Bligh & Flood, 2017). A proportion of the reviewed studies used contradictions as the core construct in their study, based on which they framed their study aims, research questions, and determined the analysis focus (e.g., Peruski, 2003; Potari et al., 2019;). In this research, although contradictions

are seen as vital, they are used as a construct for interpretation purposes, to explain the underpinning and relationship behind the factors that influence participants' design decisions.

3.5.2 Possibility of expansive learning

The possibility of expansive learning is another core principle in CHAT which is seen as a vehicle for transformation, both for the activity's object and its subjects. It has been further developed to the theory of expansive learning (Engeström, 2016). As Engeström and Sannino (2010) argued contradictions are vital, but not the only mechanism for expansive learning. Expansive learning suggests that the productive elaboration and negotiation of systemic contradictions by the activity's subjects and their collectives has the potential to question the status quo, enable the creation of new culture, and trigger the generation of novel ideas to construct an expanded object (Engeström, 2001, 2011). Expansive learning can involve participating actors in processes of learning 'what is not yet there' (Engeström, 2016). Engeström (2016) argued that expansive learning occurs through engagement with specific epistemic actions, conceptualised as the 'expansive learning cycle or spiral'. The expansive learning cycle can be described based on the following sequential stages:
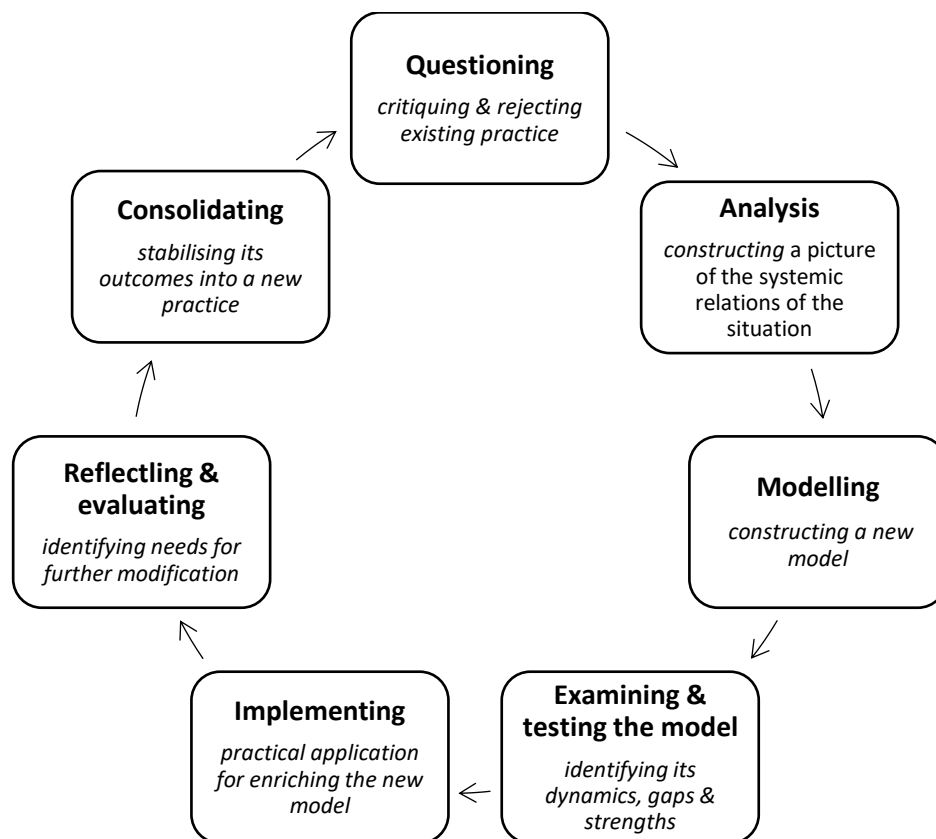
Figure 3.6: The ideal cycle of expansive learning (adapted from Engeström, 2016)

This process of epistemic actions is in line with learning design and each stage can offer opportunities for learning (Voogt et al., 2015). For example, the questioning that emerges from interactions among individuals may lead to collaborative envisioning and intentional effort to break away from established practices (Engeström, 2001). However, as Engeström (2008) positions, this is an ideal sequence of actions which may be rare to find in actual practice. Instead, the outlined epistemic actions may be seen as helpful pointers for exploring and explaining how the subjects might expand their horizons rather than as a prescriptive process.

3.5.3   Multivoicedness and boundary crossing

In CHAT every activity consists of individuals who have their own experiences, viewpoints, personality traits, identities, roles, and interests which they bring into the activity (Engeström, 2001). To describe these socio-culturally diverse (Kagawa & Moro, 2009) and potentially complementary perspectives among participating actors, Engeström drew upon the concept of multivoicedness (or heteroglossia). Multivoicedness can bring challenges and confusion, but also drive innovation (Engeström, 2008).

When an activity consists of more than one activity system, as in the present thesis, complexity and multivoicedness are increased. To enable continuity and productive work across and between the corresponding activity systems, the construction of shared, in-between spaces of practice that cross their existing boundaries (e.g., historically evolved practice, professional identity, language, expertise) is necessary (Kali et al., 2018). *Boundaries* are defined as 'socio-cultural differences leading to discontinuity in action or interaction' (Akkerman & Bakker, 2011, p.133). Boundaries are dynamic constructions representing domains or communities based on what counts as expertise or level of participation (*ibid.*). These boundaries often reflect the power held by individuals/groups over social assets or a position (Bernstein, 2000). Over the years, many educational scholars have employed the lens of 'boundaries' to understand contemporary systems and how institutions, their communities, and other actors work (e.g., Star, 1989; Suchman, 1994; Engeström, Engeström & Kärkkäinen, 1995; Wenger, 1998). Boundary crossing and boundary objects have been explicit theoretical components of CHAT and communities of practice (Akkerman & Bakker, 2011).

Boundary crossing refers to individuals' interactions and transitions across diverse sites and involves moving into unfamiliar territories (Suchman, 1994). Engeström, Engeström &

Kärkkäinen (1995) defined it as practitioners' crossing different boundaries 'to seek and give help, to find information and tools wherever they happen to be available' (p.332). It is through exchanges, negotiation, and collective reflection at boundaries between activity systems where there is potential for the generation of novel and hybridised ideas and practices (Akkerman & Bakker, 2011). Boundary objects are the artifacts that have a bridging function in intersecting practices (Star, 1989). For example, the in-progress co-designed learning environment and/or other design artifacts which are exchanged among collaborating actors could be seen as having a boundary object role (Kali et al., 2018).

The actors who work at the boundaries are referred to as, boundary crossers, boundary spanners or brokers (Akkerman & Bakker, 2011). They are either full or peripheral members of multiple communities (Wenger, 1998) and can play a significant role in (re)establishing continuity as well as acting as channels for disseminating practices. Boundary crossers' contribution can be key, as in education, it has been a challenge to move away from individualised practices and create possibilities for participation, exchange, and knowledge creation among different actors.

Boundary crossing has been used as a lens in several studies focusing on collaborative design (e.g., Geiger et al., 2018; Kali et al., 2018; Cornelius & Stevenson, 2019; Potari et al., 2019). For example, in the study by Geiger et al. (2018) which explored and evaluated the interdisciplinary collaborative process for online learning design, data analysis and interpretation were implemented against key boundary crossing theoretical principles (e.g., how boundaries can connect or divide communities, benefits of boundary encounters, the role of boundary objects). Another example is the study by Potari et al. (2019) which explored the design processes of reform-oriented national mathematics curriculum. This study, by concentrating on the collaborative work between mathematics teachers, education researchers, and policy makers, identified several boundary objects (e.g., curriculum structure of algebra, philosophy, and policy documents) used by team members to negotiate design decisions. Boundary objects assisted team members with the identification and coordination of diverse knowledge they bring to formulate collectively meaningful objects. The multi-membership of teachers and researchers in different communities was facilitative to bridge and cross the existing boundaries (research, teaching, policy) of key actors' practice, roles, and identities. Therefore, the researchers experienced boundary crossing as a useful lens to recognise how core actors

from different practice sites come together to compose a shared object and the impact of their diverse expertise on this object.

Taken together, multivoicedeness and boundary crossing serve as suitable lenses in this thesis as they have the potential to offer a new, fine-grained appreciation of the diversity of participants and their communities (Akkerman & Bakker, 2011).

3.6   Limitations of CHAT

Beyond the identified benefits of using CHAT, it is also important to acknowledge several limitations that have been expressed by several researchers. This section discusses how some of the limitations of CHAT have been considered and addressed in the present research.

Despite the identified strength of CHAT to work across divides as discussed in section 3.3, one of the key criticisms has been that it overemphasises collectivity over subjectivity (Sannino, 2011). Researchers have argued that the dominance of collectivity may prevent researchers from accounting for or conceptualising the role of individuals' practices, cognition, motivation, and emotions (Fanghanel, 2009; Roth, 2009; Pratt et al., 2015). This may lead to a reductionist view of individuals' needs and identity within an activity (Roth, 2009). The present research considers this weakness by adopting an open-minded stance towards the exploration of individual-related subjectivities as emerging in its contexts and against the reviewed literature, instead of privileging the 'collective'.

The adequate operation of agency and power within CHAT has also been questioned (Trowler & Turner, 2002). This potential limitation has been acknowledged from the outset of this research and an explicit definition of agency, as expressed by more recent works of key authors (see Sannino & Engeström, 2018), has been provided to support this work (section 3.2). In addition, sufficient attention to power has been placed through the theoretical articulation of the vertical division of labour along with the presentation of relevant empirical insights from the existing literature reviewed in Chapter 2. As Nicolini (2012) asserted, all practice theories put emphasis on power, conflicts, and politics as essential elements of the social reality we experience. To this end, this background (CHAT theoretical constructs and existing literature) offers a strong starting point against which the findings of this research will be compared to contribute to an informed scholarly discussion.

Another identified limitation concerns CHAT's application in empirical studies. Sannino (2011) has argued that the mechanical use of the triangular representation has been very common in studies which may reveal a poor understanding of the epistemology behind it. Indeed, most of the reviewed studies used CHAT as an analytical tool by coding and fitting empirical data into CHAT's key components (subject, object, community division of labour). This is also evident in Bligh and Flood's (2017) review of CHAT in HE, where 44 out of the 59 papers included, used it in such a way. Although researchers reported a positive experience from this use as it allowed a theory-informed focus and organisation of complex data in digestible chunks, there is a concern about overemphasising the status quo (e.g., reproduction of similar accounts that weight CHAT specific components). By considering this potential limitation, the present thesis adopts a more open-ended approach to data analysis. This means, it does not start with pre-defined and deductive approaches to data analysis. This is so that research insights that may be surprising or important in the context of the study can be uncovered more organically.

3.7 Polyfunctional use of CHAT within this thesis lifecycle

This section culminates the earlier sections into an outline (Figure 3.7) that illustrates the polyfunctional use of CHAT within the present thesis lifecycle. As already discussed, CHAT shaped this study's conceptualisation through the use of its key theoretical constructs. CHAT's representation acted as a useful heuristic to map out the activity components and assist with the thesis contextualisation (e.g., locating the objects within context and structure). The 'contextualising' role of CHAT has been identified by Bligh and Flood's (2017) review, as one of the key reasons why CHAT was used in HE studies. It helped with problematising the positioning of key actors within the activity systems and prompted deeper engagement with the literature for building the rationale of this thesis. Therefore, from this thesis outset, there was an appreciation for complexity which became even stronger throughout the research.

CHAT also played a significant role in the research design and data collection instruments. In brief, the concept of historicity gave rise to a multi-staged data collection strategy to capture practice over time. Key concepts of CHAT, such as contradictions and multivoicedness were sources of inspiration for the design of interview protocolos and foci during design meeting observations (e.g., emergence of contradictions during actor exchanges, how and why particular design approaches are more dominant than others) (see section 4.5). Therefore,

CHAT set the stage for the investigation of important aspects that would have potentially been examined more superficially or remained invisible without its thorough adoption.

CHAT has an active role on the meaning-making of data by capitalising on its theoretical concepts and therefore, providing a strong theoretical basis for interpretation and plausible explanations. Its inherent focus on situational dynamics and relationships among activity components and systems is key. Finally, it offers a common language for description and interpretation which can be useful when trying to convey complex meanings and has the potential for abstraction and general conclusions (Bligh & Flood, 2017).

Conceptualisation
- Assisted with contextualisation and complexity apprehension.
- Problematised the positioning of key actors and prompted deeper engagement with the literature.

Research design
- Influenced the overarching research design and data collection strategy (multiple stages, inclusion of different actors).
- Informed and inspired the the design of data collection instruments (interviews, observations).

Data interpretation
- Made use of core concepts and principles for theory-informed meaning-making and findings' interpretation.
- Provided a useful vocabulary with potential for abstraction and general conclusions.

Figure 3.7: Polyfunctional use of CHAT within the present thesis lifecycle

3.8   Chapter summary

This chapter has defined and justified the suitability of the third generation of CHAT in this thesis. It has provided a detailed account of the core concepts and underlying assumptions behind CHAT and how it has been employed. CHAT shortcomings have also been identified and considerations have been made to address them to ensure a suitable and sound use. Notably, CHAT works alongside conceptual understandings of what design is and what it takes to be a designer that have been elaborated in section 2.2 to offer a strong underpinning for this research. The next chapter presents the adopted methodology and discusses how CHAT has shaped different methodological decisions.

Chapter 4 | Methodology

4.1   Introduction

After reviewing the relevant literature and establishing the thesis theoretical lens, in this chapter, I justify the methodological decisions I made. I first introduce the philosophical positioning of this research and the rationale behind the overarching methodological approach I took. I then move on to detail the sampling approaches and criteria, data collection methods and processes and summarise relevant ethical considerations. To close, I present the adopted data analysis approaches and the strategies for ensuring trustworthiness. Throughout the chapter, I outline limitations and challenges encountered during the research process.

4.2   Philosophical positioning

Before deciding on which methodology and methods would be best fit for purpose, the decision-making process must start by defining the study's philosophical assumptions. This is to identify the nature of reality and knowledge and the relationship between the researcher and the participants (Symonds & Gorard, 2010; Savin-Baden & Major, 2013). Given the multiplicity of accounts on key concepts related to philosophical positioning and methodology, Crotty's (1998) research framework has been used as an overarching organisational structure; the research design of the present thesis has been mapped onto Crotty's suggested layout (Table 4.1) to allow for clarity. This framework was selected over other similar ones as it can provide some structure and consistent use of terminology at a higher level than other (also well-cited) frameworks that do this at a micro-level (e.g., Silverman's research onion). This higher-level articulation resonated with my approach in conveying data collection, analysis methods, and processes in more detailed and context-specific ways than other frameworks might have directed me to do. Specifically, Crotty's framework comprises four components, 1) 'epistemology' representing the nature of knowledge; 2) 'theoretical perspective' informing on the philosophical foundations and the logic behind the research process; 3) 'methodology', describing the overarching research strategy and processes that link the methods with the desired outcome; and 4) 'methods' including the techniques and ways the data are collected.

Table 4.1: The study's epistemology, theoretical perspective, methodology and methods

Epistemology	Theoretical perspective	Methodology	Methods
Social Constructionism	Interpretivism	Qualitative multiple case study	• Interviews • Non-participant observations • Document analysis

This section focuses on epistemology and theoretical perspective, while methodology and methods are discussed in sections 4.3 and 4.5. This research is situated within the social constructionism epistemology which acknowledges that individuals construct meaning and reality through interacting with one another (Berger & Luckmann, 1966; Crotty, 1998). In this positioning, knowledge is seen as relational, and meaning is dependent on human constructions based on their conscious engagement with the world they are interpreting (Berger & Luckerman, 1966). Social constructionism suggests an indivisible relationship between the human experience (subject) and the object. This means that an object cannot be adequately described in separation without the conscious experience attached to it by the subject (Crotty, 1998). This stance also aligns with CHAT, which explicitly shows this interactive relationship between interdependent subjects and object(s) and other social and material components, with meaning being seen at their interplay and as socially negotiated. From an ontological perceptive, reality is dependent on the way we make sense of it (Crotty, 1998). This encourages researchers to present conclusions more tentatively and less dogmatically, while acknowledging them as cultural and historical interpretations and not everlasting truths (*ibid.*).

A central theoretical perspective in this thesis is interpretivism, which neatly aligns with social constructionism. Interpretivism involves developing 'culturally derived and historically situated interpretations of the social life-world' (Crotty, 1998, p.67). To this end, the emphasis on historical, cultural, and social values as shaping the way people understand and experience the world, fits well with CHAT (Roth & Lee, 2007). Considering the context of the present research, online learning design does not just happen. Instead, it is continuously shaped by individuals and actors interacting with one another within their contexts. Each individual brings their own beliefs, experiences, and historic understandings to construct meaning that shapes their work. Rather than seeking a single truth waiting for the researcher to discover it, interpretivism posits that there are multiple realities and interpretations of a phenomenon (Cohen et al., 2018).

These interpretations are constructed by competent interpreters (Guba & Lincoln, 1994). This assumption guided me to embed the multiplicity of views in the present research and to critically reflect on 'truths' constructed by individuals and groups (Creswell, 2014).

As a researcher adopting the interpretivist paradigm, I am not perceived as a detached and impartial observer, but as a central actor whose inquiry process and values directly influence meaning-making (Merriam, 1998). The present thesis, therefore, aims to capture and represent participants' constructions of their social realities (Cohen et al., 2018) which are built through processes of dialogue during data collection and which I further interpret as the principal researcher (Merriam, 1998).

4.3   Methodological approach: qualitative multiple case study

The aim of this research was to explore how educators and digital learning professionals make design decisions for online learning when they work together. It sought to understand the key actors' *in-situ* practices and experiences in online learning design. A qualitative research approach was deemed suitable for this investigation due to its exploratory nature and interest in 'uncovering the meaning of a phenomenon for those involved' (Merriam & Tisdell, 2015, p.6)

A qualitative multiple-case study research design was adopted as it focuses on naturalistic practice-based investigations without manipulation by the researcher (Cohen et al., 2018). There are various definitions and conceptualisations of what a case study is (Savin-Baden & Major, 2013). For example, several researchers use the term to describe the final product or narrative of a qualitative research project (*ibid.*). This view is rejected in the present work, as case study has been used as 'an all-encompassing mode of inquiry with its own logic of design' (Yin, 2018, p.16), rather than a way of reporting data. Case study as a methodology seeks to address 'how' and 'why' questions about social phenomena. In this thesis context, the 'how' of the design process, the 'why' of design decisions taken in specific ways and their underpinning, based on the perceptions of individuals and groups. Yin (2018) defined case study as follows:

> '[It] 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' (p.15).

This in-depth, context-sensitive nature of case study methodology is aligned with the vision for this research to build a holistic understanding of online learning design practice through the

eyes of those directly involved by gathering fine-grained details (Cohen et al., 2018). This research acknowledges the complexity and challenge of designing educationally informed online learning based on insights drawn from the literature and the researcher's prior experience as an educator and a learning designer. Therefore, the detailed and focused approach of case study research creates better conditions for capturing multiple facets and nuances than other methodologies, which, as posited by Cohen et al. (2018), is one of its strengths. In parallel, case study inquiry typically uses a variety of data sources to ensure that a phenomenon is explored through different lenses (Baxter & Jack, 2008).

A significant consideration in case study research is the definition of its boundaries by determining its unit of analysis ('the case') (Miles & Huberman, 1994; Stake, 1995). CHAT guided the definition of the unit of analysis for each case and therefore, bounded the cases. As discussed in Chapter 3, the unit of analysis is the interaction between two activity systems (educators' and digital learning professionals' activity systems) working towards a shared object (online learning design) that involves collective work for decisions to be made.

Another key decision that had to be made early in the research design process was whether to employ a single or multiple case study design (Yin, 2018). In this research, a multiple case study design was chosen as the intention was to gain insights from various settings that would provide added strength to commonalities and differences between the cases (Miles & Huberman 1994). This design is considered to provide more compelling and robust evidence compared to the investigation of a single case alone (Creswell, 2014; Yin, 2014). It was also based on this thesis ambition to gather data from multiple institutional settings as per the identified literature gap.

4.4   Sampling methods and criteria

The sampling method adopted in this study is purposive sampling, a frequently preferred strategy in qualitative studies (Cohen et al., 2011). This is to gain insights from participants with relevant experience and perspectives to maximise what can be learnt (Stake, 1995; Patton, 2002). What is more, in case study research, as suggested by Stake (1995) and Yin (2018), binding the case through the specification of characteristics that are important for the inquiry is key. To this end, specific selection criteria were defined based on relevant literature features and gaps as well as my own prior experience.

The following outlines the selection criteria and provides a synopsis of the reasoning behind their inclusion in the research design:

1) To be an online learning design activity that leads to the development of an online module by educators who are working with digital learning professionals (e.g., learning designers/technologists, media producers) and potentially other university actors.

This research focuses on collaborative design settings based on the assumption that such an approach to online learning design may generate more fruitful and robust learning experiences (e.g., Burrell et al., 2015; Olney et al., 2018). Although the working relationship (e.g., collaborative, consultative) was unknown at the outset of the research, the inclusion of a case was on the basis that a university has set up a context for educators to work with digital learning professionals and other actors.

2) The object of the activity to be the design of an online credit-bearing module from a UK university. The design of MOOCs or non credit-bearing online course was excluded.

The field has highlighted differences between various forms of online learning and therefore, it was important to be explicit about the selection of a specific context. In brief, MOOCs or shorter online courses are designed for a different learner population (e.g., beginner level, motivation varies, age group, and educational background are highly diverse) than credit-bearing learning (Ho et al., 2014; Kovanović et al., 2019). Therefore, different pedagogic considerations are typically made. Importantly, the attention that educators pay to the design of the formal units of learning (e.g., UG/PG modules) that they teach is typically greater and different in nature from the design of MOOCs. MOOCs are seen as a side project and educators' contribution is often limited to the design phase, and not the whole teaching lifecycle. Institutional organisational structures (e.g., people involved, their level of involvement, rules) and resources are also different between MOOCs and credit-bearing online learning. For instance, more funds may go to credit-bearing developments as a strategic university activity (White, 2018; McInnes et al., 2020). All these conditions have significant implications for the realisation of collaborative design work, pedagogic decisions and influencing factors which are the subjects of this thesis. Therefore, a clear boundary was needed. The design of credit-bearing online learning was chosen as a more fruitful context for investigation given its significance and positioning within the educators' work responsibilities.

3) To be an online module which is in the design and development process. Therefore, fully developed online modules were excluded.

This criterion was based on other researchers' recommendation to conduct studies that go beyond data collection through a one-off retrospective interview to add richness to the existing literature body (e.g., Bennett, Agostinho & Lockyer, 2017; White, 2018). This can be achieved through collecting data throughout the design process rather than only when the design activity has been completed. It can allow for fresh insights and the identification of more detailed and emerging design decision patterns.

4) To include educators who are new to online learning design and teaching.

In this thesis, educators who have not engaged in credit-bearing online learning before (despite their overall teaching experience) have been included and are considered novice online educators (see Glossary and Chapter 2 for a more detailed articulation). This criterion was formed to examine the assumption drawn from the literature that online learning design may require a different set of considerations, knowledge, and skills (Kilgour et al., 2019). Establishing whether such an assumption is valid or not, can offer guidance for universities in terms of the type and level of support to provide to educators.

This research also aimed at selecting online module design teams from different institutional contexts to ensure a range of perspectives and explore potential differences and similarities that are missing from single institution investigations (Voogt & Pieters, 2018). This approach has the potential to reveal factors impacting design decisions from the institutional context and culture perspectives (Cooper, 2017; Anakin et al., 2018). Notably, the Open University (OU) in the UK was excluded, as it is a university dedicated to distance education and would be an 'atypical' case. Educators from the OU would not be well placed in this research, as they tend to be experienced in online learning and teaching and operate in different roles than those of educators in traditional UK Universities (e.g., nature of teaching and research responsibilities).

4.5   Data collection methods

Given the nature of this research, the selection of data collection methods had to allow for sensitivity to underlying meaning, including interviewing, observing, and analysing human

behaviours, experiences, and perspectives (Merriam & Tisdell, 2015). As such, a multi-staged and multi-method approach was deemed necessary to investigate participants' experiences when designing for online learning over an extended period. This decision was also influenced by CHAT and the intention to capture the activity's historicity which involves studying a phenomenon while it is in motion and evolving (Sannino & Engeström, 2018). Therefore, an extended data collection period was seen as a productive strategy to achieve that.

As also shown in Figure 4.1, the methods utilised in the present research included, one-to-one semi-structured interviews (two stages), non-participant observations of design meetings and document analysis. The following sections detail the rationale behind the selected methods and design of the data collection instruments.

Short one-to-one semi-structured interviews
Aim: To gather background information + existing practices

| Educators | Digital learning professionals |

Non-participant observations of design meetings + informal conversations
Aim: To capture design processes, team interactions, pedagogic decisions and influences during design

In-depth one-to-one semi-structured interviews
Aim: To capture design processes, pedagogical decisions, factors influencing decisions and how the experience of online learning design may inform future practice

| Educators | Digital learning professionals |

Collection of relevant documents for analysis

Figure 4.1: Data collection methods and process

4.5.1 One-to-one semi-structured interviews

Interviews can be powerful for collecting in-depth data that allow participants to provide first-hand experiences and explanations (Bryman, 2016) on their online learning design decisions when working with digital learning professionals and other actors. They are seen as 'the main road to multiple realities' (Stake, 1995, p.64), as participants can highlight and comment on

how they feel, experience, and evaluate their practice (Savin-Baden & Major, 2013). Therefore, they are aligned well with interpretivism adopted in this research.

Although focus groups or group interviews may seem to be a promising choice when exploring design practice in collaborative design settings, one-to-one interviews were selected as more suitable. This was due to the sensitive relationship between university actors operating in different roles and the dynamics that may develop throughout their working relationships. For example, in the case of strong hierarchical dynamics, an individual may feel silenced by the presence of a more senior member of the team (Kitzinger, 1995). To make each participant feel as comfortable as possible to express their experiences and therefore, maximise what can be learnt, a one-to-one interview approach was adopted. The rationale behind this choice was also based on the fact that individual participants belong to different activity systems. Therefore, it seemed more appropriate to interview them separately to provide their own perspectives without being influenced by their colleagues.

A semi-structured interview process was also preferred to other potential options, such as highly structured, and unstructured interview designs. This was because it provided a unified set of open-ended questions to be addressed across cases for consistency (Cohen et al., 2011), while allowing flexibility to direct discussions based on emergent ideas from participants' responses (Bryman, 2016).

Semi-structured one-to-one interviews process and design

Interviews were conducted in two stages; before/in the early stages of design (short interviews) and after the full development of the investigated online module(s) (in-depth interviews). All interviews were audio recorded with a view to be transcribed verbatim for analysis. Stage one interviews were conducted at the earliest possible stage of the learning design process and much resembled a natural conversation. Their primary aim was to gather participants' past experiences to build an understanding of the context and build rapport with the participants. Establishing rapport with participants was key for minimising social distance and building trust to enable participants to share rich stories and explanations of their practice (Duncombe & Jessop, 2002). Two protocols were designed for this initial short interview (see Appendix D); one for educators and one for digital learning professionals which included a similar set of questions with slight adaptions, when required, to reflect the nature of their roles.

The second interview took an in-depth one-to-one semi-structured format and was conducted once the online module was fully developed. Similar to the short interviews, interview protocols were designed to include open-ended questions to elicit descriptions and explanations of significant characteristics, issues, and assumptions regarding the pedagogic design decisions taken (see Appendix E). These protocols included questions relating to the design processes that participants followed, pedagogic approaches adopted, factors influencing their decisions, and learning points from this process for their future practice. These questions were structured based on the research aims and informed by the literature.

Notably, to ensure that the interview questions were fit for purpose, I piloted them with colleagues. This process was useful as I confirmed that most of the semi-structured and open-ended interview questions elicited interesting insights. A few modifications were made for improvement, such as changing the sequence of a few questions so that the interview process has a smoother flow. It was also necessary to rephrase four questions to be more specific and easier to understand, as it felt that they were slightly abstract. I also checked the audio-recording process which was helpful and gave me confidence for the data collection phase.

Stimulated recall strategy within in-depth interviews

To enhance participants' recall and retrospective insights, stimulated recall was also used as a research strategy embedded in the in-depth interviews (stage 2). Stimulated recall is an introspective research procedure 'through which cognitive processes can be investigated by inviting subjects to recall when prompted by a video sequence, their concurrent thinking during that event' (Lyle, 2003, p.861). In this case, participants were invited to open the online module they had designed and navigate me through their site, while describing their decisions (e.g., organisation, learning activities, the digital tools used) and articulating their underlying rationale. It was an open-ended process where the participants had agency over what to report and how to proceed with this process so that it feels as natural as possible. It was designed to act as an additional layer of data gathering within the in-depth interviews to provide supplementary fine-grained details, rather than being the main interview technique.

Stimulated recall was suitable as it allows the researcher to capture, in a 'think- aloud' fashion, decisions made by participants by using the designed material artifact (online module site) as a visual aid and situated stimulus to revive their experience. It can facilitate participants'

thinking and enable them to justify their actions at a given time through the provision of tangible examples from their own practice (Calderhead, 1981; Lyle, 2003). The stimulated recall strategy within the in-depth interviews was anticipated to assist with the provision of a verbalised account of participant thought processes, rather than relying solely on their memory (Calderhead, 1981) and thus, it may limit superficial or very generic self-presentation of actions.

4.5.2   Non-participant observations

Case studies take place in real-world settings and therefore, observation as a data collection method is valuable (Yin, 2014) for gathering *in-situ* data from naturally occurring social phenomena (Cohen et al., 2018). During observation, unique aspects (e.g., finer-grained details on design foci, interaction patterns among actors) may be noticed that are not otherwise experienced through interviews or document analysis to the same extent. Therefore, the combination of interviews with observation data was anticipated to allow for 'zooming in' (observations) and 'zooming out' (interviews) to draw a richer picture (Goodyear, 2020).

Part of the non-participant observation procedure in the present research included 'shadowing' design meetings. The intention was to observe how educators work with digital learning professionals and the design decisions they take without interrupting the flow of their work (e.g., via questioning) or influencing their behaviours and thinking. However, it is acknowledged that my presence as an external researcher, is inevitably noticed by the observees and this may bring some disruption to their normality. Therefore, further considerations were made to minimise, as much as possible, this potential effect to retaining the naturalness of the setting. The aim was to 'fade into the background' and be ignored by participants (Denscombe, 2017). To achieve this, two strategies proposed by Denscombe (2017) were adopted. First, unobtrusive positioning was employed through sitting in an area close to participants but not in the immediate interaction space when observing and taking notes. In cases where online meetings were observed, I switched off the camera and microphone to minimise disruption. Second, I avoided interaction with participants by not engaging in discussions. Although the impact of my presence cannot be easily measured, both strategies were useful to reduce disruption.

The space and type of design meetings to be observed were negotiated with the participants in each case study. This is because there was not an intention to count frequencies of elements

in a systematic way, but to gain insights into participants' work in their authentic settings that would give rise to deeper discussions during the in-depth interviews. For consistency purposes, I planned to conduct up to three observations in each case study. Given the challenging nature of learning design, in contexts where observations were not possible, alternative ways of bringing richness were considered and implemented (e.g., informal discussions and/or use of design documents). Informal conversations with participants after the design meeting, wherever possible, were anticipated to allow participants to share their views, interpretations, and feelings beyond the design meeting (see section 4.6.3).

An observation guide with indicative points for attention was designed to bring focus during the observations. These included organisational and human setting information (e.g., who was involved, design stage), design processes, the nature of interaction between participants that enabled and/or constrained design decisions, design influences and reasoning processes and orientations towards online pedagogy (see Appendix F). CHAT played a key role in the observation guide's design and drew attention to theoretically significant aspects such as the identification of contradictions with past activities, tensions, and negotiations between participants. However, these observation points included in the guide were indicative, and a flexible approach was adopted to allow the recording of the most relevant information. This approach is compatible with the exploratory nature of this study that aims to capture authentic participant behaviours and practices rather than to test specific hypotheses.

4.5.3   Document analysis

Document analysis is the 'process of evaluating documents in such a way that empirical knowledge is produced, and understanding is developed' (Bowen, 2009, p.34). In this research, documents that might offer useful information in relation to the research aims were collected for analysis. These documents acted as secondary evidence sources to corroborate or augment evidence from interview-based and observational data (Yin, 2014). As Savin-Baden & Major (2013) argued, documents are concrete examples of social meaning-making that can reveal cultural and historic norms, team visions and actions and therefore, they can add depth and breadth to qualitative inquiry. In the case of contradictory evidence, the findings from document analysis can act as cues for further investigation, such as by asking participants to provide further explanations and views regarding a specific point reflected in documents.

I positioned myself as a retrospective vicarious observer of documents, as documents reflect communication among stakeholders to achieve several objectives that often fell beyond my direct observation and study intentions. To this end, they should be reviewed critically as they may have underlying assumptions that are unknown to an external researcher, and thus, they should not be treated as unmitigated truths. Yin (2018) proposed that a useful strategy when reviewing documents is to understand the specific purpose and the target audience to be able to critically interpret their content, a strategy that was embraced in this research.

The document types that were analysed included:

- University learning and teaching strategic documents;
- Module descriptors and specification documents;
- Design documents and/or other documents used during design; and
- University webpages with relevant information (e.g., training resources, structures of design teams, and purpose/positioning of roles, online degree/module information).

This document selection included both publicly available information (e.g., learning and teaching strategy, online module/degree information on websites), and supplementary documents (e.g., design documents) provided by the participants (see Table 4.3).

4.5.4 Research diary

Guided by the interpretive approach I adopted in this thesis and qualitative research good practice guidelines (Denzin & Lincoln, 2011), I kept a research diary with my reflections and insights throughout the data collection and analysis stages. As per Schön's (1983) definition, reflection involves surfacing and criticising tacit understandings for meaning-making of new uncertain situations. This approach allowed me to maintain a reflective stance on the various aspects of my research which yielded more rounded interpretations of themes.

4.6 Data collection process

This section presents the data collection process. It starts by detailing the case recruitment process and the characteristics of the selected participants. It then outlines how data collection was implemented and considers the challenges faced. It closes with a summary of the ethical issues and their mitigation as part of this research.

4.6.1 Recruitment process

The recruitment of cases was an ongoing process which started in May 2019 and was completed in May 2020. Although a part of recruitment took place during the pandemic, for consistency purposes, this research recruited only participants who were working towards the design of online modules being part of online/hybrid degrees; therefore it excluded individuals working towards redesigns of on-campus modules due to the pandemic. At the beginning of the process, I sought to select cases based on UK universities with diverse characteristics (e.g., Russell group, Post-92, London and non-London based). However, a pragmatic approach had to be taken given the recruitment challenges faced. Although challenges and drop-out in research which involves multiple data collection points were anticipated, the COVID-19 pandemic added further complexity, for example, with two originally recruited case studies dropping out due to a change in timeline. To this end, an opportunistic, 'first-come-first-served' approach was adopted to select cases within the thesis timeframe that would fall under the predefined selection criteria (see section 4.4). The below diagram illustrates the cases' recruitment process that was followed in this research.

(1) Website screening		
University websites	MOOC platforms	Online programmes search engines

(2) Participant screening & contacting	
Contacting potential partcipants	Universities' ethical processes screening

(3) Communicating in detail research aims & procedures	
In-person/ virtual meetings, information sheet	Gaining approval from the Head of Department

(4) Specific arrangements with selected online module team ('the case')	
Participants' signed agreement of participation	Arranging interview and observation dates

Figure 4.2: Recruitment process

As seen in Figure 4.2, a website screening was first conducted to identify UK-based universities that actively develop credit-bearing online degrees. This screening included central university websites and other sites, such as the distance learning portal and MOOC platform websites (e.g., Coursera, FutureLearn, EdX) to gain a rounded view of the UK landscape. The assumption behind the inclusion of MOOC websites was that during the recruitment timeframe, a noticeable trend was the partnership of universities with MOOC providers for the development and provision of mostly PG-level credit-bearing degrees. Therefore, the inclusion of such cases (design of credit-bearing online learning using a MOOC platform) would add interesting insights into the research (as also identified in section 2.4.5).

Through this search, departments and specific academic and digital learning teams that met the selection criteria were shortlisted. Then, I contacted individuals identified as being part of online learning design teams (e.g., educators, heads of departments, TEL directors/managers, digital learning professionals) to communicate the aims of my research. The goal was to detect if they: i) meet all the study criteria, ii) would be interested in participating, or iii) know any potentially suitable participants from their own university (snowball sampling efforts). These individuals were contacted via email with an attached executive summary document (see Appendix C) and an invitation for an in-person/virtual meeting to provide further information.

Further information through the participant information sheet (see Appendix A) and the consent form (see Appendix B) was provided to those individuals who expressed interest, while in-person or online meetings were conducted to discuss the research goals and process in greater detail. Further permission from the Head/Director of the relevant departments/ schools was pursued as per university regulations and good educational research practice guidelines (BERA, 2018). Finally, I sought written informed consent from the educators and digital learning professionals involved and we made initial arrangements regarding the date and sites for interviews and observations, based on their schedules and preferences.

4.6.2 The selected cases and participants

Multiple-case study research typically includes two to ten cases with variations expressed by different authors (e.g., Stake suggests four to ten cases) to provide compelling evidence (Stake, 2006; Yin, 2018). Based on this range, this thesis comprises of seven cases that were

purposefully recruited to meet all the criteria outlined in section 4.4. A total of 17 participants were included, of which ten were educators and seven were digital learning professionals.

Table 4.2 provides a summary of the selected cases. Within each case study, I sought to include the participants involved in the design of an online module to be exposed to their potentially diverse views. However, I adopted a flexible approach which is common in multiple case study research (Yin, 2018), based on which the key members in each case identified suitable participants (also based on their availability and willingness to participate). To this end, the roles and number of participants in each case study were slightly different. Regarding the cases' institutional contexts, this research drew from the experiences of participants based at six UK-based universities. With the exception of case studies 5 and 7 which were based on the same university, all the others were from different university contexts. From the selected six universities, five of them could be classified as research-intensive and one of them as teaching-focused university (case 1). A fuller description of each case study is provided in Chapter 5.

Table 4.2: Selected case studies characteristics

Case	Participant roles	Educator experience in on-campus teaching	Educator experience in online learning and teaching	Disciplinary cluster and area
1	1 educator 1 media producer	6-10 years	1 year	Social Sciences *(Education)*
2	1 educator	11-15 years	0-1 years	STEM *(Computing)*
3	2 educators 1 learning designer 1 learning technologist	6-10 years	1st time	Health and Social Care *(Social Policy)*
4	1 educator 1 learning designer	0-5 years	0-1 years	Social Sciences *(Business)*
5	1 educator 1 learning designer	6-10 years	0-1 years	Social Sciences *(Business)*
6	2 educators 1 learning technologist	10-15 years & 0-5 years	0-1 years	Health and Social Care *(Medicine)*
7	2 educators 1 learning designer	0-5 years	1 year	Health and Social Care *(Medicine)*

4.6.3 Data collection in multiple sites and the impact of COVID-19

Data from the different cases were collected during the period June 2019 - November 2020. Data collection across the cases did not happen in a sequential fashion. This is because the goal was to gain evidence from multiple contexts to enrich what can be learnt, instead of data from one case that would inform the approach taken in the next case which may be typical in other case study designs or methodologies (e.g., action and design-based research, mixed methods studies). Therefore, on several occasions, data gathering in different cases was conducted in parallel depending on participants' availability as well as my own capacity.

The aim was to follow the same data collection methods and processes in each case study (see Figure 4.1). Although consistency across the cases is important, multiple case studies allow flexibility in terms of modifying initial designs and schedules to accommodate cases' specific needs (Creswell, 2014; Yin, 2014). Such alterations were necessary in this research due to the emergence of the COVID-19 pandemic, but also the different conditions in each case. Table 4.3 below provides an overview of the data collection activities and timeline per case study. The differences between cases and any changes to data collection methods (e.g., observations, in-person/online data collection) were considered reasonable amendments that did not compromise the integrity of the research.

Table 4.3: Data collection activities and timeline per case study

Case	Data collection period	Number of interviews	Site of interviews	Observations and informal conversations	Documents analysed
1	June-July 2019	4	In-person only	-2 observations - informal conversations In-person only	L & T strategic docs, module descriptor, high level design doc, online team website
2	Feb-April 2020	2	Online only	N/A	L & T strategic docs, programme page, email from LD, module design map
3	Nov 2019-May 2020	7	4 in-person & 3 online	-3 observations - informal conversations In-person only	L & T strategic docs, programme page, L &T webpages that show structure and available resources, design doc

4	Feb-Sept 2020	4	2 in-person & 2 online	- informal conversations	L & T strategic docs, programme page, L &T webpages that show structure and available resources
5	June-Sept 2020	3	3 online	-2 observations - informal conversations Online only	L & T strategic docs, programme page, L &T webpages that show structure and available resources
6	March-Nov 2020	5	2 in-person & 3 online	N/A	L & T strategic docs, programme page, module design map, L &T webpages that show structure and available resources
7	June-Oct 2020	6	Online only	N/A	L & T strategic docs, programme page, module design map, L & T webpages that show structure and available resources
Total	June 2019- November 2020	31	12 in-person & 19 online	N/A	N/A

Transitioning from in-person to online data collection due to the pandemic

Although my initial intention was to conduct all the interviews and observations in-person, the lockdown restrictions imposed in response to the pandemic meant I had to adapt this plan accordingly and re-schedule all the data collection activities to be implemented remotely (period: March-November 2020). Based on this, I amended my ethics application to reflect this shift and then I offered participants the option to choose between MS Teams and Zoom to conduct the interview and observations based on their preference.

Before implementing data collection remotely, I sought to gather good practice guidelines from the literature. For example, I found that online interviewing has gained popularity due to its cost-effectiveness and opportunity to interview participants who may otherwise be challenging to reach (Deakin & Wakefield, 2014), while experiences of conducting virtual interviews have been largely reported as satisfactory (O'Connor & Madge, 2017; Weller, 2017). This offered me reassurance for the continuation of my research. However, potential drawbacks include

technical issues, lack of participants' competence in using videoconferencing technology and feelings of discomfort (Deakin & Wakefield, 2014; O'Connor & Madge, 2017). These drawbacks were not experienced in the present research. This might be due to participants' familiarity with videoconferencing technology due to the pandemic and based on the fact that they worked in the domain of online learning. It might also be due to the adopted research design which allowed me to build rapport with participants through the short interviews. It generally felt that participants were open during the online in-depth interviews and thus, the research quality was not compromised. The use of camera was also a good strategy to preserve visual contact with participants and capture non-verbal cues; nonetheless, it is acknowledged that in-person interviews might have been more effective in this respect (O'Connor & Madge, 2017).

The remainder of the section provides a summary of how data were collected in both in-person and online modes following a chronological method-based order.

Short interviews

As per the data collection process (Figure 4.1), the first data collection stage involved the one-to-one short interviews. The short interviews were conducted with 15 out of 17 participants and allowed for capturing background information and their past practices. Only two participants preferred to have one in-depth interview (rather than both short and in-depth interviews) due to their heavy schedules and preferences. In this case, the two designed interview protocols (short and in-depth interviews) were combined into one to cater for their needs. Ten out of 15 short interviews were conducted in-person (before the pandemic). Overall, they lasted between 15 and 55 minutes, with a mean duration of 33 minutes. At the end of the short interviews, arrangements for the design meeting observations were made.

Non-participant observations and informal conversations

After the short interviews, the data collection process included the observation of up to three design meetings and follow-up informal discussions (lasting 10-15 minutes). Observations in these cases proved to offer a rich picture on participants' design work. During the observations, I recorded events of interest (also driven by the observation guide) using open-ended field notetaking and cross-referencing notes with audio-recording. The content from the informal discussions with participants was not audio-recorded but documented in the form of field notes immediately after each interaction with participants.

The observation of design meetings was implemented in cases 1, 3 and 5, but was not possible in the remaining cases (see details in Table 4.3). For example, in cases 4, 6 and 7, the main reason was due to participants' conflicting schedules and pressures from the pandemic. In case 4, an alternative arrangement was made to compensate for this loss through having online informal conversations with the educator at two different design stages to get fresh perspectives, which added depth to my understanding. This necessary accommodation of participants' needs did not significantly impact the research quality. Instead, the breadth of this research was increased through the inclusion of seven case studies. The inclusion of such a large number of case studies (n=7), from a single researcher would not be possible if non-participant observations were conducted in all the cases. However, sufficient depth was achieved in all the cases due to the research design that involved multiple data collection methods (e.g., two interviews with each participant, document analysis).

In-depth interviews

Following the observations and before the implementation of the in-depth interviews, I revisited the initial short interview transcripts and field notes related to each participant with a view to retaining notes with important points for further prompting during the interviews. Overall, 16 in-depth interviews were conducted, of which 14 were conducted online. These lasted between 20 and 110 minutes, with a mean duration of 66 minutes. During the in-depth interviews, the interview protocol was used. To pay attention to participants, I relied upon the audio/video recording, and I kept minimal notes during the interview. Note-taking was only done when there was a particular point made that warranted follow-up. The stimulated recall technique was also implemented and involved participants sharing their screen (in-person or through MS Teams/ Zoom functionality) and describing several parts of their module and their design rationale. This was an insightful part of the interview as it helped me to gain a clearer and visual understanding of my participants' work. At the end of the in-depth interviews, I thanked each participant for their valuable insights and time and asked them if they could provide me with any relevant documents (e.g., design maps, module descriptors). The provided documents were then included in my analysis along with other useful documents (e.g., learning and teaching strategy) that I had identified through my own search.

4.6.4 Ethical considerations

This research complies with Imperial College London ethical guidelines and code of conduct and was informed by British Educational Research Association Ethical Guidelines (BERA, 2018). It received formal ethical approval from the Imperial College London Ethics Review Process (EERP) before the commencement of any research activity. Since participants from six different UK universities were recruited, written approval from ethics gatekeepers at each of the participants' universities was also gained. Ethical considerations were of utmost importance and pervaded the whole research process, including decisions on the overarching research design and data collection instruments, participant recruitment, data confidentiality, participant anonymity, and researcher professionalism (e.g., treating all participants with respect and equally, ensuring integrity) (Cohen et al., 2011).

From the outset of this research, I ensured that all participants had been fully informed about the aims, data collection processes and anticipated outcomes of my research. As discussed in section 4.6.1, during the recruitment process potential participants were contacted and provided with detailed information about the project in multiple ways (oral exchanges, email, information sheet) and times. I emphasised that their participation is entirely voluntary and that them not participating would not affect their career or relationship with their colleagues and university. Written informed consent (Appendix B) was sought from all the participants before data collection. Before each data collection stage, I (re)introduced the specific aims and research processes (approximate duration, recording, nature of questions) to refresh participants' understanding. I gave them the opportunity to ask questions for clarification or express any concerns to ensure that these are respected, and their needs are accommodated.

The research was designed and conducted as such to eliminate the emergence of power issues. I was polite and sensitive, introducing myself as a 'postgraduate researcher conducting research for her PhD' to reduce any perceived power difference. A decision was also made for educators and digital learning professionals to be interviewed separately to avoid the emergence of potential power dynamics between team members that would harm their relationship and ensure that all participant voices would be equally heard.

Privacy, confidentiality, and anonymity had a key role in all the decisions made. Participants and their universities have not been presented by identifiable forms to preserve confidentiality

(Savin-Baden & Major, 2013). A pseudonym and a unique identifier have been assigned to each participant to ensure anonymity and protect their identity at all times (e.g., in interview transcripts, observation notes, and scientific reports). The participants were informed that quotes from the raw data might be used in research reports to enhance the credibility of this qualitative project and gave their permission prior to data collection. All data were handled sensitively and stored securely in a password-protected personal file space according to the institution's regulations. Last, it was only the researcher that accessed the full set of data in its raw and transcribed forms, while only parts of the data (through anonymised quotes) were discussed with the supervision team to mitigate against unconscious and conscious bias. A fuller account of ethical considerations can be found in Appendix G.

4.7   Data analysis

This section presents and justifies the data analysis strategies employed in this research. Thematic analysis (Braun & Clarke, 2006, 2019, 2020) was used as an overarching analysis method for identifying, analysing, and reporting patterns or themes within data. It is a useful method for organising and describing data while attending to its rich details (*ibid.*). It was chosen as it is a flexible and dynamic approach for the thematic synthesis of primary research that allows the examination of various participants' perspectives derived from multiple sources (Braun & Clarke, 2006). It is deemed suitable for the exploration of similarities and discrepancies among different participants and settings as well as the attainment of unexpected insights (Nowell et al., 2017). This is important given the multiple case study design of this research which involved techniques to analyse data both within each case study, treating each case as a whole study (Yin, 2014), but also across cases by combining and synthesising findings of the seven cases to strengthen the research (Stake, 2006; Yin, 2018).

Thematic analysis is not a unified approach but instead, it refers to a cluster of approaches. Although these approaches share the aim of pattern identification and meaning-making across a dataset, they direct researchers to different analytic procedures underlined by specific epistemological orientations (Braun & Clarke, 2019). Braun and Clarke (2019) identified three distinct approaches to thematic analysis; coding reliability, codebook approaches and reflexive thematic analysis. Coding reliability (e.g., Boyatzis, 1998; Joffe, 2012) and codebook approaches (e.g., Smith & Firth, 2011; Gale et al., 2013) were deemed to be less suitable for this research. This is because they follow a more structured coding approach; by utilising pre-

determined coding frameworks to systematically categorise data (codebook) or are dependent on multiple coders to ensure a more 'accurate' coding process (coding reliability) (Braun & Clarke, 2019). Consequently, they are not aligned with my adopted interpretive paradigm which focuses on the researcher and participants as the key co-constructors and interpreters of their multiple realities.

Reflexive thematic analysis has been used as a well-fitted analytic approach, which involves an organic and iterative approach to data analysis conducted by a researcher who engages in thoughtful, prolonged, and reflexive ways with data (Braun & Clarke, 2020). Reflexive thematic analysis positions that no two researchers will come up with exactly the same analysis outputs. Therefore, descriptions, narrations, and key discussion points should not be seen as straightforward representations of reality, simply mirroring 'what is there' (Crotty, 1998). Instead, reporting is based on how something is experienced, seen, and constructed through the interaction and meaning-making processes between the researcher and participants.

A choice had to be made also in terms of the approach to coding; typically characterised as deductive or inductive (Patton, 2002; Braun & Clarke, 2006). Deductive coding refers to a coding process which is based on theory/existing research and uses a pre-specified conceptual or theoretical framework. On the contrary, inductive coding refers to an 'open-coding' process which is grounded in the data (Braun & Clarke, 2013), also known as 'bottom-up'. As seen in Chapter 3, many studies that use CHAT tend to largely depend on pre-defined categories based on CHAT's core components with minor deviations and thus, they follow a predominantly deductive approach (see review of Bligh & Flood, 2017). This approach was not seen as productive in this research as it would constrain me to code the data within neat dimensions that would not attend to the full complexity and richness that the present research design had set up to capture. Furthermore, no other study has studied the same phenomenon in the same way so that pre-determined categories from previous studies can be used. On the other hand, a purely inductive approach ignoring the theoretical framework (CHAT) and useful literature concepts was not possible. Therefore, this research followed a predominantly inductive approach in its initial stages and a degree of deductive coding in later stages, by using some of CHAT's conceptualisations and concepts from the literature. This approach can be termed as a hybrid of inductive and deductive approach (Fereday & Muir-Cochrane, 2006; Xu & Zammit,

2020). This hybrid approach was fruitful and allowed for a balanced and flexible view of data within their context and relating them with useful literature constructs.

Braun and Clark (2020) have also argued that attention should be paid into the coding focus where meaning is assigned across a continuum from the semantic to the latent. Semantic coding is based on the surface or explicit meaning of data as assigned by participants, while latent coding aims to identify underlying or 'hidden' meaning within data (Braun & Clark, 2020). This research followed an adaptation of the strategy by Terry et al. (2017) according to which initial coding attempts resembled the semantic level but moved towards a latent approach through data immersion and efforts of meaning-making at later stages. The below table provides a summary of the decisions taken regarding data analysis (justified above) and findings reporting techniques (described in section 0 below).

Table 4.4: Data analysis and reporting decisions in this research (based on Braun & Clark, 2006, 2019, 2020; Terry et al., 2017; Yin, 2018)

Decision	Choices	Researcher choice
Approaches to thematic analysis	• Coding reliability • Codebook approaches • Reflexive	• Reflexive
Coding approaches	• Inductive • Deductive	• Hybrid of inductive and deductive *(started from inductive and iterated with theory-informed concepts in mind)*
Coding focus	• Semantic • Latent	• Hybrid of semantic and latent *(a gradual move from semantic to a latent approach)*
Multiple case study analysis levels	• Within case analysis • Cross case analysis	• Within and cross case analysis
Thematic analysis reporting technique	• Illustrative description • Analytical description	• Primarily Illustrative *(by making analytic points about specific details)*
Multiple case study reporting approach	• Single case presentation • Cross-case synthesis • Question and answer format	• Cross-case synthesis

4.7.1 Data analysis phases

I broadly followed the six phases of the thematic analysis process as defined by Braun and Clarke (2006; 2019). Given the multi-case study design, appropriate adaptations were made as necessary (see Table 4.5 for a summary). The remainder of this section presents the data analysis process and tools (e.g., analysis software, note-taking) used in a phase-based narrative. However, it should be noted that it was a highly iterative process rather than a linear transition to different phases. The analysis process was prolonged and spanned from the data collection through reflections and the transcription process, until the write-up of this thesis.

Phase 1: Familiarising with data

Familiarisation with the data was the first phase and entailed the active reading and re-reading of all the data collected within each case, to become intimately familiar with their content and form initial ideas (Braun & Clark, 2006). I deliberately decided to manually transcribe all the data myself to achieve a greater appreciation from the very start. Interview recordings were transcribed verbatim to capture their content with accuracy and in full detail (Silverman, 2013). I transcribed each interview as soon as possible upon its completion to keep my thinking fresh and so that the transcription process was kept at manageable levels from a project management perspective. The observation recordings were played several times and transcribed in a way to enrich the recorded field notes already taken. All resulting documents per participant were converted into a PDF format for more systematic analysis.

Yin suggested that 'one starting point for any analysis is to "play" with the data…searching for patterns, insights, or concepts that seem promising' (Yin, 2018, p. 167). To this end, I printed and read each transcript several times. I highlighted text and took notes both on paper and in the form of reflective notes (see Figure 4.3). Keeping notes and reflections and saving interesting passages for each case study was useful for uncovering potential patterns within data and unravelling possible meanings at this preliminary stage to be revisited at later stages.

> "Several design ideas and decisions are attributed to community and network-based interactions the key actors had with academic colleagues and researchers with experience in online learning, PG level mentors, online resources (e.g. MOOCs, institutionally-based) and their involvement in L& T activities. Lessons learnt from other contexts and ideas were incorporated in design decisions."
>
> "Partnership between the actors appears to provide a space for thinking externalisation, integration of knowledge, and emotional support. Nonetheless, there appears to be a level of discrepancy on how participants with different roles describe their positioning on design. Educators perceive digital learning professionals as partners and collaborators with expertise in online learning, while digital learning processional appear to describe themselves not only as partners, but also as enablers/supporting agents of educators design decisions, however, with unequal (when compared with educators) power over decisions."
>
> "Creating a student learning journey with clear signposting was at the forefront of pedagogy discussions and justification of decisions. An effort was put to design a variety of learning activities well-combined with concisely presented and up-to-date content. Assessment was well integrated into the module structure and was continuous in nature split into chunks so that student receive formative feedback and improve their learning. Design decisions were discussed through the lens of learning spaces and a range of 'spaces' (community, synchronous/asynchronous, digitally-enhanced, inclusive, collaborative, informal/formal, seminar-based) were described and found in participants."

Figure 4.3: Example of preliminary notes and reflections taken

The large volume of data collected meant that a systematic approach for data storage had to be adopted so that they were easily retrievable throughout the extensive analysis process. Therefore, as recommended by Yin (2018), I created a database for each case study that included all relevant notes and transcripts. These were inserted into NVivo 12 for coding. NVivo is an analysis software that was used to assist with analysis due to its capacity for the efficient organisation of large and diverse datasets and to allow for systematic and sophisticated analysis (Jackson & Bazeley, 2013; Silverman, 2013).

Phase 2: Generating initial codes

The second analysis phase involved intensive coding. A code is defined as 'the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon' (Boyatzis, 1998, p.63). Codes are the building blocks of themes. I first conducted inductive open coding (Thomas, 2006) within each individual case study. This involved reading each transcript line-by-line in NVivo 12 and generating codes for information pieces (from a phrase up to a short paragraph) that were relevant to the research questions. Codes were mostly descriptive (semantic) at this stage (e.g., 'strategic priorities and resources', 'the role of learning theories on design decisions', 'team as a key source for creativity'). However, some latent codes were also created from the start (e.g., 'emotional support for

design decisions', 'learning designer as a boundary crosser'). Having built a deeper understanding of the data at this stage, I developed case vignettes to capture important contextual information for each case (see Chapter 5). This helped me with meaning-making as well as the final reporting stage.

Phase 3: Identifying potential themes

A theme is defined as a 'pattern across a dataset, clustered around a central organising concept' (Braun et al., 2019, p. 2). Themes consist of codes communicating a broader pattern that is relevant to the research questions (*ibid.*). This phase shifted the focus from the individual case examination to the meaning-making and interpretations across the data set. Specifically, having developed codes for each case study, I reviewed those multiple times and searched for potential themes. This approach allowed me to move between and within case insights to identify high-level patterns, similarities and differences. It led to the conceptualisation of relationships among codes and thus, I sometimes 'promoted' codes to themes, or I renamed or deleted some of them. I did not solely form codes and themes based on the reoccurrence of specific codes such as in content analytic techniques (Vaismoradi et al., 2013), as what is frequently reported is not necessarily significant when adopting a reflexive thematic analytic approach (Braun & Clarke, 2020). Instead, the key criterion was the code's or theme's meaningfulness in the context of participants' practice and the research aims.

This phase involved both inductive and deductive techniques (Fereday & Muir-Cochrane, 2006). Initially, there was an attempt to create themes organically (inductive technique). However, constructs from CHAT (e.g., contradictions, representational components) and the literature (e.g., TPACK knowledge domains, levels of collective work) were also considered (deductive technique). For example, Mishra and Koehler's (2006) TPACK framework was used as an additional layer of attention and interpretation to characterise the actors' contributions in specific knowledge domains. From this process, I also understood that the nuances within and between cases would be better communicated if themes were kept at a relatively high-level. For example, different levels of influences (individual, team, community, and institutional) were used as the rationale to form several themes. Similarly, using CHAT, I developed the themes 'online pedagogic design decisions' (shared object of interacting activity systems in CHAT) and 'perceived value creation for educator (future) practice' (based on the

study's assumptions and CHAT's principle of the possibility of expansive learning). Nonetheless, these themes included sub-themes that I generated inductively.

Phases 4 and 5: Reviewing, refining, and defining themes

Phases 4 (reviewing and refining themes) and 5 (defining themes) worked in parallel. The analysis in these phases involved examining the dataset from micro (codes and extracts) to macro (narrative and themes) levels back and forth. I reviewed and refined the initial themes and sub-themes I generated in phase 3 to identify further patterns and relationships among them and strengthen my findings (Boyatzis, 1998; Braun & Clarke, 2020). This iterative analytic process and data re-interpretation led to the restructuring and renaming of several themes and sub-themes to improve earlier versions and provide a more coherent picture (Braun & Clarke, 2006). For example, the initial code 'collegial communities and networks' was promoted into a theme named 'collegial communities, knowledgeable networks, and peripheral actors' due to its significance. With further attention to details within the data, I understood that the communities and networks accessed by the different actors (educators and digital learning professionals) were distinct and their roles varied. Thus, I created two sub-themes that reflected this insight. Once I had built a clear understanding and relationship among all data, captured in themes and sub-themes and having collected candidate illustrative extracts for evidencing specific points, I named and defined the themes close to their final state.

Phase 6: Producing the report

The final phase involved the write-up of the results and discussion chapters. It aimed to create an engaging, cohesive, and logical scholarly report with vivid extract examples and interpretations (Braun & Clarke, 2006). Yin (2018) has provided guidelines on case study reporting which I considered to make an informed decision. A cross- rather than a single-case synthesis approach was deemed to be the most suitable. While I performed detailed analysis within and across the cases, my final composition consists of themes and sub-themes discussing similarities and differences across the cases. The large number of cases along with their observed similarities, which were more than the differences, led to the realisation that it would be overwhelming for the reader to be informed about each of the cases separately as repetitions of common trends could not be avoided.

A final decision had to be made in terms of reporting data in the thematic analysis. Terry et al. (2017) suggested that there are broadly two approaches – the *illustrative* and the *analytic*. In the former, more surface-level descriptions of what participants said through extract presentation are reported initially. In the latter, analytic accounts with relevant extracts are presented in parallel with researcher interpretations and finding contextualisation in relation to the literature (Terry et al., 2017). In this thesis, I primarily adopted the illustrative approach to present the findings (Chapters 6-8) by occasionally making analytic points on specific aspects when necessary. This was to be able to communicate more clearly and fully the nuances within and across the cases, without interrupting the narrative flow with interpretations that would increase complexity in reading. The contextualisation of the findings in relation to the literature and the theoretical framework is presented in the discussion chapter (Chapter 9) to focus attention on meaningful interpretations. A summary of the data analysis phases is provided in Table 4.5 below.

Table 4.5: Data analysis process (adapted from Braun & Clark, 2006, 2019)

Phase	Description of actions
1. **Familiarising with data**	Manual transcribing of interview and observations and selection of documents
	Reading printed transcripts and documents several times, highlighting text and making annotations
	Capturing reflections and initial ideas
	Storing and organising data in NVivo 12 and creating a database (for each case study)
2. **Generating initial codes**	Reading all transcripts in NVivo 12 sequentially (1. Short interviews, 2. Observation, 3. In-depth interviews, 4. Documents) [within case]
	Coding all data [within case] [inductive]
	Capturing reflections during the coding process and initial thinking on potential themes
	Reviewing codes with a view to merge the ones that are similar and store elsewhere the ones that do not seem to be relevant [within case]
	Conducting the same process for each case [within case]
	Creating case study vignettes/descriptions
3. **Identifying potential themes**	Reviewing all codes to identify patterns, similarities, and differences [within and across cases]
	Generating initial themes [inductive and deductive]
	Capturing reflections and ideas on connections among themes and between themes and codes

4. Reviewing and refining themes	Checking the candidate themes against the dataset
	Using further analytic techniques to strengthen findings, meaning making and connections [across cases] [inductive and deductive]
	Revisiting, restructuring, and renaming themes and sub-themes as appropriate [across cases]
5. Defining themes	Ongoing analysis to define the themes and their scope, and collection of relevant data extracts [across case]
	Finalising the name of themes and sub-themes
6. Producing report	Describing analysis process and decisions in sufficient detail
	Weaving together a narrative with data extracts [illustrative description in Results]. Then, providing interpretations and contextualising finding in relation to the literature and the theoretical framework [Discussion]

4.8 Trustworthiness

Trustworthiness is used to establish whether 'the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account' (Creswell, 2003, p.196) and why they are worthy of attention (Lincoln & Guba, 1985). Lincoln and Guba (1985) introduced four criteria for trustworthiness in qualitative research; credibility, transferability, dependability, and confirmability. These criteria were used as a basis for ensuring rigor in this qualitative research through the establishment of several strategies. These are presented in this section and summarised in Table 4.6.

Credibility refers to the confidence that can be placed in the truth of findings and was achieved in multiple ways. Method triangulation was employed through the use of multiple methods (interviews, observations, document analysis) to gain a comprehensive and holistic understanding of the phenomenon under investigation and corroborate findings (Yin, 2018). Relying exclusively on single methods (e.g., interviews or observations) would have potentially distorted my picture of the participants' experience (Cohen et al., 2018). Space triangulation was accomplished through collecting data from multiple sites (design teams within different universities) to examine cross-context (lack of) consistency and enhance the study robustness (Yin, 2014) and its potential applicability to other similar settings (Miles & Huberman, 1994). Collecting data from both educators and digital learning professionals also aimed at validating data through multiple perspectives that are representative of a phenomenon.

Cohen et al. (2018) observed that many studies in social sciences are conducted at only one point in time and therefore, they cannot capture the processes and effects of social change.

To this end, collecting data from the same individuals/team at an extended period (over the duration of one online module's design) and at different points in time added strength to this thesis. This is known as prolonged engagement (Lincoln & Guba, 1985) and allowed to gain sufficient exposure to participants and their practices which can give more confidence to the reader for the strength of the results (Savin-Baden & Major, 2013). Persistent observation of data (see section 4.7) was also key to identifying the elements that were relevant to this study.

Findings from case studies have been criticised as not being generalisable (Yin, 2014). The construct of transferability is applicable in this research which concerns the applicability and relevance of the findings to other (similar) contexts, situations and/or people (Lincoln & Guba, 1985). Given that research takes place in a specific time and contexts, it is not possible to pre-specify with accuracy its transferability (*ibid.*). Instead, as a researcher, I had a key responsibility in providing thick descriptions to enable those interested to draw parallels with their own contexts and evaluate whether and to what extent the research findings may be applicable (Shenton, 2004). This is achieved through the case descriptions (see Chapter 5) which provide detailed contextual descriptions of the cases. The description and justification of the research selection criteria and participants characteristics (see section 4.4) can also enhance transferability claims in this thesis.

Detailed descriptions and justifications of research choices (e.g., methodology, methods, theoretical framework, and analysis techniques) and processes have been transparently shared (Savin-Baden & Major, 2013). All data collection instruments were thoroughly reviewed to ensure the best quality possible. This was through receiving feedback from my supervisors, colleagues, and the ethics committee. A peer debriefing technique was also adopted as suitable during the data analysis and writing up phases. This technique involved reflexive discussions with my supervisors and colleagues from my research group regarding my interpretations and conclusions drawn from the data. This process allowed externalising research aspects that 'might otherwise remain only implicit within the inquirer's mind' (Lincoln & Guba, 1985, p.308) and in some cases, rival explanations for the same data were explored. Although there was not an expectation to reach consensus or determine a 'correct' response which goes against this study's epistemological positioning, the use of the peer briefing technique strengthened this research and myself as a reflexive researcher.

When discussing about trustworthiness, it is also significant to acknowledge and be aware of my role as a researcher, also viewed as 'the instrument for the research' (Maxwell, 2005, p.83), in relation to my background, perceptions, values, and experiences which directly influenced the way the research is designed, analysed, and interpreted (Merriam, 1998). These are transparently communicated with the readers in the sections 1.1.4 and 4.9, to allow them to evaluate how data is interpreted. At the same time, I recognised the subjectivity I may bring to the research, which is a common and inevitable component of any qualitative research due to its nature (Savin-Baden & Major, 2013). To this end, being reflexive throughout the research process and question assumptions that may be taken for granted was key throughout the research. This was achieved through keeping self-critical accounts after each data collection point. I captured my feelings of troublesomeness and in-betweenness, in-progress thinking, and interpretations. This process enabled me to attend to the whole dataset and produce plausible explanations.

Table 4.6: Criteria and strategies for trustworthiness in the present thesis

Criterion	Strategies adopted
Credibility	• Triangulation (method, space, and person) • Persistent observation • Prolonged engagement • Peer debriefing
Transferability	• Provision of thick description • Purposive sampling
Dependability	• Transparent description and justification of research design choices and processes • Detailed documentation of data • Interview protocols and observation guide informed by literature, pilot testing with colleagues, and expert feedback
Confirmability	• Reflexivity (research diary) and statement of researcher's values, background, and experiences • Peer debriefing

4.9   Researcher positionality

My beliefs about and perspectives on online learning and learning design have been shaped by my background in Education and Technology-Enhanced Learning and the roles I have undertaken prior to this research as outlined in Chapter 1. Through these roles, I experienced various facets of online learning and teaching from the different angles of a learner, an

educator, and a learning designer. Therefore, I perceive myself as being equally empathetic to these different roles and their positioning in the educational ecosystem. My expertise and passion in the domains of this research along with my lived experiences in online learning design qualified me to attend to details and dimensions of the phenomenon under investigation and helped me to offer relevant interpretations.

Regarding my relationship with the research participants, I can be positioned as an external researcher as I was not part of or contributing to my participants' design decisions. Despite the fact that I was based at one of the universities taking part in this research, I was not working with any of my participants during the data collection, analysis, and writing periods. Finally, during this PhD and specifically the period of the pandemic, I co-taught a PG-level module in education which enhanced my experience from an educator perspective. This work experience enabled me to reflect on the design process I followed, the nature of the decisions I took, and their impact on learners. I also worked for a short period as a learning designer to support academic staff design work during their transition to online learning due to COVID-19. Both pandemic-related experiences were enriching and kept me up-to-date with practice challenges and opportunities as the sector was progressing due to the pandemic. Therefore, I was well positioned to not only create connections between the literature and my research findings, but also to relate these with thinking and experiences that emerged during the pandemic.

4.10 Chapter summary

This chapter has offered a detailed description of and justification for the decisions made in relation to the research methodology of this thesis. It outlined the philosophical positioning taken, the multiple case study design, the participant selection criteria, the data collection methods and processes, and the ethical considerations. It also provided details on data analysis methods and processes and closed with the strategies adopted to establish trustworthiness.

The next chapters focus on the findings of this thesis and are presented as follows:

- Chapter 5: Contextual information and descriptions for each case study.
- Chapter 6, Chapter 7 and Chapter 8: Results presentation using a cross-case synthesis approach.
- Chapter 9: Scholarly discussion linking results with literature, my interpretations, and the theoretical framework (CHAT).

Chapter 5 | Presentation of the cases and study participants

5.1 Introduction

This chapter presents key characteristics of each of the seven case studies included in the present thesis to establish the context within which the research is situated. Each case description includes a presentation of the institutional context, the participants, and information about the online module(s) investigated. It also provides an overview of educator-participants' prior experience and educational practice to build a historical understanding of their practice. This can help to appreciate changes in educators' pedagogic thinking in an online context and indicate features of their personal development at later analysis stages.

To ensure participant anonymity, unique identifiers for each participant have been created to reflect their role (e.g., Educator=E, Learning Designer=LD) and the case (e.g., case 1=C1, case 2=C2). The participant roles of this study across all cases can be categorised as follows:

Role	Identifier	Definition
Lead Educator	LE	An educator with a leading role in the design of the online module. A lead educator had either sole academic responsibility or was working with academic colleagues (see educator below). The job titles of lead educators were typically 'lecturer', 'assistant professor', 'senior lecturer', and 'associate professor'.
Educator	E	An educator working in collaboration with the lead educator and digital learning professionals to design online modules. The job titles of educators were 'teaching fellow', 'senior teaching fellow', and 'research fellow'.
Learning Designer	LD	A digital learning professional focusing on design, pedagogy, and learning technology domains.
Learning Technologist	LT	Learning technologist has been used as a separate role to learning designer. This is because in cases 3, 4 and 5 the teams consist of both learning designers (focusing on design and pedagogy) and learning technologists (focusing on the application of technology and media production). Case 6 had only a learning technologist.
Media Producer	MP	A digital learning professional focusing primarily on the production of digital media content.

A summary of participants' unique identifiers, pseudonyms, and roles per case study can be found in Appendix H. Pseudonyms have been also given to each participant to allow for a more personal feel during the narrative descriptions in the following results chapters.

5.2   Case 1 Description

The online learning design team was based at a teaching-focused post-92 university. The design of online degrees was a new activity for this university which had partnered with a MOOC platform to design a suite of credit-bearing online degrees. The university had recently introduced a curriculum transformation initiative aiming at redesigning existing campus-based provisions to more contemporary, pedagogically sound, and digitalised learning. To facilitate this transition, a newly created central digital learning team consisting of interdisciplinary experts (e.g., learning designers, media producers, project managers) was set up by the university to work with academic teams to design high-quality online learning.

The participants in this case study were Anna, the lead educator (LEC1), and Alex, the media producer (MPC1). Anna and Alex were the key design decision-makers, but a number of other academic and digital learning professionals, as seen in Figure 5.1 (white squares), also contributed to a lesser extent. For example, although the team had a learning designer who, in theory, would be suitable for inclusion in this research, they declined to participate as they had not contributed significantly to the module under observation. The team had been working together for about a year designing a suite of online modules as part of a PG-level degree in Education. The online module explored was based on a current on-campus module. However, the team had a vision to transform it to be suitable for online learning. Although the study focused mainly on one online module's design, participants drew from their previous experience to demonstrate progress and changes in their team design practice.
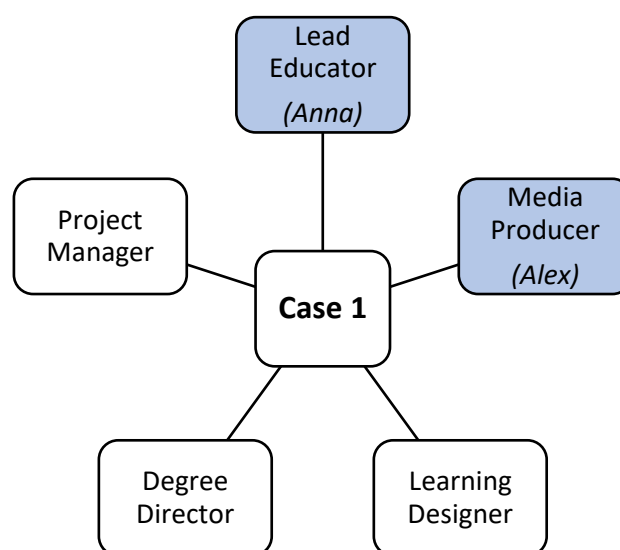
Figure 5.1: Case 1 design team composition (participants in blue, members not involved in white)

Alex had 10 years of experience as a media producer and had worked at the specific university digital learning team for over one year. He also had 12 years of teaching experience in Higher and Further Education (STEM background), and held a postgraduate certificate in HE teaching and learning, including a Fellowship in HEA.

Anna had nine years of teaching experience and had only recently started designing for and teaching online. She held a postgraduate certificate in HE teaching and learning and was a Senior Fellow of the Higher Education Academy (HEA). In the initial short interview, Anna shared that, before this online learning design, she was working in collaboration with her colleague (degree director) to design and teach their on-campus sessions. She characterised their previous teaching approaches as traditional. The academic team were having intensive block teaching and spending a substantial part of the sessions presenting key theories and concepts to their students followed by interactive activities. The development of communities of practice through the sharing of experiences and team activities was also key in their on-campus teaching. Regarding the use of learning technologies, the academic team was using PowerPoint slides for content delivery and tools such as Mentimeter and Kahoot to allow students to contribute anonymously during the sessions. They also used other learning materials such as Lego to prompt students' creativity and keep them engaged while developing subject-matter knowledge. Assessment strategies were varied, and mainly described as individual assignments and e-portfolios.

5.3 Case 2 Description

The online learning design team was based at a research-intensive (non-Russell group) university. The university in this case study had an emerging portfolio of online degrees. It had recently partnered with a MOOC platform for the design of credit-bearing online learning. To facilitate the design of robust online learning and the partnership with the MOOC platform, academic staff were assigned to work with centrally based digital learning professionals.

The main participant in this study was John (LEC2), the lead educator and degree director of a new online UG-level degree in a STEM disciplinary area. Despite the wide range of digital learning professionals involved in this design (see Figure 5.2), John worked mostly on his own with limited liaison with and contribution from the other team members. This was confirmed by the learning designer who rejected the participation in the project due to their perceived

very limited contribution. This case acts as a counterpoint to others, where the key responsibilities were shared across participants. John's approach to collaborative design was considered to offer rich and contrasting insights to the other cases. The online module explored was designed over a period of three months and was based on an on-campus module.
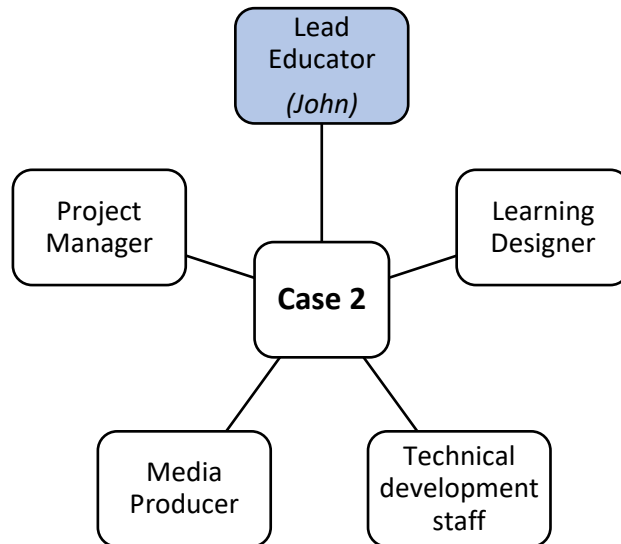
Figure 5.2: Case 2 design team composition

John was an experienced educator with 14 years of teaching experience. He held a postgraduate certificate in HE teaching and learning. Although it was the first time he designed a credit-bearing online module, he had designed and facilitated several MOOCs via different platforms over the past six years. His on-campus teaching consisted of lectures and lab sessions. Lectures were based on live demonstrations of techniques with in-between polling to make learning more interactive and to be able to gauge students' understanding. The labs consisted of worksheets with instructions that the students had to go through and complete. John was also providing a set of more challenging problems that students could engage with depending on their pace and level. The summative assessment was based on a rubric-based assignment where the students had to submit their code by the end of the module.

5.4   Case 3 Description

The online learning design team was based at a research-intensive Russell group university. The university had a considerable number of online degrees and MOOCs. However, the academic team, in this case, was based in a new interdisciplinary academic centre, where the development of online degrees was a new activity. To facilitate this transition, the

university assigned the academic team to work with digital learning professionals based in a central digital learning unit.

The participants in this study were Maria, the lead educator and online degree co-director, Alicia, the module co-educator, Matteo, the learning designer and Harry, the senior learning technologist. The team members worked together over a period of eight months to design an online module. The online module during this research was part of a brand-new PG-level interdisciplinary degree. The online module examined was on social policy. The academic team considered this online module as an enhancement and adaptation (for online learning) of a recently redesigned third year UG-level on-campus module.
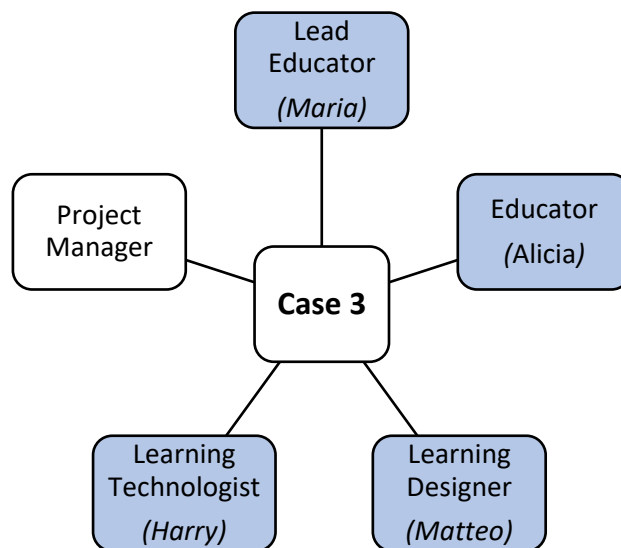
Figure 5.3: Case 3 design team composition

Matteo had 3-4 years of work experience in learning design roles and had joined the university's digital learning team five months earlier at the time of the short interview. Matteo had a background in Psychology and had recently completed a postgraduate certificate in HE teaching and learning, including an HEA fellowship. Harry had a background in creative arts and had worked for three years within the digital learning team with key responsibility for setting up processes for the use of learning technologies and the production of digital media.

Regarding the educator-participants, both Maria and Alicia had over five years of on-campus teaching experience; however, they had never designed for or taught credit-bearing online modules. Maria held a postgraduate certificate in HE teaching and learning and was a Fellow of HEA. In her past design and teaching practice, she developed content and selected resources that conveyed both foundational (e.g., theories) and context-specific information (e.g., case

studies, mind trap videos). Maria focused on designing activities for the development of skills at different levels, from simple application of knowledge activities, to activities that require critical thinking, appraisal, and reflection. In her most recent design, she developed a new assessment that was following a patchwork design to encourage students' continuous work and reflection. Nonetheless, her prior teaching was discussed as content-heavy with limited opportunities for student activity due to time constraints.

Alicia had recently completed a postgraduate certificate in HE teaching and learning. Her prior design practice was content-driven and focused on student characteristics (e.g., year group, educational and cultural background). It included the development of PowerPoint slides for each session. In her teaching, Alicia was flexible in changing the pre-designed teaching materials based on students' needs and the flow of the day. Alicia had co-taught a third-year UG module with Maria before the focus shifted to online module development. Thus, they had started building a common understanding of teaching. Alicia's prior use of technology was through videos, recording of lectures, and polling activities.

5.5 Case 4 Description

The online learning design team was based at a research-intensive Russell group university. The university had prior experience in online degrees and MOOCs development; however, its credit-bearing online learning portfolio was still relatively limited at the start of this research. A central interdisciplinary digital learning team was set up by the university dedicated to collaborating with educators for online learning design and teaching activities.

The main participants in this case were Mark, the lead educator and Nancy, the learning designer. A number of other digital learning professionals as seen in Figure 5.4 (white squares) also contributed, but to a lesser extent and more indirectly. The team was working towards the development of modules that would be part of a brand-new online PG-level degree in Business. The online module explored was based on an existing on-campus module.
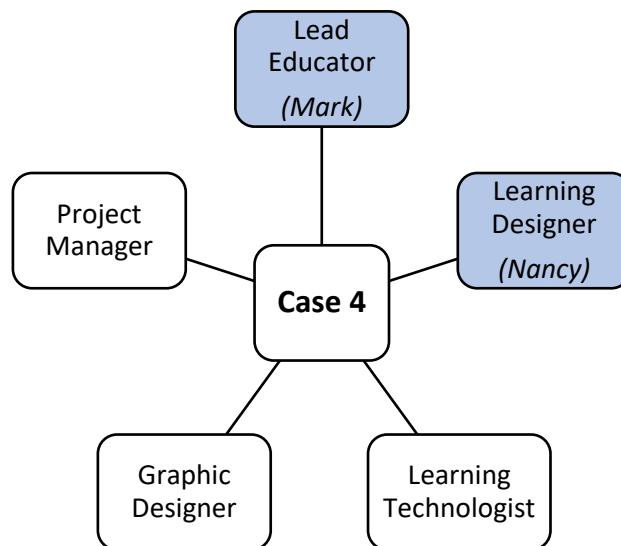
Figure 5.4: Case 4 design team composition

Nancy had six years of work experience in learning design roles within HE and had worked with the digital learning team for the past three years. Although she did not hold an official learning design or teaching degree, her background was in a related area and she had extensive experience specifically in the online learning domain.

Mark had 4-5 years of teaching experience at university level, and had joined the specific university a few months before the implementation of the short interview. He was appointed by the university to play a key role on the design and teaching of online programmes due to the expansion of the online learning portfolio in his department. He was acting as the deputy online degree director and, thus, he had degree leadership responsibilities. Mark was working on several online module designs in parallel and he had recent experience of teaching online. Therefore, although this study focused on one online module, participants drew from their experience in designing more than one online module throughout the past year to demonstrate progress and changes in their team design practice. Mark had not received any formal training on learning and teaching, but had recently started attending some workshops with a view to develop his pedagogic expertise further and apply for a Fellowship of HEA.

Mark's on-campus teaching was through lectures consisting of content dissemination (e.g., theories, examples) via PowerPoint slides and discussion-based tasks grounded in the content presented. The use of case studies as real-life context for discussions and the development of student critical thinking were key aspects of Mark's teaching. He was a versatile user of learning technologies and media for learning, and in his on-campus teaching, he used videos,

quizzes, and polls to encourage full student participation. Mark was adopting a flexible approach to his teaching, according to which, he used pre-designed materials; however, he adapted his teaching "on the go" based on his students' needs. Assessment methods previously used ranged from exams to traditional individual assignments, and assignments where students developed a close to real-life product related to their professional practice.

5.6   Case 5 Description

The online learning design team was based at a research-intensive Russell group university. Overall, this university was new to online learning provision and had recently (the academic year 2018-2019) started developing its first fully online degrees. This university had established a new central digital learning team dedicated to the development of online degrees and MOOCs. It also had local departmental digital learning teams assisting academic staff with the integration of technology into learning and teaching (e.g., blended, flipped classroom approaches). The team investigated was based in the Business faculty which had its local digital learning team. It was the only team within the university with experience in designing blended and online degrees.

The participants in this case study were Oliver, the lead educator and Nadia, the learning designer. The online module examined was located in the wider business disciplinary area and was part of a brand new online PG-level degree. Oliver based his design on a similar module that he taught on-campus, while also trying to reimagine activities for online learning.
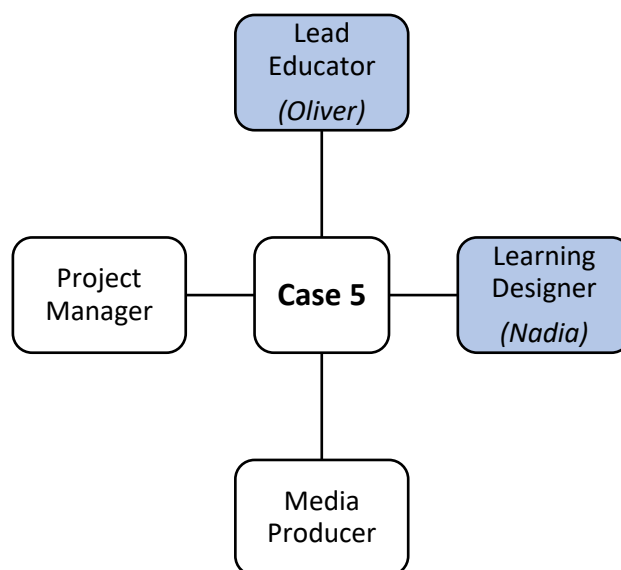
Figure 5.5: Case 5 design team composition

Nadia had been with the digital learning team for over one year by the time of the first interview. Although it was her first time working within a university context as a learning designer, Nadia had over 10 years of experience in a relevant educational area which she felt shared many similarities with her current role. Nadia's background was in project management and STEM and she had not received any formal training in Education.

Oliver was an industry-based academic and had eight years of teaching experience at the university level. Although this was the first time he had designed for credit-bearing online learning, he had extensive experience in designing shorter industry-based online professional development courses which made him feel confident about this learning format and use of technologies. Oliver had not received formal training specific to HE teaching and learning, but had undertaken online courses in the domain of training. In his teaching, he was practice-oriented and was designing his modules by selecting relevant theories, topics, and examples that are in line with industry needs. At the same time, his emphasis was on designing learning activities where students would follow real-life processes (e.g., appraisal, team-decision-making), and use tools and techniques that professionals use in their roles. Previous assessment methods were mainly traditional exams.

5.7   Case 6 Description

The online learning design team was based at a research-intensive Russell group university. At the time of recruitment, the university had a sizeable number of degrees offered in a blended format, but only a very small number of fully online degrees. This university had a central learning and teaching team that was the main hub for academic development. Within this team, a digital learning sub-team was established to work with educators for the development of MOOCs, as well as blended and fully online degrees.

The participants in this case study were Leonardo, the lead educator and degree director, Valeria, the educator co-leading the design of online modules with Leonardo, and Karen, the learning technologist. Leonardo and Valeria had been working together for one year to design the first modules of a new online PG-level degree located in the medicine discipline. This online degree was based on an equivalent on-campus degree; however, the team was eager to restructure it and enhance their pedagogic practice. Although the study focused mainly on one

online module, participants also drew from their experience in designing other modules during the past year to show progress in their design practice.
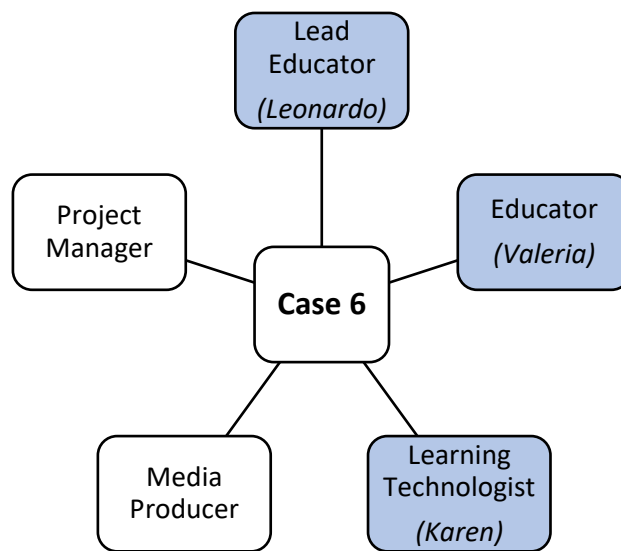
Figure 5.6: Case 6 design team composition

Karen had 10 years of experience as a learning technologist in a university context and had worked at the digital learning team of her current university for the past 3.5 years. She was a holder of a postgraduate degree in education and was a Fellow of the HEA.

Leonardo had 12-13 years of teaching experience and had received induction training in learning and teaching through his past roles; however, he had not obtained any formal teaching qualification in HE. He characterised his previous teaching as traditional. Specifically, he described his teaching as having two components; the scientific and basic theoretical knowledge and the practical clinical component. In terms of the theoretical knowledge, it was implemented through a traditional on-campus lecture mediated by PowerPoint slides, focusing on knowledge dissemination. This part was supplemented by reading groups where students had to critically appraise a set of given papers and participate in group discussions. The practical clinical component consisted of clinical skills training through live demonstrations, followed by students' practical skills application with real patients. The assessment methods used were a written exam and an appraisal of students' professional performance (clinical component). Valeria was new to teaching and this was the first time she had been responsible for designing online learning and teaching. She had recently completed the university's teaching training for new academics which had introduced her to teaching approaches and digital tools.

5.8 Case 7 Description

The online learning design team was based at the same Russell group University as in case 5. However, in this case study, the digital learning professionals were located in the newly created central digital learning team. The team had formed a partnership with a MOOC platform for the development of credit-bearing online degrees. This academic team was assigned to design the first PG-level fully online degree within their faculty.

The participants in this case study were Ethan, the lead educator, Florence, the educator and Sophia, the learning designer. Although these three members of the team were included in this research, several other academic and professional staff contributed (see Figure 5.7 white boxes). The wider team members were not interviewed primarily due to either their limited availability. The team had been working together for about one year as they had been assigned to design a suite of four interconnected modules for an online degree within the discipline of Medicine. Although there was an equivalent on-campus degree, the team decided to create a new structure exclusively for the online degree and its needs and, thus, their goal was to re-envision learning and teaching. This study focused mainly on one online module's design; however, participants drew from their experience in designing more than one online module to demonstrate progress and changes in practice.
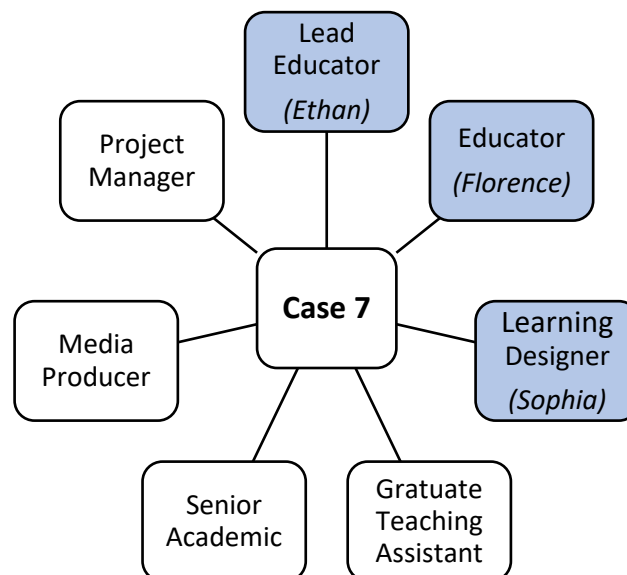
Figure 5.7: Case 7 design team composition

Sophia had over 10 years of teaching experience in higher and secondary education and had worked with her current university digital learning team for two years. She had a postgraduate

degree in education, and it was in the last few years that her focus had shifted to online education and the field of learning design.

Ethan had five years of teaching experience and had recently completed a postgraduate certificate in HE teaching and learning provided by his university. He described his previous teaching practice as steadily progressing from didactic to more team- and case-based learning and teaching. In his initial teaching years, he perceived teaching as a performance where he was at the centre trying to captivate students' attention by sharing his knowledge. However, he was transitioning to a teaching approach where students have more agency over their learning and work in teams, while his role is more of a facilitator. The assessment in his module was an individual research project. On the other hand, it was the first time that Florence had been responsible for the design of learning activities. Her previous experience included working as a graduate teaching assistant where she implemented the plans of lead educators and facilitated small student group learning. Florence had not yet received any teaching training, but she was keen to grow her teaching experience and undertake training soon.

5.9   Cross-case preliminary insights

This section outlines some high-level characteristics and insights across the case studies. First, given the naturalistic character of this research to include participants solely driven by the case studies, the number and roles of participants within each case were slightly different (see case descriptions). Second, a common thread across the cases was that student involvement in collaborative design was not participatory, but mostly indirect. It was only in a few cases that students acted as user-testers once the core design actors had developed the online learning environment as it will be unpacked in the next chapters. To this end, the exclusion of students as research participants emerged from the research process and data, and it was not my own decision to privilege specific actor groups over others. Third, as described in section 4.6.2, it is evident that the institutional contexts represented in the case studies are research-intensive (n=5), while one of the case studies is based on a teaching-focused university (case 1).

Before reporting the thesis results in full, this section also provides a first impression on the level of interactions and interdependency among the participating actors in the different case studies. Grouping the case studies based on the level of interaction among participants was useful for the results' reporting and to help the reader build an initial understanding. To

achieve that, Little's (1990) collegial relationship continuum (introduced in section 2.5.1, Table 2.4) has been used against participants' accounts. This section provides a basic description grounded on Little's work, while evidence is gradually provided in the results chapters.

Overall, three overarching patterns were observed as seen in Figure 5.1. In cases 1, 3 and 7, a more collective approach to design was adopted which matches Little's 'joint work' category. Educators and digital learning professionals appeared to be involved in cycles of brainstorming, ideas and knowledge sharing and integration to arrive at decisions. In cases 4 and 5 where the main interaction was between an individual educator and a learning designer, roles appeared to be more bounded based on expertise. Although there were indications of 'joint work' to find solutions to identified issues and when designing brand new activities, overall, joint work was less prominent than in cases 1, 3 and 7. Instead, digital learning professionals were mostly acting as advisors, facilitators, and service providers. Therefore, in terms of Little's interdependence levels, cases 4 and 5 could be seen as a combination of 'sharing' and 'joint work' depending on educators' needs and design stage.

Finally, cases 2 and 6 showed a combination of 'sharing' (primarily in the initial design conceptualisation phase of the whole online degree), and 'aid and assistance' type of interactions between educators and digital learning professionals throughout the design. Specifically, in case 2, although John had the opportunity to work closely with digital learning professionals, he preferred to work more independently. Therefore, his interactions with other actors were mostly in the 'aid and assistance' spectrum with limited manifestations of 'sharing' at the start of the design activity. In case 6, it was primarily the limited availability of digital learning professionals that did not allow the participants to work in close and sustained collaboration. Therefore, the exchanges between educators and digital learning professionals resembled the 'aid and assistance' category, and digital learning professionals had an advisory and service provision role during design.

Table 5.1: Levels of interdependence during design across cases (based on Little, 1990)

Cases	Levels of interdependency during design based on Little (1990)
Cases 1, 3 and 7	Mostly 'joint work' and other interaction types depending on needs.
Cases 4 and 5	Predominantly 'sharing' and instances of 'joint work' depending on educator needs and design phase.
Cases 2 and 6	'Sharing' (initial phase) and 'aid and assistance' (throughout design).

Chapter 6| Results | Processes and factors mediating online learning design decisions

6.1   Introduction

The purpose of the next three chapters is to present the final themes and sub-themes from analysing the data in a cross-case synthesis account, as discussed in detail in Chapter 4. The thematic analysis approach I adopted, resulted in the construction of seven main themes which collectively address this thesis research questions (see section 1.2). The presentation of these themes in three chapters is based on their focus and has a theoretical rationale underpinned by CHAT. Table 6.1 below provides a full list of themes, sub-themes and the rationale behind the division of results into three chapters.

Table 6.1: Themes and sub-themes in this thesis

Themes	Sub-themes	Theoretical rationale
1. Design decisions from a socio-cognitive process perspective [Chapter 6]	• Adopting a breadth-first, iterative design process • Framing the design inquiry • Sharing insider knowledge and expertise • Anticipating the future	*The socially situated context of the design activity*: Processes and factors influencing design decisions presented at different levels.
2. Individual educator past experiences, intentions, and dispositions [Chapter 6]	• Past experiences, preferences, and beliefs • Motivation and dispositions towards experimentation	
3. Team dynamics and work conditions [Chapter 6]	• Perception about roles • Working relationship and perceived power imbalance • Emotional support	
4. Collegial communities, knowledgeable networks, and peripheral actors [Chapter 6]	• Educator-related communities and networks • Digital learning professionals' communities and networks	
5. Institutional level supporting and inhibiting factors [Chapter 6]	• Strategic learning and teaching activities • Institutional rules • Middle leadership involvement	

6. Online pedagogic design decisions *[Chapter 7]*	• Moving towards a student learning journey • Creating active, applied, and diverse learning opportunities • Fostering social learning: A complex web of learning mechanisms and 'spaces' • Rethinking assessment strategy for online learning • Striving for the development of an inclusive learning environment	*The object of the design activity*: Online pedagogic thinking, conceptualisation, and rationale behind decisions.
7. Perceived value creation for educator growth and (future) practice *[Chapter 8]*	• Cultivating a (co-) design mindset and skills • Shifting pedagogic mindset: The present and future envisioning • Growing learning technology and media production awareness and skills	*Possibility of expansive learning emerging from the online learning design activity and interdisciplinary collaboration*: The outcome for educators' growth.

Specifically, the first (present) results chapter brings together the processes undertaken by the participants to make decisions when designing for online learning (theme 1– section 6.2) along with the different spheres of influence when making decisions (themes 2-5 – sections 6.3- 6.6). It provides a holistic view of participants' design practice by presenting the interconnected components of the design process, individuals' contributions and knowledge, and team-level perspectives. It also addresses the impact of communities, networks, and institutional arrangements on participants' decisions. Chapter 7 shifts the focus to the actual pedagogical decisions made by participants, which is the activity's object in CHAT. It communicates how online pedagogy is conceptualised and reflected in participants' discourse (theme 6). Chapter 8 presents the value creation of the collaborative design for educators' (future) practice (theme 7) which could be seen as the outcome of bringing different interdisciplinary university actors to work together. Quotes from interviews and observations have been included to shed light on important aspects in relation to the overarching research aims. Deeper interpretations of these findings scrutinising the main themes are discussed in Chapter 9.

6.2 Design decisions from a socio-cognitive process perspective

This first theme focuses on the processes participants engaged in to make design decisions for online learning. It puts a lens on the process and contributions of the immediate design team; defined as the educators and digital learning professionals assigned to work together to design one or more online module(s). Particularly, during the in-depth interviews participants described the design process in phases, which were nevertheless dynamic and iterative. Therefore, the first sub-theme (6.2.1) presents the design process from a more descriptive phase-based perspective. Deeper insights regarding the knowledge-related and material-mediated processes that the teams engaged with are provided in sub-themes 6.2.2 and 6.2.3. Specifically, framing the design inquiry and sharing insider knowledge were two key processes that mediated design decision-making across cases. The final sub-theme (6.2.4) presents an expanded view of design, based on which participants considered and designed mechanisms for supporting and informing future design and teaching activities.

6.2.1 Adopting a breadth-first, iterative design process

Participants' descriptions suggested the adoption of a breadth-first design approach across case studies. A breadth-first approach may be understood as creating an overarching module outline or conceptual high-level plan that includes learning outcomes, subject-matter content, assessment, and core learning activities, before cascading down to detailed specification and development of all subsequent learning components. The process of this broad outline creation could be characterised as:

- learning outcomes-driven (starting from the identification of learning outcomes),
- content-focused (focusing on the subject-matter content as a starting point),
- context-oriented (paying attention to the context, narrative or high-level underlying thread(s) that holds together the online module), or
- student-focused (focusing on the students' characteristics and needs).

This was highly dependent on the emphasis given by participants at the start of their learning design work. In most cases, while participants began from one of these areas (e.g., from learning outcomes, in cases 1, 4, and 7, from student characteristics in cases 3 and 5, from content in case 6 and from context in case 2), they considered and made decisions by combining all the other components. Therefore, the creation of the overarching module

outline and initial high-level decisions were made based on the relationships between these key components. An example of the outcome-driven approach from case 1 follows:

> *"We map the module…we start from the learning outcomes, what do we want them to achieve by the end of it? Working backwards from the learning outcomes, but also thinking about our students, thinking about the assessment, how it aligns with that, and then thinking about the topics, that was really the starting point. Always a brainstorming exercise, as a team."* (LEC1)

In another example from case 6 (content-focused approach), the educators put more emphasis on the identification of content and several pre-defined design requirements (number of modules, study hours, credits) of the online module. They began by creating a broad outline for the online modules included throughout a whole year (n=3 modules) at the same time, rather than focusing on individual module structures as in the other cases. This approach was adopted so that students can engage with different online modules on a weekly basis (e.g., module 1 would be week 1, module 2 would be week 2, etc). Case 6 participants believed that this whole year learning design approach may lead to the creation of a more coherent and integrated experience for students. It was also seen as a more practical and efficient way to set up a new online programme.

> *"Based on the number of hours and credits of the programme, we had a look at how many weeks of teaching we will be able to deliver. So, it was a more mathematic way of assigning the different topics and the different modules within the year time. Once we allocated them in that way, we decided to split the topics evenly throughout different weeks. So, our plan was to allocate one topic of learning to one week… And the different modules intercalating the different topics."* (EC6)

On the other hand, in case 2, while the educator had in mind the learning outcomes and topics which were pre-determined based on the on-campus version of the module, he sought to create a narrative or a context for students learning that would frame the whole module as a first step, which could be described as a *context-driven* approach. Therefore, he started the process by building two real-world applications of interest in discipline topics (music and cryptocurrencies). Based on these real-world applications, he could then create video tutorials for teaching specific computing techniques and concepts, design learning activities for students to work on, and integrate the assessment, as a next step.

> *"I started out by basically programming the two applications completely to their final state. So, without worrying about how I was going to teach it because then I know what my end goal is […] In the second phase, I then attempted to break that down into five big steps, where I look at the programme I built and say "Okay, what are the five steps that I can go through to build this thing because the course has 10 topics."* (LEC2)

A context-driven approach with attention paid to conceptualising a module narrative was noticed in all the cases (see theme 7.2) and this initial high-level stage was critical to achieving that. Although participants started from slightly different positions, they proceeded in a similar manner by drawing on all the abovementioned components.

The next design decision phase included adding details to the initially created outline and constructing all the learning components (e.g., different learning activities and their sequences, videos, audio, text, images, establishing feedback strategies, designing assessment and narrative). This process included reflection on past practice, curation of existing teaching materials, exploration of new materials (e.g., web searching, accessing books and resources for inspiration and inclusion), and generation of new ideas for the new online learning context. The following quote is representative of the thought process described by most participants which involved gradual enrichment of the initial high-level plan to a more detailed design:

> *"We would go to each of those bullet points to go right, let's refine this. If you need to know about 'keyword research', what things do you need to know? What tools do you need to use? What are the latest tools being used? What's the process you would go through? So, we would just build out sub-points. And then from there, you start to flesh it out. And we would try and work out for each of those higher-levels, how would you test and demonstrate knowledge? So, what exercises can you build in that will give you practical experience of doing this? What would be a good exercise? What would be a video, what should be a podcast?"* (LEC5)

Two broad patterns were identified across cases in this phase. In cases 1 and 7, a detailed design was created as a result of collaborative work where all members contributed (albeit not always equally) through ideas sharing and brainstorming. This was then followed by the allocation of tasks (development of specific learning components or weeks of learning) to the different team members based on their expertise and interests. The constructions of each individual member were then brought together for elaboration and iterative shaping.

> *"We divided up the tasks, who is going to write what. Who will go away to do the research? Who is going to look at the wider literature? Who is going to find examples, look at case studies for x, find other wider resources to kind of support our students, videos, maybe audio, visual elements that we can bring all together? So, then, we basically, week by week, we task ourselves to go away and do that."* (LEC1)

In the remaining cases, individuals were assigned to work both towards creating the detailed activity-based structure for their allocated part and the development of the required learning components (e.g., activity instructions, text) for these activities. Therefore, they followed an intertwined process of designing and developing learning components. In this process, there

was an alternation between individual work and team elaboration, problem-solving, ideas generation and feedback provision (case 2 was an exemption with John working individually).

Design was experienced as highly iterative. The quote below exemplifies how initial decisions were revisited, evolved, and adapted throughout the design process. This was the case particularly when initial ideas transpired as being challenging to implement in practice:

> "You might come up with a great idea, but you have to adapt it. In a design session, we might be like, this is how it's going to go, and this is perfect. And then once you actually get on the platform, you're like, no, it's not gonna work. So sometimes, your items do adapt and do change iteratively, and sometimes we add in items." (EC7)

Additional feedback from a range of stakeholders such as leadership staff, researchers, peers, and students (see details in themes 6.5 and 6.6) that were external to the immediate design team was also provided. This additional layer of external feedback contributed to the iteration of thinking and thus, decisions were made as a result of a long process of creating and refining:

> "There's quite a lot of stages of feedback and comments and kind of review that we go through." (LDC4)

> "…having that reviewed by some external people afterwards and kind of feeding back into the loop as well." (LEC5)

6.2.2 Framing the design inquiry

Framing is defined as the process of design problem-setting that allows the creation of a (novel) standpoint to tackle a challenging problem and direct action (Dorst, 2011). Framing and reframing were enacted by all participants in different ways and had a central role in their decision-making process. This theme presents the multiple facets and role of framing based on participants' discourse. Specifically, participants' descriptions focused on: i) the role of knowledge materials for mediating framing and decision-making, ii) the actor(s) that initiated framing acts and its nature, and iii) the dialectic exchanges among educators and digital learning professionals resulting in framing and reframing; these are unpacked in this theme. Although framing and reframing processes appeared in all cases, in cases 2 and 6, framing was mainly accomplished through the use of knowledge materials, with comparably limited team dialectic interactions which were essential in the remaining case studies.

6.2.2.1 Framing the design partnership and building expectations

Orientation workshops, informal meetings and team-building activities between educators and digital learning professionals took place before the design of the online modules in all the

case study settings. A selection of indicative quotes is presented below to demonstrate that these initial exchanges aimed to build awareness on the roles of different actors involved, set expectations regarding the design process, and conceptualise online learning and teaching:

> *"It's building that kind of communication and expectations…so that everybody is starting with a more accurate understanding for what working on an online course involves. And then kind of understand that it's a gradual process, starting off big picture and then narrowing it down into quite detailed."* (LDC4)

> *"They* [Matteo and Harry] *navigated us through how things work for online learning and teaching to start thinking about it."* (EC3)

> *"We had a lot of conversations with the learning design team in the early stages of co-developing this degree in general which shaped this design."* (LEC2)

Educators, while being new to the online learning design process and interdisciplinary design work, appreciated the provision of initial support in framing their thinking. This was also noticeable and applicable in cases 2 and 6 where participants worked more independently (case 2, individual educator, case 6, academic team). Nonetheless, initial communication and exchanges among the educators and digital learning team appeared to be key.

6.2.2.2   Knowledge material-mediated framing and facilitation

Participants revealed the use of a range of knowledge[9] materials and tools that framed their thinking and supported them to make decisions. Knowledge materials were mostly introduced by the digital learning professionals from the start of the design activity and were associated with the design process and the quality of the design product (online pedagogy characteristics). They were both digital and analogue; design mapping tools, modelling materials, tangible conversation prompts, and frameworks being some examples of knowledge materials.

Specifically, in all cases, the digital learning professionals introduced design mapping tools in varying forms – Word document, Excel spreadsheet, or other tools – which included a range of components/foci (e.g., different types of learning and assessment, learning outcome verbs, time on activities). The use of design mapping tools appeared to direct individual educator and team thinking and provide opportunities for reflection on their past practice. For example, this was communicated by John as follows *"…trying to assign the learning outcome verbs, Bloom*

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[9] knowledge as possessed by a recognised social group of experts. The knowledge in this case is related to the domains of pedagogy, learning design, TEL, discipline-specific knowledge (e.g., medicine, STEM, social policy) and their intersections.

taxonomy words to each activity in this mapping document. So, you had to show a range of those" (LEC2). Another example was in case 1 where the design team had to include key design components along with justifications for their choices, as to "what, how, and why" (appeared as specific columns for each item in the design mapping tool). This process boosted debate and explication of thinking among educators and digital learning professionals. Colour coding for different components (e.g., activity types, assessment) was used in cases 6 and 7 as a visual evaluation of utilising different activities *"…you can see through the colours [that] there is a variety [of activities]"* (LEC6). The simultaneous use of tangible conversational prompts and recording ideas in sticky notes to prompt thinking and discussion among team members was described as useful in four out of the seven cases (cases 1, 4, 6, 7) to ensure the design of diverse activities. Their use, however, did not come naturally for educators and thus, the digital learning professionals facilitated this process *"The module leads never picked these cards up and started moving around, which is the idea"* (LDC4)*.*

The use of design mapping tools helped to capture preliminary design ideas in mainly digital means and allowed for team knowledge exchange *"They go over that material we prepared, and we try to elaborate for what we have in mind"* (LEC4). The outputs from the use of these mapping tools acted as a reference for the team and enabled team coordination: *"We call it the single source of truth, so we're all seeing that everyone is saying the same thing"* (EC7).

Modelling materials, such as lists of activity repertoires and exemplary activities or whole module structures from other design teams, were perceived by participants as providing guidance and inspiration (cases 1, 4, 5, 6, and 7). These modelling materials were provided by digital learning professionals to educators to illustrate different pedagogic possibilities.

> *"We need interactive elements, here is your list of 15 different interactive elements we can use. And then, you would select which ones you thought were appropriate."* (LEC5)

> *"…those expanded the possibility of doing different sorts of things, like group activity, looking at all the assessment types. Because maybe till I was designing this programme, I was still very traditional."* (LEC6)

Interestingly, the development and use of new case-specific frameworks, called *synthesised module architectures* in this research, were cited by participants as making a core contribution to framing thinking throughout the design process (cases 3, 4, 5, and 6). These synthesised module architectures included key conceptual learning experience features and were hybrids of some form of evidence (e.g., learning theories, research), educational vision

(institutional/digital team/individual educator), and pragmatic considerations (e.g., study hours, institutional requirements). In cases 3 and 6, they were synthesised by the educators prior to, or at the beginning of, the design whereas in cases 4 and 5, they were developed by the digital learning teams and used with all the academic teams they were working with. For example, Maria, who was the degree co-director, synthsised a module architecture prior to the design of the entire degree. According to this module architecture, each week of learning should be structured as such to engage students in two hours of asynchronous and two hours of asynchronous learning and teaching activities. The asynchronous part of learning would consist of eight short (approximately 15 minutes of student time) learning items (e.g., video, case study, reflection, discussion) which should follow a logical sequence. This decision was made by considering research on cognitive load in multimedia-based learning, whereby *"…reading about online pedagogy and videos needing to be between five or seven minutes and 10 minutes of content"* (LEC3), along with pragmatic considerations, participants' judgement, and educational vision (e.g., student flexibility, inclusive considerations, active learning).

> *"I realised naturally 15 minutes was a rule of thumb. But it was also more of, how do you divide up an hour in a way that's accessible for people to understand. And I just, I looked at the two hours, I kind of charted out the 15 minutes and I just ruled it out in a diagram. So essentially, and put topics to it because I was trying not to overburden the students."* (LEC3)

In practice, this structure with its accompanied rationale framed team members' work who were elaborating on and justifying their decisions on this basis. Another example of a synthesised module architecture this time by the digital learning professionals was in case 5. Nadia introduced it to Oliver both at the beginning of their collaboration to set the pedagogic expectations as well as throughout the design process. It was also used as a benchmark for evaluating team decisions:

> *"We call this, our 4 Ps, which is presenting, practice, produce and participate. So, the idea is, there's always gonna be some content that's presented and that would probably be video, text or reading. Then, practice, where students are going to practice what they just learned. Participating where they discuss what they've learned or apply it to their situations... Then, produce where there was some kind of output from it."* (LDC5)

However, several participants mentioned that these knowledge materials could not ensure deliberate thinking processes in isolation. Their use was better placed when combined with design facilitation acts. Continuous questioning was mentioned as an important part of facilitation (cases 1, 3, 4, 5 and 7). When team members were trying to generate and record

design ideas while using design mapping tools and modelling materials, digital learning professionals' continuous questioning pushed dialogue. The following quote demonstrates that this questioning-driven and dialogic approach was perceived as useful to reframe educators' existing practice and engage them with deeper thinking and justification processes.

> *"She might ask questions to kind of say, oh, have you thought about this? Or are you sure you're answering all the learning outcomes? What about this section? So, she's kind of facilitating it, trying to get the most out of us at that stage. If we were just doing it by ourselves, we'd probably do it very quickly, wouldn't think about it in-depth. But the learning designer made sure we sat and thought about it in-depth. And that deep thinking does help in the long term …because it's really easy to just want to jump in and start designing it."* (EC7)

In case 1, Anna also highlighted her perception that online learning design differed from what the academic team was used to doing as part of their routine on-campus teaching. Thus, digital learning professionals' questioning techniques sharpened the focus of the team's dialogue to aspects that were relevant to the online learning context.

> *"I would not even know the right questions to ask, our questions that I would articulate are based on face-to-face teaching. We would not necessarily know what the right way is to push design dialogue, conversation in these design sessions. Because we would have that rationale in our discipline, but not necessarily on an online perspective to the same extent…The digital team bridged that gap."* (LEC1)

Questioning was key in instances where educators would use the modelling materials or the synthesised module architectures more firmly and not adaptively as per their context's actual needs. For example, Nadia mentioned that some educators fixated on specific activity types (e.g., quizzes, drag and drop) because they became familiar with them. Therefore, she outlined that part of her role was to question their reasoning: "*part of my role was to have a look and say, why do we need to use drag and drop? What do we try to get out of it? Could we present this in a different way?*" (LDC5). In case 3, Maria described how some of her colleagues were using the newly synthesised module architecture she had created as a rigid template, without thinking about deliberate combinations of learning activities:

> *"They were like, 'well, I've got three videos and two activities', to answer, yes, but that's not the point. You need the activity to match the content. I don't just want three videos and something else. So that's quite tricky to get people to think about."* (LEC3)

Therefore, it was essential that knowledge materials were combined with facilitation (through questioning techniques), to allow for more purposeful thinking. The knowledge materials that contributed to framing and reframing of participants' thinking are summarised in Figure 6.1.
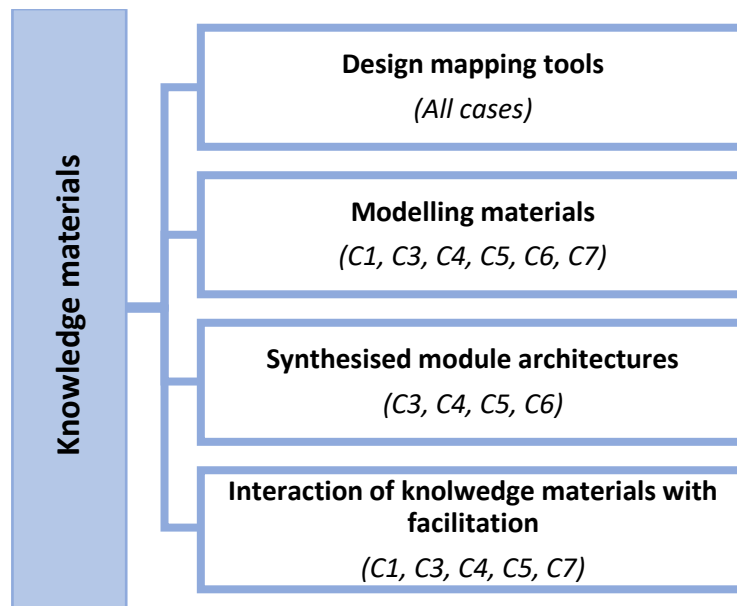
Figure 6.1: Knowledge materials that mediated design framing and participants' interactions

6.2.2.3   Creative framing or translational reframing

Framing and reframing acts through dialectic exchanges between participants were key and resulted in adaptation of existing practice or in some cases, its complete redefinition. Specifically, in all cases, educators were sharing with digital learning professionals several existing activities and resources that could be reused. Through processes of reframing, ideas exchange, and negotiation, they adapted or refined those to be suitable for the new online learning context they were working towards. The below example by Mark and Nancy is a typical description of this process:

> "…how can I adapt this content to the online such that we increase the interactivity? How can we actually differentiate this bit or how can we create something interesting out of this? Because, as a lecturer, I know how I can tell the students, etc. But I don't know if we can gamify this or if we can put some interactive content on that part. So, that's the process I actually needed help most of the time and we did a lot of that with [Nancy]." (LEC4)

Team design framing also involved conceptualisation of brand-new learning structures, rationale, and activities that led to more substantive changes in educators' prior approaches. Although in all cases at least one example of pedagogic redefinition was provided[10], it was cases 1, 3, and 7 where a higher number of instances was reported. This was seen through the

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[10] For example, in case 6, the structure of the module was redefined, and each week had a large formative assessment task. In case 5, the educator adapted most of the activities from his on-campus teaching, but he redefined a few learning activities and structure based on the learning designers' feedback. In case 2, the main substantive change reported in comparison with online teaching was the creation of a brand-new overarching module structure that was based on two real-life applications to teach programming techniques, rather than small individual examples as in his face-to-face teaching and the assessment that was developmental.

lens of creative framing which was enabled via interdisciplinary team interactions. Creative framing was linked with acts of brainstorming and integration of the collaborators' ideas.

> *"We had good design sessions where it's all brainstorming about what we should include, how we should include it. I don't think we'd pre-contemplated any of this […] We would debate different ideas and it really was the team who seeded these ideas. It enabled creative thinking and introduced new activities that we've never tried on our own-campus module."* (LEC7)

The design of a new module structure with redefinition of educators' role, the close to real-life presentation of learning activities, and the design of journal clubs for community building; *"We came up with something that was really innovative, journal clubs as part of each methodology we've included."* (LEC7) were examples of practice redefinition based on team creative framing. In cases 1 and 3, the creative framing process was associated with the development of module and activity narratives and the innovative use of technologies and media for enhancing learning. In case 1, the team members generated metaphors, analogies, and activity framings to provoke students' emotional stimulus (within text, videos, visual representations) and increase their engagement:

> *"We were looking for analogies, metaphors, things that allow the students to connect this new learning with their previous knowledge. So, we had a conversation back and forth about a creative way to frame all those ideas."* (MPC1)

The creation of a big question to inspire student learning at the start of each week was another example of a newly adopted approach that required creative team brainstorming for its construction. Creativity was seen in case studies 1, 3, 4 and 7, as a key contribution from digital learning professionals, who were considered responsible and capable of bringing that into the online learning design space: "*I do not want any responsibility for creativity that is firmly with the digital team […] I do not have the capacity to think in a creative way*" (LEC1).

6.2.3   Sharing insider knowledge and expertise

Educators and digital learning professionals shared their knowledge and expertise which enabled them to gain insider perspectives into different learning and teaching contexts (online/on-campus, disciplinary). It helped them to develop a shared understanding and build on each other's ideas. Sharing insider knowledge and expertise manifested throughout the design process (cases 1, 3, 4, 5, 6 and 7) and was an integrated part of framing and reframing processes. In addition to their own expertise, participants were also bringing community and network-based knowledge insights into design which are discussed in detail in theme 6.5.

The lead educators (cases 1, 3, 4, 5, 6 and 7) of the design teams were sharing insider knowledge about their students, based on class observations and student feedback, from their experience in similar on-campus teaching contexts to make team members aware of certain aspects that required further attention.

> *"There is this discussion about, ontology, and epistemology of knowledge, right? I taught students on campus that found these quite difficult to comprehend. And how to really relate the key concepts without confusing the students? So that means those sorts of insights, were some things that I communicated with the team to find solutions."* (LEC7)

Digital learning professionals were also bringing insights from their own or their digital learning team's observations on how students engaged in past online courses, as shown by the below indicative examples. This process assisted with considering different perspectives.

> *"…because we have seen it in different courses when someone will just populate all the discussions and just do it straight away."* (LTC3)

> *"In different online module runs, we've found that for our online videos, people do not tend to watch videos that are over about 6-9 minutes long. The drop off in retention is huge after that stage. So, now our videos do not exceed the 5 mins."* (MPC1)

Beyond the above experiential insights shared within the design teams, an essential part of the process was imagining how the students may experience the activities and trying to think from their perspective: "*I always try to put myself into my students' role. So, on this subject, what questions should I ask? What skills to develop? Is it interesting for students?* (LEC4). Digital learning professionals also shared that they were trying to take the role of the student as they were novices in the subject area and given their relatively detached positioning to the online module. They were reviewing the proposed ideas as if they were the students to identify any shortcoming that could be addressed during design "*…we replaced the learner voice in that process. Whether or not that's right or wrong, I think that's often where we can play a valuable part*" (LDC7). Making assumptions about learner characteristics, preferences, and approaches to learning in a more intuitive and arbitrary way was also evident on participants' descriptions and actions. For example, during one of the design meetings, Maria justified her view for including a limited number of discussion-based activities per week due to the assumption that students will disengage if they do not receive feedback from their educators or peers.

> *"It is more about thinking from the students' point of view. Some of that is for them to help them make notes and think about something. If you are asking them to share something and*

they do not get any feedback, then, they will disengage, right? Because there is nothing more irritating than giving an opinion or sharing something and getting nothing in return." (LEC3)

This type of insight sharing led to further discussions. In the abovementioned example, it helped the team define an overarching strategy regarding the purpose of asynchronous discussion-based activities. Based on this, the team sought to identify which of the proposed activities could be designed to encourage peer sharing, and which ones could be framed as private reflective activities that do not require students to share their work on the platform. However, this insider knowledge-sharing process also led to the emergence of contradictory views among team members. For instance, extending the above example from case 3, Harry shared his contradictory view with Maria and provided potential interpretations of student participation levels in social learning activities. He also provided suggestions on effective design strategies and setting clear expectations for students.

> *"I don't necessarily agree with [Maria] and her understanding of discussions and some of the formative activities and the fact that people don't engage. It's more about setting expectations. It's more of a culture building. So, if you create that culture, people will engage."* (LTC3)

Another example was in case 7, where Ethan shared processes of debating among team members from different disciplinary backgrounds. The contradictions that emerged among their diverse views either strengthened the rationale for the adoption of specific approaches or remained unresolved, but in both cases, they provoked justification of choices.

> *"There were differences in opinions. You know, they'll say this, and other team members would say, but my subject matter doesn't work like that, this is how I work. And so, there were some really interesting debates out of which ideas emerged."* (LEC7)

Educators were also sharing problems and insights from their own teaching practice and their general educational vision with other design members. For example, Maria's vision was to enable students' critical skills development through different types of activities. However, she did not always have a clear idea of how to achieve that. Thus, exposing this concern to the team led to the generation of ideas that enabled decision-making.

> *"Sometimes I didn't know what the best way of testing that learning was. So, it was through conversation and discussion with the co-module leaders in those meetings with the digital learning team that we came up with these solutions."* (LEC3)

6.2.3.2   Pedagogy and learning design expert feedback and critique

The provision of continuous feedback and design critique was a key part of the design process (case 2 excluded). The detailed analysis of the data revealed popular areas that educators

asked for feedback on, or digital learning professionals provided their feedback. These areas included student online engagement with different activities, the role of content in an online learning context, social learning, educator presence, and student workload. This feedback enabled further thinking and directed participants' actions as shown in the below example.

> *"…if the digital learning designer was like don't have too many passive things altogether. So that's the only thing we kept in mind throughout. Don't just have multiple readings together, make sure you've got some engagements."* (EC7)

Feedback was provided at different levels (macro-micro) throughout the design process by constantly zooming in and out of different design elements. For example, participants described zooming out to review their decisions at a higher level (module experience: macro level). On other occasions, feedback was provided at the meso level focusing on the connection between different learning components or at the micro-detailed level of activity instructions in terms of their wording and clarity. These levels of scrutiny on design and pedagogy had not been experienced by educators to the same extent in the past and thus, these were seen as important contributions to decision-making (see examples in Appendix J).

Prompting educators to move their pedagogical approaches to deeper levels through feedback provision and recommendations was also mentioned by several participants. Design meeting observations and data from interviews revealed the creation of close to think-aloud space for educators who were sharing their work and/or ideas and were receiving instant feedback. For example, Nadia gave a few examples of how she helped Oliver to move initially conceptualised low cognitive level activities to activities that require students to apply concepts into their own context. This point was also triangulated with Oliver's interview who highlighted Nadia's continuous feedback as beneficial for enhancing the design of learning activities, especially when compared to his past individual design activity where he was making decisions mainly based on his judgement, preferences, and experiential insights.

> *"I wanted to try and get into slightly deeper levels. I think I did a lot of that with him sort of said 'Okay, what about instead of dragging and dropping to match the terminology to, for instance, what about if we ask them to come up with an instance in their own work."* (LDC5)

> *"…always pushing to make things a little bit better, because it's quite easy, just to shortcut and say, 'Well, we've done that we've covered it, let's kind of move on'. She was always saying, 'Well, what if we added this, we did this, a few more questions to reinforce it'. And so, her feedback is pretty robust."* (LEC5)

In cases 1, 3, and 7 a dialogic rather than a primarily unidirectional feedback approach (as experienced in cases 4 and 5 and reflected in earlier quotes), emerged through participants' discourse. For example, Anna described this as one where all team members would critically review her work and provide her with feedback that covers multiple important design aspects (e.g., alignment, purpose, cohesion, language) as illustrated in the below quote.

> *"Does that task make sense? Is it critical enough for this stage for the students' learning? Is it aligned for their assessment for example? And what value is it adding? Is it even written in plain English? Does it time with the content that is coming immediately? But also, is the task disjointed from the kind of the theme of the whole course as well?"* (LEC1)

Notably, several learning theories and theory-informed frameworks were widely reported from participants as shaping the pedagogic feedback provision and suggestions (cases 1, 3, 4, 5, and 7). However, these were mentioned to be used mostly as individual's mental frames instead of being explicitly shared between the two participant groups. The ABC learning design (Young & Perović, 2016), Bloom's taxonomy (Bloom, 1956), adult learning theory (Knowles, 1988), cognitive theory of multimedia learning (Mayer, 2001, 2009), communities of practice (Lave & Wenger 1991), community of inquiry (Garrison, Anderson & Archer, 2000), and constructive alignment (Biggs, 1999) were the most referenced between others. A range of examples and different combinations were reported in all the cases. The digital learning professionals were identified as the key user group, while it was only three out of the ten educators (Anna, John, and Maria) who also referred to some of them.

> *"It's quite a hybrid of lots of different things such as ABC learning design, Bloom's taxonomy, ADDIE, Carpe Diem. And in my mind, often thinking of the community of inquiry framework too. And I'm trying to do that through questioning and suggestions."* (LDC7)

> *"...we look at specifically adult learning because that's a huge area. It's important that you do not switch them off, you do not patronise, that you kind of harness what they have."* (LEC1)

A limited number of references to empirical research to justify decisions and the feedback provided was evidenced in the dataset. Research on online learning was shared by mostly the digital learning professionals (cases 1, 3, 4, and 7) with the rest of the team. However, overall research was not seen as impactful as the use of mainstream learning theories and anecdotal insights from peers. From the educator-participants, it was only Anna and Maria (cases 1 and 3) who directly accessed educational research to bring insights into their teams. Maria demonstrated a contested view on its usefulness. On the one hand, she attributed several decisions guided by available research. Examples included a flipped classroom approach

rationale in an online learning context and finding solutions to tackle deficiencies identified in the literature in online learning (e.g., loneliness, lack of interaction and pastoral care). However, on the other hand, she expressed a sceptical view about educational research which was attributed to its limited relevance, abstract nature, and perceived lack of robustness.

> *"I find a lot of the pedagogic literature and research is very woolly and not specific. It talks vaguely about principles. It's a sort of abstract grand theory level. I don't think it's very useful in terms of instrumental examples. And then, the flipside is you get instrumental examples and they're all the same, but nobody's done any research into it."* (LEC3)

In contrast with the aforementioned interdisciplinary feedback intensive processes (cases 1, 3, 4, 5, and 7) was case 6. Although both Leonardo and Valeria shared insider knowledge which was seen as beneficial: "…*you can put things into context and you can benefit from everybody's point of view, and experience"*, this was mostly among the academic team and not with digital learning professionals too*. Overall, Leonardo and Valeria identified a need for further design and pedagogy feedback that would have further enhanced the quality of their design decisions and confidence in their work (see more in section 6.4.1).

6.2.3.3 *Learning technology and media production knowledge sharing*

Learning technology and media production expertise was mainly provided by the digital learning professionals who were the key holders of such knowledge, as educators demonstrated limited knowledge in these domains (case 2 being an exception). The most prominent pattern within the data was defining an educational vision or activity followed by discussion on the selection of digital tools or types of media (e.g., video, audio, animation) that would be most appropriate. The below quotes are examples of knowledge integration among participating actors where educators trusted the digital learning professionals' expertise for the materialisation of their pedagogic ideas (cases 1, 3, 4, 5 and 7).

> *"We are not tech experts or anything like that, we don't know. She gives advice, 'Yes, you could potentially do this, or you can do a poll, or you can use this tool', whatever it may be."* (EC7)

> *"What are the tools that we can use for these discussions, as I am not aware of them"* (EC3)

Suggestions were often made on a pragmatic basis and driven by the digital tools for which the university had subscription and approved for use. Therefore, educators were made aware of potential solutions and the use of learning technologies. Some examples of the implementation of more complex design ideas requiring deeper thinking and context-unique suggestions were also described. For instance, in case 4, due to the different layers of social

learning opportunities envisioned by the team (e.g., peer review activities, collaborative activities, informal Q&A), Nancy suggested a new strategy to take advantage of functionalities of the different digital technologies available. According to this, the team would use MS Teams to design collaborative activities that require dynamic exchanges among learners, while platform discussion forums would be used when students were encouraged to share something with their peers at a whole cohort level. Learning technology guidance was particularly key in cases 1, 2, and 7, where MOOC platforms acted as the main online learning environment. Educators were not familiar with the MOOC platform's infrastructure which was, nonetheless, experienced as intuitive and easy to use overall. However, the need for learning technology expertise was identified when trying to find new solutions to implement participants' pedagogic ideas that were not supported by the MOOC platform's integrated affordances.

Case 6 differed from the above examples. Although Karen (learning technologist) provided some support on an *ad-hoc* basis, mostly at the micro-level (e.g., setting up a particular type of quiz), and in response to urgent inquiries, it was Leonardo and Valeria who had to apply their available knowledge to implement their ideas. Therefore, they described a process of individual 'trial and error' in the use of platform functionality and external tools to bring to life their ideas. This process was experienced as time-consuming and laborious. Therefore, participants expressed the need for learning technology and technical expertise for a more efficient and quality online learning design.

> *"It was quite a lot of the technical aspect on the platform because we didn't have training on how to use the platform, how to develop the different learning activities, how to implement them... So, it was many hours of playing with the functionalities of the platform." (EC6)*

6.2.4 Anticipating the future

In all the cases, the design process included considerations on, and the design of, different mechanisms regarding 1) student support during learning time – facilitation, and 2) reflection and evaluation for future redesign efforts and educational enhancement. The nature of online learning and educators' perceived distance from their students (when compared with on-campus teaching) made participants to actively think about their role and strategies they could adopt to become 'active observers' of their students' learning to support them. In terms of the in-advance creation of mechanisms for reflection and evaluation, a key driver for participants

was a sense that several decisions they took were based on the best available options, necessity, time constraints, or were experimentations with new promising approaches. Therefore, design was perceived as a formative activity, in which a 'wait and see' approach was adopted. As exemplified in the below quotes, the participants' vision was to collect evidence from the first run of the online modules to inform their future decisions.

> *"I know that we may not get it right from the beginning, but we have to first try and build a supportive online environment for students. Then, we will see how it worked and we will adjust it accordingly in future module iterations".* (LEC3)

> *"You have to basically try and predict everything that's going to happen. So that's quite difficult and you only get to iterate on it next time round."* (LEC2)

Some participants also expressed that waiting for formal evaluation surveys could not sufficiently capture the student experience to enable them to apply meaningful changes. Therefore, continuous (rather than at one point) and varied mechanisms were built for future redesign activities: "*It is that continual evaluation, do you know what I mean? As opposed to waiting for the MEQ form and then to retrospectively fix*" (LEC3). These designed mechanisms are presented in Table 6.2, based on their nature, type, and actor that initiated their design.

Table 6.2: Design mechanisms for facilitation, reflection, evaluation, and redesign

Nature	Formative mechanisms for facilitation, evaluation, and redesign				Summative mechanisms for evaluation, and redesign		
Type	Platform observational data and learning analytics	Conversations with students/ asynchronous feedback	Mechanisms embedded as part of the learning experience	Design actors bringing insights together	Standard student evaluation survey	Student assessment performance (grades)	Conducting research formally
Initiator	Educator /Digital learning professionals	Educator /Digital learning professionals	Educator	N/A	N/A	Educator	Educator /Digital learning professionals
Case 1	✓	✓	✓	✓	✓		✓
Case 2	✓			✓	✓		✓
Case 3	✓	✓	✓	✓	✓	✓	✓
Case 4	✓	✓	✓	*Not clear*	✓	✓	✓
Case 5	✓			✓	✓		*Not clear*
Case 6	✓	✓		✓	✓	✓	*Not clear*
Case 7	✓	✓		✓	✓	✓	*Not clear*

Specifically, educators in all the cases demonstrated an intention to access and use platform observation data and, in a few cases, learning analytics. This was expressed as an approach for forming a general view about student engagement and identifying any issues: *"I will be logging in every day; I don't think that's expected of me at all. But it's good to be on top of that and gain insights"* (LEC5). Meanwhile, in other cases, specific activities for checking student progress were targeted during the design phase: *"I have this kind of trigger points which will allow me to check what percentage of students are completing those on time"* (LEC2).

Simply asking students for their experience through informal conversations or in organised webinars was reported by educators in cases 1, 3, 6 and 7 as a useful approach. For example, Leonardo who was teaching his online module during the period when the in-depth interview was conducted, shared his recent experience in gaining student feedback through one-to-one informal discussions with his students *"I've asked them 'how things are going? Are you enjoying it? Are you finding it challenging? Is there anything that you want to tell me?' I regularly request some feedback that is specific feedback"* (LEC6). A systematic student feedback approach was designed in case 5, where the digital team integrated a short survey at the end of each week for students to reflect on their learning so that they could identify approaches that may need adaptation.

> *"At the end of every section, students will evaluate whether they think they've achieved the learning outcomes, a reflection on whether the module has actually done what it's supposed to do. If they all say they don't understand it, then clearly, we haven't done a good job."* (LDC5)

The design of reflective learning strategies integrated into the student learning experience was seen as having a dual purpose for educators (cases 1, 3, and 4); first, to be an essential part of student learning, and second to act as an indication of student engagement and learning. For example, Mark and Nancy designed a reflection activity at the end of each week for students to post their thoughts and comments on their learning *"…students actually do a self-reflection for each content which is useful for us"* (LEC4). In case 3, Maria and her colleagues integrated reflection into assessment to be able to more formally and holistically capture student learning so that she can then reflect on her teaching and learning approaches and apply any changes needed. She articulated,*"it was a way of me testing whether the module worked, selfishly, to build reflection into the assessment. I wanted to know what contributed to shaping their thinking"* (LEC3).

The summative mechanisms in Table 6.2 refer to formal measurable approaches set to evaluate the effectiveness of design decisions. In addition to the standard student satisfaction survey which is typically used in universities, participants in several cases mentioned that students' performance in assessment will help them identify the impact of their teaching and design on student learning. Therefore, it would act as a further form of information for reflection on their design decisions *"It's also how will the students deliver on the summative assessment and for us, it's about when this gets to its logical conclusion"* (LEC7).

Conducting formal research at the end of the module was also seen as important in most of the cases. For example, in cases 4, 5 and 7, the teams referred to the conduct of research by researchers located in the digital learning teams. However, it was not clear if this research would be conducted in the specific module contexts and, if so, how. In cases 1 and 3, it was the educators who were planning to conduct research themselves through specifically designed surveys, discussions with their students, and the use of learning analytics. However, as expressed by Maria, time and allocated resources would be key determinants on whether these research plans would be implemented. She also expressed that additional support is required to be able to build a stronger evidence base.

> *"Evidence base is missing. But this will only come from doing research, from academics, for whom actually evaluating stuff is not their primary research interest. Because they have got a whole other field to do. So, unless the university invests in centralised evaluation…"* (LEC3)

Case 2 was the only one where the educator was building a team of PhD researchers that would conduct formal evaluations and would build systems (data collection tools, processes) to help module leaders conduct evaluations of their modules. This was because John perceived online learning design and teaching as activities with long-term impacts that require attention and continuous improvements. Finally, in all the cases, the design teams were planning to organise an evaluation team meeting to bring all the insights from the different sources of information and actors involved together. This approach would help participants to reflect on the effectiveness of their adopted approaches based on evidence and create an action plan for the next module iteration.

> *"It's an ongoing process of doing research with students and getting feedback from the modules' leaders as well, what kind of works for them and their insights. And then, we have a lessons learned meeting internally and also with the module leaders at the end."* (LDC4)

6.3   Individual educator past experiences, intentions and dispositions

Educator-related factors have been disentangled from their collaborative design context to allow individual educator characteristics that were important and influenced decision-making to be unpacked. Interview data revealed a combination of, and relationship between educators' past experiences, beliefs, preferences, and motivation as informing participants' practice. These educator-related factors were shaped intersubjectively by the interaction of educators with team members and the activity's context to influence decisions.

6.3.1   Past experiences, preferences and beliefs

In all the cases, educators drew from their past experiences which were based on multiple teaching contexts (more experienced educators). As seen in the below indicative examples, several pedagogic approaches adopted in educators' on-campus teaching acted as reference and reflection points for their design work and/or for justifying the decisions' rationale.

> *"For me, it was making sure that things that are not working well in the face-to-face are now addressed. But it was also thinking about the benefits of face-to-face, such as how people interact, how they feel good about learning, the positivity, the energy, the dynamism. All these are important to engaging. So, there was, how do we bring that into the online?"* (LEC1)

> *"This task is about asking students to share their preconceptions on mental health to start with. We have done this in the face-to-face sessions, and it has worked."* (EC3)

However, prior experience in designing for and teaching online was described as the most impactful of any other prior experience. This was because it was considered to be more relevant: *"It was mostly also informed by my learning as I went along and designed our first module. And so, what this whole online delivery looks like. These are things that you pick up…"* (LEC7). This point was valid for cases 1, 4 and 7, where the educators had just come out of an online module design and teaching cycle, and they were in the process of designing their next online module. In case 2, even though it was the first time that John had designed for credit-bearing online learning, his cumulative past experience in designing several MOOCs appeared to be transferable and made him feel confident in his existing expertise. This was also reinforced by the fact that he designed his online module using a MOOC platform he had used in the past and therefore, he felt familiar with its features. An example provided by John was the adoption of learning patterns in MOOCs as a successful learning engagement approach which he mirrored to his new online module.

Identifying needs for pedagogic change through reflecting on past experience also created a problem space for generating new ideas to enhance existing practice (cases 1, 2, 3, 4, 6, 7). For example, John developed a new strategy that shifted the attention from creating examples for teaching individual programming techniques to the design of two large programmes that would act as a narrative/ real-world scenario to teach the required programming techniques.

> *"I've sort of gradually developed the idea in my C++ course on-campus, where I found that I just didn't want to have a little example programme every week. It seemed like an observation that when students hit a later point in the programme, they don't know what bigger programmes looked like."* (LEC2)

Such a stance was formulated in combination with educators' personal preferences and experiences as students (examples reported in all cases). In the above case, John shared that his experience as a student did not contribute to learning how to develop bigger programmes and, thus, he had to put extra efforts in to mastering this on his own at a later career stage. This lived experience and the realised shortcomings led him to design a scaffolded learning environment for his students to be able to build programming skills gradually, in as close to real-life activities as possible. Design decisions based on personal preferences and memories as students were also provided by early career academics who had no prior teaching experience. The early career educators' decisions were mainly guided by their personal preferences and were dependent on team exchanges and feedback. In case 6, Valeria was an alumni student of the equivalent on-campus programme. Her prior experience as a student proved to be a foundation for team decisions, particularly on a few aspects that were not seen as successful, such as the structure of learning and a few activities.

> *"Myself personally, as a former student of this programme, understood that the structure of that module was not really well delivered. We did not even have a structure to follow. So, now we designed the learning in a way that would make it easy for the student to understand and make the connections."* (EC6)

Educators (case 1, 2, 3 and 5) were also able to justify decisions drawing from their own research in their subject areas. For example, in case 5, Oliver brought his industry research insights to support the rationale of some activities included in the module to be in alignment with their identified employee skills gap in their industry – *"a lot of that is based on research we've done with organisations"* (LEC5). Maria discussed the impact of mental health on students' learning by drawing on her research and justifying her decisions.

Beliefs and values about learning and teaching were mentioned by the lead educators as a foundation for their decisions. They specifically cited several general principles governing their decisions that appeared to be universally applied, independent of the teaching modality. For example, inspiring curiosity and skills training were two essential principles that boosted Maria's thinking on how they can be employed when designing content and activities.

> *"…skills training and inspiring curiosity are what really drive the way that I design and deliver teaching…So, I am more interested in using the content to inspire curiosity, whilst training and developing these skills such as critical thinking and appraisal."* (LEC3)

In other cases, the educators put emphasis on their beliefs and the value they ascribed to applied learning. This was expressed as an educational vision shared among the team members at the beginning of the design process and was maintained throughout: *"We wanted it not just to be a conceptual discussion, a methodological discussion. We want an actively engaged, applied, skill-based experience"* (LEC7).

Finally, educators (7 out of 10[11]) beliefs and values were further informed by perceived changes in the global (education and work/industry-related) landscape. For example, some educators shared that the rapidly changing focus on knowledge and topics in their discipline was influenced by global changes (cases 1, 3, 4, 5, and 6): *"We didn't use to talk about digital transformation so much. But it becomes a lot more relevant. So, we're just having to adjust regularly based on how the world around us is changing so quickly"* (LEC5). Anna and Maria put more emphasis on 'developing the person' to create more contemporary and sustainable ('lifetime') learning opportunities for their students rather than focusing on subject-knowledge growth that can quickly become outdated.

> *"What is happening in the global context has recently made me shift my thinking about what is for teaching and learning that we are trying to do. So, for me, it is more person-orientated teaching and learning features rather than only the subject-orientated practice… it's about egoism to learn, it's about curiosity, it's about having patience, it's about all these things. And these are important more now because of the way that the world has been changing."* (LEC1)

6.3.2 Motivation and disposition towards experimentation

Educators' motivation and disposition towards experimentation emerged in most of the participants' narratives as being supportive for their decisions. All the educators shared a high level of motivation to rethink their practice and innovate. This was attributed to their

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[11] Apart from early career educators or educators that had not a module lead role; Florence (EC7), Alicia (EC3), and Valeria (EC6).

involvement in a novel (for them) design activity, which was seen as an opportunity for change: *"I want it to be innovative, something different"* (EC3)/ *"I am not trying to do something that has been done before in the same way"* (LEC3)*.* A similar sentiment was expressed by Anna who explained that, to be able to change her practice, she had to start with an open mindset rather than with a translational logic of activities from the on-campus to the online learning medium. She stated, *"I had to start like a blank canvas, it was the only way that would work"* (LEC1). Participants' motivation was also associated with the context the university had set for their design work. For example, John shared that the university's partnership with the MOOC platform felt energising and increased his interest in rethinking his practice. Other participants' examples demonstrated an association of their motivation with their work being part of an interdisciplinary team: "*I was very keen to learn from the team and do something new"* (LEC5). Finally, in cases 3, 4 and 6, the educators expressed a combination of 1) personal will to experiment and change their practice to be more contemporary and aligned with the specific learning context, and 2) promotion motives due to participants' universities' new promotion criteria that included excellence in teaching. Leonardo, quoted below, shared his efforts in creating the best possible online programme so that this is considered for his promotion.

> *"I hope that this will be considered for promotion. That's the aspiration. This has been the case before for other colleagues. So, I think that probably following up the pathway of teaching for promotion could be feasible, if this programme works well."* (LEC6)

6.4 Team dynamics and work conditions

This theme focuses on the relational aspects of collaborative design and the work conditions that appeared to influence participants' decisions. Data analysis revealed that perceptions about different roles, working relationships, power dynamics and emotional support had a significant role on participants' design activity. These are unpacked in the following sections.

6.4.1 Perceptions about roles

By focusing on collaborative design contexts there was a presumption that interdisciplinary team members' expertise may have an impact on pedagogic decisions. Theme 6.2 has already demonstrated different design team members' contributions from a process perspective. This sub-theme focuses on further relational and role-specific characteristics that supported and/or constrained decision-making.

Overall, a diverse team composition consisting of academic and professional staff with a variety of knowledge, skills, and levels of experience was considered supportive for making sound design decisions: *"We all came from different traditions. We all had different levels of teaching experience, expertise, research exposure. So, I think it was quite a good mix"* (LEC7). Most participants (case 2 is exempted) shared the view that different team members bring complementary TPACK knowledge and expertise, positioning educators as having content and pedagogy expertise, and digital learning professionals as having online pedagogy and technology expertise, which is well captured in the below quote.

> *"What I wanted was academics to bring the content knowledge, but what I did not want to do was to overburden them with the fear of the digital space cause some of them are very traditional academics [...] Then, there is the technological knowledge. So, we've got the learning technologists and I want them to bring that knowledge. Then, we have pedagogy. This is a mixture of me, looking at evidence and the professional services team who specialise in digital learning. I want to use the skills that are out there. It needs to be a team effort."* (LEC3)

This view on interdisciplinary expertise and team members' positioning was embraced in practice in cases 1, 3, 4, 5 and 7. It was also highlighted by early and mid-level career academics (cases 1, 3, 4, and 7) who perceived their work with digital learning professionals and other academic colleagues as the most important factor for their decisions in this new medium.

> *"What's influenced my decision-making is mostly other people. […] I heavily rely on our digital learning designers, and by having discussions with them in the design sessions, I've kind of clued into some ideas of how to develop for online."* (EC7)

In addition to TPACK knowledge, participants also emphasised project and time management provided by digital learning professionals as essential for their work (cases 3, 4, 5, and 7, lack of such support in cases 1 and 6). The organisation of regular meetings allowed design work to progress at a pace that was more manageable for educators who had multiple other responsibilities (teaching, research, administration) as part of their academic roles. The design process coordination by digital learning professionals assisted in managing educator expectations, keeping track of the process, and creating action plans in this new and relatively large-scale design activity for educators. This is reflected in the below quote and was confirmed by both educator and digital learning professional participants.

> *"I had no idea going into this. How much work was involved, how much time it would take all those kinds of things […] I had wildly underestimated the amount of time actually. And [Nadia] was extraordinarily patient, as you could tell and helped me manage the process."* (LEC5)

However, despite the generally positive perception of the interdisciplinary expertise of participants, it appeared that not all members contributed as anticipated in all the cases (cases 1, 2, and 6), for a variety of reasons. Therefore, some roles ended up being redefined. Specifically, in case 1, Anna's expectations regarding the role of the learning designer remained unmet. Drawing from her past experience with a learning designer, Anna started the collaborative design with high expectations, referring to the learning designer's role as one that would challenge the academic team's thinking and provide evidence-informed and innovative ideas specific to online learning. However, Anna realised that their allocated learning designer was performing a more administrative role by mostly uploading and formatting content. The learning designer's level of contribution was also confirmed by other members[12] and witnessed during my design meeting observations.

> *"My expectation for the learning designer was to be a critical friend, be knowledgeable, up to date with new online pedagogical practices, offer alternatives, question the rationale for why we are doing it, because we would have that rationale in our own discipline, but not necessarily on an online perspective to the same extent. I am sorry but that was not there."* (LEC1)

At the same time, Anna had initially described the role of a media producer as one that has technical knowledge and skills (e.g., platform affordances, media production and aesthetics) and is responsible for bringing and implementing creative ideas within the context of online learning. However, in practice, she realised that Alex and other media team members contributed to pedagogic thinking and feedback too. Therefore, the role of the learning designer was filled by the media producers to bridge the identified gap.

> *"I know that this is 'learning designer-ish', but I could talk to them about layout, structure, learning tasks, new ways we could do things if the platform is limiting and all these other things because they are so good and they have been fantastic."* (LEC1)

Similarly, both Alex and Anna expressed that the project manager role was not covered sufficiently in their design team. This impacted their workload and decision-making thinking space due to the additional administrative and coordination activities they had to perform.

Another example was in case 2, where John preferred to work primarily on his own, and thus, he received limited administrative and technical support from other members (e.g. learning designer, media producer). John attributed this more individualist approach to his module design to his perceived self-efficacy as an experienced educator. John had already advanced

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[12] The media producer as well as the learning designer themselves decided to not participate in the study as they perceived their role of minor importance.

technical skills and he preferred to develop new relevant learning technology and media production skills himself to become self-efficient. This was so that there is no need for him to work with other technical experts; work that would increase his existing workload: *"I just didn't want to deal with all that. I'd rather just spend the time to figure out how to do it myself and then just do it"* (LEC2). He also expressed that the design process set by the digital learning team was labour-intensive, fixed, and largely incompatible with his preferred and natural ways of working. Furthermore, the overwhelming number of digital learning professionals and other stakeholders to be involved as per his university's learning design setup was not experienced positively by John. He perceived that the multiplicity of opinions by these various actors added pressure, complexity, and confusion to his work. This was because he would have to address varying or conflicting feedback that sometimes did not match his own views:

> *"Sometimes you can have too many people having opinions about things. I guess some module authors quite like to have lots of advice and guidance, and others are like "No, I know exactly what I'm doing, and I don't need you to tell me what I have to do." (LEC2)*

However, John also acknowledged that other colleagues of his, worked closely with the digital learning team. Thus, he concluded that the way educators choose to work with digital learning professionals is largely dependent on their preferences and level of existing experience.

In contrast, in case 6, the lack of sustained interaction with digital learning professionals was seen as limiting educators' opportunity to implement more complex ideas and have a sounding board. Leonardo identified a need for regular contact with a pedagogy expert to provide the team with online learning-specific feedback and a more critical angle to their design. This was seen as missing from the team's current dynamic: *"You need a contact point when you create a new course and even with existing courses…and they can suggest 'you should add this or maybe you should modify this, or what about this idea"* (LEC6). Many examples were also provided in relation to the lack of learning technology expertise despite the fact that the team received ad-hoc support for a few technical aspects during their design. Leonardo expressed his frustration at not being able to develop more technically advanced 3D videos and learning environments that would significantly enrich students' learning experiences. As seen in the below quote, this was particularly articulated in relation to the nature of his module.

> *"….expertise next to you, because I got plenty of ideas…I'm annoyed, so I don't know how to develop these things and I don't have the funding. To give a simple example, my teaching got surgery, ideally, I'd like to create a 3D model animation of the mouth, of the gums, or the teeth,*

with an animation showing how to do an incision on the suture, that's where technology is. But also, more complex exercises." (LEC6)

Finally, digital learning professionals' general awareness of the module's subject area appeared to help with the provision of meaningful suggestions and exchanges among participants in cases 1, 3, 5, and 7. For example, Alex shared that his teaching background made him feel more confident in crossing his role borders to make pedagogy-related contributions. As he articulated, "*I have a teaching background, I've got some understanding of the subject. So, I can have those conversations on more sort of specific and deeper levels"* (MPC1). Alex had 12 years' teaching experience in HE and Further Education and a teaching qualification in education which gave him both content understanding and knowledge in good practice in education. Some participants also discussed the importance of digital learning professionals' subject-matter awareness from an efficiency viewpoint. This is because teams are often given limited time to design, which may impede in-depth knowledge integration among participating actors. In case 5, Nadia believed that her proposals would have stayed at a higher more abstract level if she was not familiar with the subject area. This point was further enhanced by the contrasting case 2, where John preferred to not work in close collaboration with digital learning professionals as he perceived their lack of disciplinary expertise to have an impact on the relevance of their contributions: *"There are learning designers, but nevertheless, they're not subject experts in computing. So, they do not really know"* (LEC2).

6.4.2 Working relationship and perceived power imbalance

Characteristics of the working relationship and a perceived power imbalance between educators and digital learning professionals surfaced in the data as influencing design decisions (cases 1, 3, 4, 5, and 7). Building a good working relationship was discussed as one of the most important conditions for creating a productive design thinking space.

> *"Building that relationship between the academics and the other team members was absolutely vital. Because if you do not have a strong relationship, you won't get the opportunity to learn their content. They got to be willing to sit down with you and discuss, and engage."* (MPC1)

Alex's (MPC1) comment indicates that a good relationship was an essential starting point for knowledge integration, building a shared understanding, and commitment to collective design. Openness was also discussed as a quality defining a good working relationship (cases 1, 3, 5, and 7). Educators and digital learning professionals appeared to have an aligned perspective and appreciative stance towards the benefits of being open during collaborative design. The

digital learning professionals described the importance of educators' receptiveness to, and respect for, new ideas which allowed them to integrate their perspectives: "*I can see they're quite open-minded, they often took those ideas on board quite quickly, especially when they could see that you've got a good reason to suggest that*" (LDC7). However, a few digital learning professionals (cases 3, 4, and 5) also mentioned that the educators they worked with had sometimes quite definite ideas on certain pedagogic aspects and therefore, they were not so open to the new proposed approaches.

Openness was also discussed in relation to digital learning professionals' ways of working. For example, Anna praised the work of Alex and his colleagues in terms of having the strength to be critical and provide their ideas openly even though they were working with an existing academic team that had their own habits and norms. The below quote demonstrates openness as a two-way attribute between academic and professional staff.

> "They would ask lots of questions, and I would like to think that's because we are open to suggestions… They would come to check with us, we are thinking about this, we have this idea, but they were also importantly open to say 'No' and critiquing what we suggested." (LEC1)

Notable also was the temporal dimension of the working relationship that became evident through the extended data collection in two distinct time periods and the design meeting observations. Participants in cases 1, 3, 4 and 7 perceived the strength of the working relationship to have grown throughout time. Although in the beginning there was uncertainty, the regularity and length of collaborative design work allowed establishing norms, trust, and boundaries between collaborators that were seen to facilitate design decision-making.

> "They know how I can be helpful and what we can do with our relationship to bring the best of both worlds to deliver really high-quality content for students or other stakeholders. And that takes a lot of pressure off for both sides. We have this expectation, those boundaries." (LDC3)

> "It took some time to work out where the roles are. I think when you join a new group it feels like you have that kind of tension and just see, okay, who's doing what. But now we're in the second module working together, we know we've done this already. So, we're kind of in the flow and everyone's kind of clear where their role is." (EC7)

A perceived power imbalance among collaborating actors was prominent in the dataset, but only expressed by the digital learning professionals (all the cases). Power in this context is defined as the agency and capacity that a participating actor has in shaping action and making a decision (Bratteteig & Wagner, 2016). Although the working relationship was mostly characterised as collaboration or partnership by most participants (see Appendix J), digital

learning professionals, at times, positioned themselves as having a weaker role when it came to the actual act of decision-making.

> *"…there's probably things that I would do differently if I had full control, but I suppose it's a collaboration. And ultimately, the modules belong to the faculty in a sense. So, they kind of have the final say. So, it is up to them, I suppose sometimes."* (LDC4)

> *"I did advise against it, but they were keen. And I think this is the case in so many situations. You can present the pros and cons of a specific approach to someone but, then, it's their final decision."* (LDC6)

> *"We are not the same, we are not certainly the people doing this, we are in a different place."* (LDC3)

Based on digital learning professionals' interviews, it was the educators that had power and responsibility when transitioning from the formulation of ideas to actual decisions; or in cases when consensus among collaborators was lacking. The below quote shows the dilemma and effort of digital learning professionals in finding a balance between making suggestions that were contradictory to, or different from what educators were used to, and avoiding tensions.

> *"Sometimes the dilemma was on how can we change their mind while also keeping them on side? Because it is not about being right, it is not about giving the right thing, it is about having people alongside you when you get to the end. If you are right but on your own, then that does not really matter."* (LTC3)

Therefore, on some occasions, digital learning professionals emphasised maintaining a good working relationship rather than pushing for the adoption of particular approaches that were considered pedagogically sound.

6.4.3 Emotional support

Online learning design was an emotionally loaded activity for educators (explicitly shared by participants in cases 1, 3, 4, 6 and 7). The collaborative work context appeared to create a space for participants to disclose their emotions and receive emotional support and encouragement that assisted their work. A particularly enlightened example in this respect was in case 3, where a range of emotions were shared throughout the design process. Specifically, the team started out motivated and had several ideas for innovating in online learning. However, at the same time, educators externalised negative emotions during some design sessions. These included discomfort, frustration, stress – *"it has been quite stressful"* (LEC3) and fear – *"it's terrifying to hear from other colleagues that online is not working or that students are not engaged"* (LEC3). A sense of exposure and vulnerability due to the nature of online learning being available to other colleagues and leadership. *"We are afraid that we will*

be more scrutinised as in online everything is there" was also shared and appeared to add pressure to participants. Exhaustion due to the intensity of work – *"I find it too much work, I have not worked like this before. It's my first time working like that" (EC3)* – was also reported during design meetings, particularly from early career academics.

However, sharing these feelings and experiences with their collaborators led to some reassurance and comfort and helped with addressing identified issues. In moments of uncertainty or 'in-between' decisions, the digital learning professionals were also encouraging educators to adopt a more exploratory approach and try new proposed approaches. An example of this is when educators were debating for and against the creation of peer review activities: *"I guess a lot of this stuff… It's worth just giving it a shot, seeing what works where it works. Yeah, it may work in different weeks, depending on what that content is"* (LTC3). The expression of positive emotions, such as feeling proud and re-energised with the final design output were also shared among collaborators mostly in the final design meetings, *"Exciting times! It looks so satisfying to see the module looking like this"* (LEC3) and the interviews. This can show the positive impact of sharing emotions and the supportive atmosphere that led to a satisfying end result. Another example was in case 1, where Anna shared that the collective sense of responsibility that the academic team felt when working with interdisciplinary experts helped them to overcome design task ambiguity and pressure. Therefore, the academic team had a more emotionally balanced start.

> *"Knowing that this will be a collaboration* with [digital learning professionals]*, it took a lot of the pressure off. It would not just be us deciding on everything. We would have a shared responsibility and guidance. That's great, as it's a huge task and a completely new area for us."* (LEC1)

An exception to this was Florence, an early career academic. Despite the fact that she experienced collaborative design as being supportive, she also felt pressure and stress that impacted her decision-making: *"sometimes it feels like you're pushing a boulder up a hill"* (EC7). Florence's job responsibilities included being one of the key academic developers, teaching online modules (synchronous and asynchronous facilitation), and being responsible for various administration and coordination activities. The complexity of the process set by her university and the challenge of managing her multi-faceted role affected her decisions. She ariticulated, *"it's just very complicated. So, for me, it's trying to keep track of everything through the entire process. That affects decisions"* (EC7). Sometimes, this impacted the aspirational approaches

conceptualised in the initial design phase, resulting in activities that were more easily implementable to avoid burnout: *"You have these grand ideas of things you can do, but sometimes just ease, what's easy. And, there's a lot of worry that there might be burnout"* (EC7).

6.5 Collegial communities, knowledgeable networks, and peripheral actors

The previous themes focused on the immediate team level processes and influences on design decisions. This theme shifts the attention to the role of collegial communities, networks, and other peripheral actors accessed by educators and digital learning professionals to enrich their decisions. In this thesis, communities refer to an ongoing learning partnership with a collective intention where members share a common concern, interest, or challenges in a domain and develop a shared practice (Wenger, 1998). Network, on the other hand, refers to:

'the set of relationships, personal interactions, and connections among participants who have personal reasons to connect. It is viewed as a set of nodes and links with affordances for learning, such as information flows, helpful linkages, joint problem solving, and knowledge creation.' (Wenger, Trayner & DeLaat, 2011, p.9).

Given that educators and digital learning professionals brought insights from diverse and distinct actors and communities (see Figure 6.2) into their immediate team context, each participant group is presented separately to allow for further unpacking across the cases.
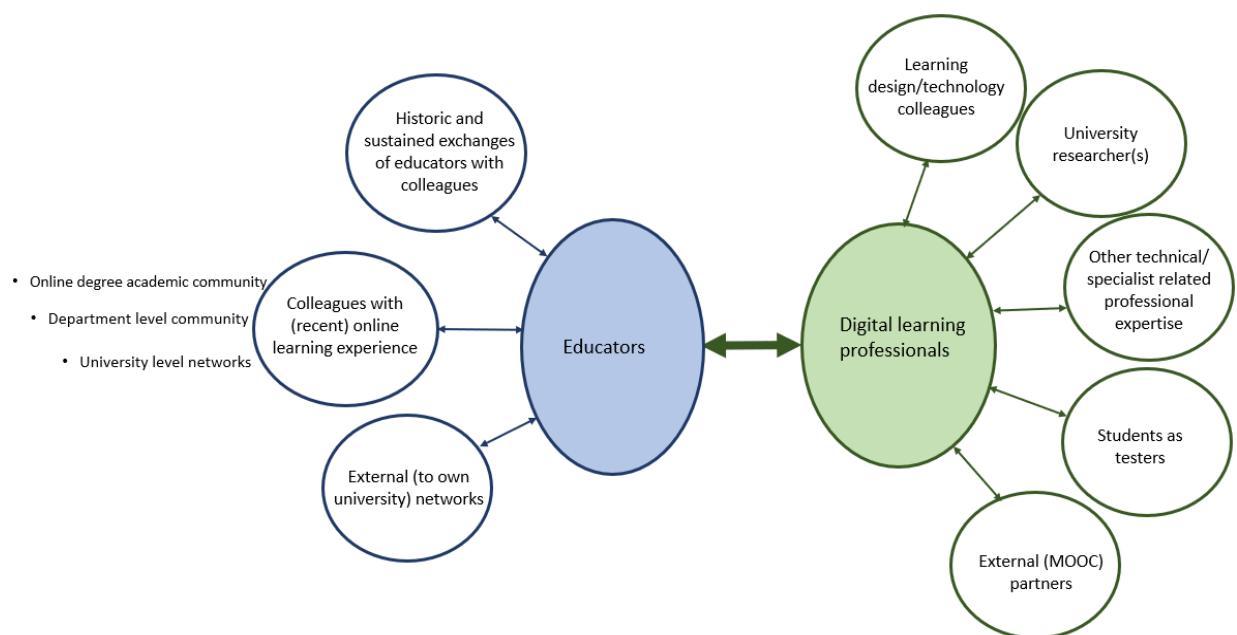
Figure 6.2: Collegial communities, knowledgeable networks and peripheral actors with influence on design decisions

6.5.1 Educator-related communities and networks

Collegial exchanges and access to knowledgeable networks appeared to inform educators' design decisions. Table 6.3 demonstrates their different forms as surfaced in each case study.

Table 6.3: Educator-related communities and networks influencing design decisions

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
Historic and sustained exchanges with colleagues	✓	✓				✓	✓
Colleagues with (recent) online learning experience	✓ *Online degree community*	✓ *Online degree community*	✓ *University level network*			✓ *Department level community*	✓ *Online degree community*
External (to own university) networks	✓		✓	✓	✓	✓	✓

Historic and sustained exchanges of educators with other academic colleagues from their department/school shaped their practices and built a shared teaching culture and/or awareness of other colleagues' pedagogic practice. Educators' past collegial activities, including collaborative design and reflection activities (cases 1 and 7), regular informal discussions with colleagues (case 2), and annual teaching team reviews (case 6) were considered during online learning design.

> *"We talk a lot between us, especially about teaching programming. It's been a dialogue around that for years, with key people in the team. So, we are all kind of quite aligned about how that should be done."* (LEC2)

Opportunistic and deliberate, one-to-one exchanges between educators and colleagues (online learning degree level, department level and/or university level) that had recent experience with online learning design and teaching were valued by participants. In cases 1, 2, and 7, such insights were coming from colleagues that were working on earlier modules within the same online degree spreading knowledge across the online degree team: "*We could do this activity, or maybe this is something that we could do a podcast around, because I saw that in the other specialisation*" (LEC7). John referred to student workload and plagiarism related issues experienced by his colleagues when including peer-review activities. John was a supporter of peer-review activities pedagogically and thus, such experiential insights made him critical on their overarching educational purpose and micro-level design.

Collegial exchanges (department level) appeared to have a more substantial impact in case 6. A range of community and network-based interactions (see Figure 6.3) that were temporally distinct (historic and present) and contributed variously to the team's design decisions were shared by participants, and deserve further scrutiny.
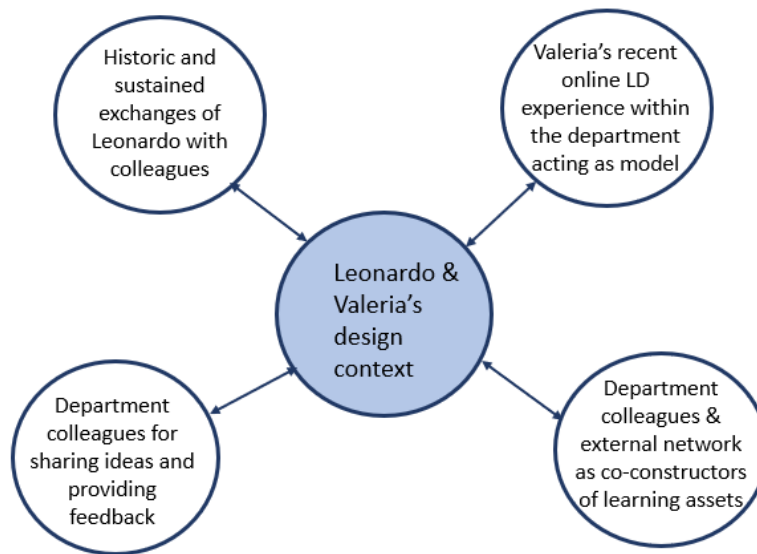
Figure 6.3: Community and network-based interactions during design in case 6

Specifically, before starting the online learning design with Leonardo, Valeria had shadowed and provided support to the design of another online degree within their department. This other online degree team that Valeria worked with, had developed the first online degree within their department and received extensive university-level support (e.g., sustained collaboration with learning designers and technologists). Valeria was then able to transfer aspects of her experience with that other online degree team to the new online learning design context under investigation. This was through Valeria's reuse of design approaches (e.g., spreadsheet to map learning at different levels) and by mirroring successful learning and teaching strategies:

> *"…that was my main learning for myself on how to develop programmes, because I have not had any teaching on that before. And that was really important. So, I took guidance from there and how pretty much they developed their programme and applied it in this context."* (EC6)

Informal exchanges with colleagues within the department for feedback and ideas sharing were also seen as supporting Leonardo and Valeria's effort: "*I was also discussing internally with the head of the unit and other colleagues to gather their feedback on this, to get fresh ideas*" (LEC6). Collegial exchanges went beyond knowledge sharing dialectic acts to involve

colleagues and external connections (e.g., alumni students, research/practice collaborators) as co-constructors of specific activities and content.

> *"We involve many colleagues in the department and other colleagues that actually wanted to help from the outside of the university that had been previously students or that we continue to have collective collaborative forms." (EC6)*

Therefore, although the design of the various online modules within the new online degree was mainly the responsibility of Leonardo and Valeria, it moved towards a department-level community development whenever these educators needed more support. It was Leonardo who was coordinating such exchanges with unit academic staff based on the team's needs and the staff's relevance of expertise. Although this distribution of labour was seen as supportive, coordination was sometimes troublesome and complex to manage.

Of particular interest was case 3, where it was the lead educator, Maria who accessed a range of communities and networks within and beyond her university that influenced decisions at both individual and team levels (see Figure 6.4). Some examples are provided below to evidence the nature and collective impact of those on decision-making.
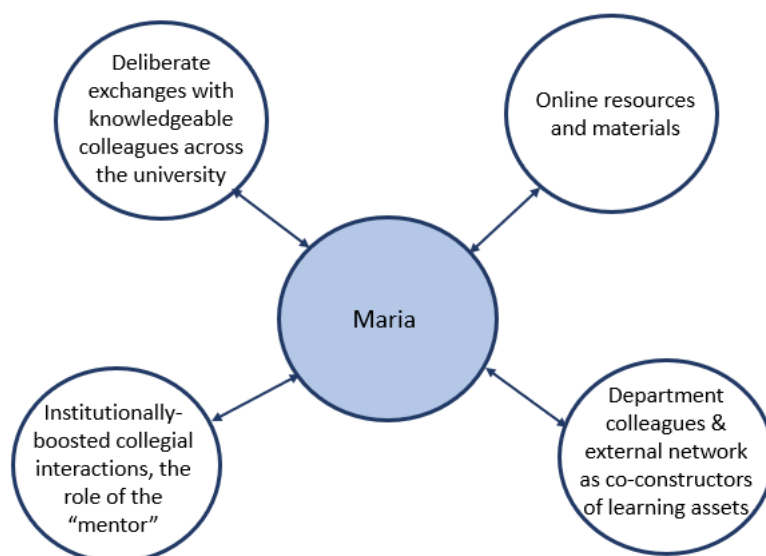
Figure 6.4: Community and network-based interactions during design in case 3

As one of the first educators to online learning design in her degree team, and based in an interdisciplinary centre with no prior experience of online learning, Maria proactively initiated exchanges across and beyond her university to gather 'wisdom' from similar contexts. Several examples were referenced across the interview and observation data, such as having discussions with university communities (e.g., online degree committees, learning and

teaching department), or individual academics with prior relevant experience (e.g., educators that had taught or conducted research in online learning). Acting as an external examiner in other university online programmes was also reported as a valuable professional experience that Maria reflected upon to support decisions in her design. These collegial exchanges as seen in the below quotes assisted Maria in gaining insights and thinking about solutions to identified issues (e.g., lack of flexibility and choice, level of content, and activities).

> University-based collegial exchanges: *"We learnt a huge amount talking to people that delivered it into a very small or quite large online programme and try to learn from what had gone wrong or well in other developments of new masters. All these things, I have tried to learn from, and I try to design in as many solutions as possible to these things that I had heard were problems."* (LEC3)

> Beyond university network: *"We looked at X university's model because they have a similar programme to us. What they did was to have very broad entry criteria, but this was not considered in the design…Student workload was too much."* (LEC3)

In parallel, institutionally-boosted collegiality through the establishment of a mentoring scheme proved to be supportive. The university paired Maria with a more experienced academic who had been through the process of online learning design and teaching. Pointing Maria to relevant pedagogic literature, sharing practices seen in other contexts, and providing tips on how to navigate university politics were among the benefits reported by Maria: *"…because he did understand the politics of the university, and he understood the frustrations. And he'd seen lots of other people try things and he gave me some good pointers"* (LEC3). The access of materially-mediated networks, such as relevant online resources and MOOCs with an ambition to get ideas from other academic communities was influential. For example, Maria adopted a critical stance towards MOOC designs who acted as an example of avoidance due to their content-focused learning structures.

> *"I looked at some of the online MOOC stuff that had gone out from different institutions. This video-based type of learning. And I knew it was going to bore people and wouldn't work. We couldn't do more of the same."* (LEC3)

Access to material-mediated networks (MOOCs, OERs, online resources) was notable in other cases too (cases 1, 3, 4, 5 and 6, lead educators only). It was based on educators' perception that they were forms of online learning that were similar to their own contexts and, thus, potentially useful sources of information. For example, in case 1, Anna found the exploration of other MOOCs useful to uncover patterns and tools used in other courses that can be transferred into their own contexts: *"I've discovered certain things that are really nifty through*

another MOOC" (LEC1). Mark acknowledged that there are multiple OERs such as MOOCs and YouTube videos available to students, which he characterised as not being of high educational quality. Thus, OER exploration led to an awareness of available learning resources and an effort to differentiate learning design and go beyond the mere consumption of knowledge.

> *"Students are aware of the fact that they can reach anything they want to learn online. So, free YouTube videos, or cheap Udemy content, etc. This is what sometimes they're judging you. This is why I am thinking about what value am I adding when I design."* (LEC4)

Accessing external university experts (e.g., industry professionals, academics) in different domains for content development to enrich their students' experiences was evident in most case studies. Finally, in cases 2, 5, 6 and 7, the online modules were reviewed and/or user-tested by academic colleagues of this study's participants. These academic colleagues would act as online tutors during online facilitation (cases 2 and 5), or were selected to only review the online modules following a similar peer-review process. Nevertheless, they did not participate in design and their involvement at the final stage of online module development formed an additional layer of expert feedback to ensure high-quality online learning.

6.5.2   Digital learning professional-related communities and networks

Digital learning professionals brought insights and feedback from a range of other stakeholders (see Table 6.4) not directly involved in the design meetings (cases 1, 3, 4, 5, and 7). This point was transparently communicated by Nancy as a reflection on her role.

> *"My role is that of communication channel between the faculty and our internal team* […] *It involves quite a lot of liaison with other people and then working with the academics. We have designers and learning technologists within our team. We've recently started a games development as well. So, I bring these multiple insights into our design."* (LDC4)

Table 6.4: Digital learning professional-related communities, networks and interacting actors

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
Learning designer / technologist colleagues and community	✓		✓	✓	✓	✓	✓
Local researcher(s)				✓	✓		✓
Students as user-testers				✓	✓		✓
Other technical or specialist expertise	✓	✓		✓	✓	✓	✓
External partners (e.g., MOOC partner)	✓	✓					✓

Specifically, in most of the cases, learning design/technology colleagues from the wider digital learning team acted as peripheral contributors through ideas exchanges, sharing of good practices, and feedback among them. This study's digital learning professionals were then feeding insights back to the educators they were working with: "*It's a collective experience, we see how someone would do this, or we talk about challenges we're facing quite regularly. And people give spontaneous good ideas, this helped me*" (LDC7). Importantly, in cases 3, 4 and 5, the learning designers were having discussions with colleagues who were working on modules belonging to the same online degree. As seen in the below indicative example, this was to ensure a more coherent approach to design by not only focusing on individual module design in isolation but considering the learning experience at a degree level as well.

> "*There are six or seven modules in total. And it's not only me and the [Harry] working on all of them, but there are a few colleagues from the team as well. There are some modules I haven't worked on… So, we had regular meetings to ensure that we use the same standards, the same boundaries and we approach things in similar ways.*" (LDC3)

Such exchanges helped to not only seek parity among the modules but also to ensure that there were not repetitions of the same activities that might lead to student boredom and learning stagnation. In case 5, these cross-module discussions among learning designers brought insights that were critical for assessment design. The team aimed at better spacing assessments so that students in each semester have time to work more thoroughly on them.

> "*…looking at all our key dates, and making sure that weren't any clashes. So, that feeds into some of the assessment side of things. We had quite a lot of to the end project assessments. So, we had to make sure they were staggered a little bit.*" (LDC5)

In cases 1, 3, 4, 5 and 7, the digital learning professional participants highlighted the evolution of their digital learning team practices and processes which influenced their overall approach to design with educators *"we've been trying quite a lot of new ideas in the last couple of years. And it's changed a lot over the years I've worked here, in terms of processes that we're using to work"* (LDC4). Each participant emphasised slightly different components. For example, in case 1, Alex mentioned that their team moved from a less structured design process, due to online learning design being a new endeavour in their university, to a more structured one by following a specific process and providing a range of examples from their evolving practice. In case 3, Harry discussed about their transition from online learning designs that were video-driven towards more critical use of media for learning. In case 4, Nadia reported their digital learning team efforts on bringing great alignment and connectivity between the online module

components and the different parts of the online degrees. Therefore, historical perspectives from their digital learning teams appeared to influence their approach to decision-making.

The remaining knowledge insights and feedback came from various external to the immediate team actors and communities and were dependent on the institutional and digital learning team setup and available expertise. For example, the existence of researcher(s) within the digital learning team in cases 4, 5 and 7 encouraged learning designers to bring local research-based knowledge when working with the educators. Nevertheless, very few such instances were reported. In case 4 both Mark and Nancy referred to user-experience research insights (e.g., student level of participation in social learning; students' access to videos) that the digital learning team was conducting with online students which underpinned several decisions.

> *"They do an extensive survey, they get the students' feedback about different modules and the LDs try to feed us with what they have found from their study. And they are trying to actually shape our content based on this feedback."* (LEC4)

In addition, students were involved as user-testers in some cases. In cases 5 and 7, student user-testing was a strategy introduced systemically by the university. Learning designers were the coordinators and communicators of such feedback to the educators –"*she collates all the comments and feedback into one site*" (EC7). In case 2, the 'user-testing' process was coordinated by John instead of the assigned digital learning professionals. He decided to trial some of his ideas with his on-campus students before he finalised his online module's design. This was so that he could identify issues and be able to resolve them in advance. Student-based feedback was useful to address technical issues relating to activities, access to resources, student workload estimation, and clarity on task instructions. It helped with the identification of gaps and flaws in content comprehension and for further reassurance that the designed activities were relevant and engaging from the student's perspective.

> *"It was useful because it was all obvious when you looked at it, but you didn't realise it because you were so busy doing it. They like the exercises, they like trying out the tools, but there are areas where we're light on content that we then went, okay, let's add some extra depth"* (LEC5)

Learning designers were also found to liaise with colleagues and other stakeholders who had technical or other relevant specialist expertise for implementing or co-conceptualising ideas. In cases 4 and 5 the learning designers were the key collaborators for educators and, therefore, they were managing collaboration and connection with others (e.g., media producers, learning technologists, game developers) for key decisions. Even in cases 1, 3 and 7 with larger team

compositions and interactions (three or more team members with different expertise working as a team on a regular basis), learning designers were communicating with stakeholders beyond the immediate team, that had relevant expertise. For example, in case 1, the learning designer and the media producer brought insights related to copyright, as per the educators' needs, by directly liaising with the copyright lead located in their internal team. In cases 1, 2[13] and 7, the learning designers were also the main contacts and liaising professionals with MOOC platform partners: "*It was regular feedback on things that are kind of issues in the development, or we need to liaise with the platform provider in general*" (LDC7). Therefore, they had the role of managing the relationship and bringing relevant insights and updates regarding platform developments (see examples in section 6.6.2).

6.6   Institutional level supporting and inhibiting factors

In this theme, the focus is on institutional factors and conditions that supported or inhibited participants' design decisions. This theme evidences how strategic learning and teaching activities, institutional rules, and leadership involvement shaped their design work. Table 6.5 provides a summary of how these factors played out in each of the seven case studies.

Table 6.5: Institutional level supporting and inhibiting factors across cases

Case	Strategic learning and teaching activities	Institutional rules	Middle leadership involvement
Case 1	-Learning & Teaching strategy (positive) -Training & online teaching resources (neutral)	-Partnership with MOOC platform (positive & constraining) -University policies (constraining)	-Leadership (informal) (positive)
Case 2	Indication of awareness and alignment with Learning & Teaching strategy -Training (neutral)	-Partnership with MOOC platform (positive & constraining) -University policies (constraining)	-Leadership (systemic) (positive)
Case 3	-Learning & Teaching strategy (positive) -Formal training, online teaching resources and participation in university strategic activities (neutral)	University policies (constraining)	Leadership (informal) (constraining)

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[13] In case 2, this liaison with MOOC partners and the associated decisions taken was not only managed by the digital learning team, but mostly by John, who was the module leader and degree director and, thus, coordinating activities and decisions at different levels.

Case 4	-Learning & Teaching strategy implemented via the digital learning team -Training (workshop-style) (positive, but limited)	-University policies (constraining)	Leadership (systemic) (neutral/limited, systemic- not explicitly attributed as influence)
Case 5	-Learning & Teaching strategy implemented via the digital learning team	-University policies (neutral)	-Leadership (systemic) (neutral/limited, systemic- not explicitly attributed as influence)
Case 6	-Formal training & workshops highlighting university strategic goals (positive)	-Limited resources (lack of sustained expert support for feedback and complex ideas implementation)	-Leadership (informal) (positive)
Case 7	-Learning & Teaching strategy (positive) -Formal training (limited impact)	-Partnership with MOOC platform (mostly constraining)	-Leadership (systemic) (positive)

6.6.1 Strategic learning and teaching activities

All participants articulated the various ways in which institutional strategic learning and teaching activities, such as accessing strategic documents, undertaking formal teaching training, attending workshops, and having dedicated time for design, influenced their decisions.

Regarding the access to strategic learning and teaching documents, in cases 1, 2, 3, and 6 it was the lead educators who shared how centrally articulated strategic pillars impacted their work. For example, Anna mentioned that the overall institutional priorities were considered during design and she stated: "*We are working within an institutional environment that does have its own best practice, education strategies and assessment, so, weaving that into it and operating within that*" (LEC1). Anna also shared how the introduction of a new strategic pillar dedicated to intercultural and international development encouraged the team to think of new ways to integrate this pillar into the online student experience. The learning and teaching strategy in case 1 had been recently enhanced and a requirement was put in all the university's degrees to be analysed against a set of inclusivity criteria; an activity which the academic team was part of. Therefore, the strategy appeared to act as a driver for the teams' focus on inclusive learning which was also noticed during the design meetings.

> *"that was there as a formal structure, it gave us almost an excuse to really prioritise it, not just in what we deliver but also how we deliver [...] That really made us rethink about, how do we make students feel they have a sense of community, of belonging."* (LEC1)

Another example was given by Maria who described the introduction of a new strategic framework for the academic year 2020-21. One of the requirements within this framework was an institutional move away from exams. This requirement was in line with Maria's vision and enabled her to bring about changes in assessment without the need to go through slow university approval processes as in the past. At the same time, digital learning professionals (cases 3, 4, 5, and 7) mentioned that the digital learning teams they belong to, and their work, are part of the university strategy – *"I know some of the things that we were supposed to achieve as a team are based on pillars from the strategy and we are part of it"* (LDC7) – which was triangulated by accessing strategy documents of all the universities. In all the accessed documents the collaboration between educators and digital learning professionals was included as one of the main ways they try to implement their educational vision. Therefore, several pedagogic foci during design had a strategic direction.

Institutional training in the form of one-off workshops (cases 4 and 6), online teaching resources (cases 3 and 7), and formal teaching training (case 3, 6 and 7) were discussed by participants as channels for pedagogic guidance and for disseminating institutional learning and teaching vision. However, it was the early career academics (five or less than five years of teaching experience) that reported some positive influence over their decisions. For example, in case 6, Valeria's formal teaching training for early career academics from the central university educational development team appeared to be supportive and her main source of exposure to pedagogy.

> *"They really give us a very good sense of what are the priorities. There is some guidance in terms of delivering, that you have to obviously adapt it to your own programme, and your discipline because sometimes what they are trying to implement may or may not be feasible fully for your specific programme."* (EC6)

Another example was provided by Ethan who shared that teaching training widened his pedagogic horizons by engaging with different pedagogic approaches. His teaching training also helped him to develop a more open-mindset to digitally-mediated learning, as he previously perceived himself as being sceptical and resistant. However, the remaining educators (Anna, John, Maria, Oliver more than five years of teaching experience) shared that training had no direct influence upon decision-making. For example, Maria accessed a range

of online teaching resources from her university's website (e.g., micro-CPD, good practice tips), attended institutional educational events and the annual conference in education to gain ideas. Although these exposed her to institutionally recommended practices, they were not perceived as inspiring for her practice.

> *"The problem with lots of the stuff that is out there is that it is not innovative enough, or that it is not going to solve the problem that I have. And it seems a bit incremental, it is like a tiny step on, and it seems very intuitive, it does not really seem that it is game-changing."* (LEC3)

The same applied to John, who admitted that the formal training he had undertaken did not include any relevant content to online learning design knowledge and skills – *"the PgCert didn't include any of that, and I haven't done any formal qualifications in online learning. So, it is very much learning by doing"* (LEC2).

Time also appeared to influence participants' design decisions. For most educators, time was discussed from the perspective that they had been allocated time to dedicate to online learning design due to strategic institutional arrangements. The organisation of regular design meetings allowed for making decisions at a pace that was more manageable for educators, which they appreciated. Five educators contrasted this new way of design working with their prior experiences where they had limited time to revisit and carefully design their teaching sessions and resources: *"We had no time to prepare for and refresh face-to-face teaching before"* (LEC1). Therefore, time set aside for the online learning design activity proved to assist with the establishment of new and more productive design routines.

> *"Something that I really appreciated out of this process has been, we had protected design times. So, afternoon, there was nothing to do. We met as a team, we knew we had the afternoon, we used all the time effectively."* (LEC7)

Interestingly, although the same educators also discussed their heavy workload and time pressure that impacted several ideas, time was particularly highlighted as a key factor by digital learning professionals (cases 1, 4, 5 and 7). Digital learning professionals expressed that they did not always have the time to explore new possibilities due to their role being set up to work in parallel with many other academic teams. Therefore, several suggestions and decisions were based on pragmatic grounds and by adopting more established approaches.

> *"I'm not sure we always have the time. So, we are kind of maybe sticking to the tried and tested a bit sometimes because you know, those things at least work and function."* (LDC4)

"I work on seven projects at the moment at once. So obviously, I'm mindful of my own time but also, importantly, academics' availability. So of course, their time within that timeframe and what's possible." (LDC7)

6.6.2   Institutional rules

Institutional rules impacted decision-making in all the cases. One of the most influential rules introduced was the partnership with MOOC platforms in three out of the seven cases. Specifically, the infrastructure of the MOOC platforms was characterised as less flexible in comparison with other platforms participants had previously used. Thus, the platform's structure along with the best practices encouraged by their partners, shaped their decisions.

"It's an opinionated platform if you like. It's not as flexible maybe like Moodle [...] But [MOOC platform] *has a more focused opinionated feel to it. So, I would say that influences the way that you design a course as well because you're limited somehow for what you can do."* (LEC2)

Specific examples of misalignment among participants' pedagogic approaches and the platform's infrastructure were provided by participants in these three case studies. For instance, in case 7, several types of activities were discussed as not being implementable/ supported by the platform. These included activities that would require students to work in pairs, anonymous double-marking, and reflective activities. To this end, solutions were found through intensive exchanges among educators and digital learning professionals and in negotiation with the platform partners, when needed. As exemplified in the below quote, digital learning professionals were perceived as key in mediating this process and bringing their ideas and expertise to find solutions.

"We might have come up with an idea, developed it and then realised it doesn't work on [MOOC platform]. So, we've gone back and forth with the digital learning designer to solve this. And they may say, have you thought of this? Could we do it that way? So, sometimes there is this back and forth because they have that expertise." (EC7)

However, these solutions were often perceived as temporary, until a better one is generated in the future (e.g., through student feedback, further platform developments). An example of how the team tried to build activities that require students to work in pairs is provided below.

"We want them to interview each other. We want them to then transcribe it, and actually do some data analysis on that. But because this is all formative, the way we had to do it, it's kind of frustrating. You have to send out a doodle poll to anyone who signs up, then they can be put into pairs. And all that has to be done on [MOOC platform]. It's a bit pernickety, it's not a particularly easy process." (EC7)

Rules and relationships set among the university and the MOOC partners were perceived to add complexity to participants' work. In cases 2 and 7, MOOC platform pedagogy experts were

also reviewing the modules against a set of criteria. This additional feedback layer was not experienced positively, as it was either seen as not constructive (case 7), or provided very late in the process, and it could not be implemented due to the participants' timeframe (case 2). The fact that educators' actions (e.g., authoring, level of access to the platform) and related technology and pedagogy queries were mediated by digital learning professionals could create delays sometimes that impacted progress and caused a loss of momentum. Anna expressed that she would prefer it if they had more freedom in using the platform more flexibly and without restrictions – "*what I would want is wider access to the platform*" (LEC1).

Despite the abovementioned challenges, positive effects were also expressed. Both Anna and Alex shared that the overall platform's structure and pedagogic underpinning encouraged them to move towards the design of more social and activity-based learning which was in alignment with the university's vision. The platform's variety of social learning features (e.g., public and private spaces for group discussions and whole cohort discussions) enabled the team to set up activities in ways that were facilitating new forms of student interaction. Its step-based structure also allowed them to think carefully about how to build a strong narrative which was expressed positively. However, as shared by Anna, these were mostly realised as opportunities, only once the team had built up more experience in designing for online learning using the specific MOOC platform. In case 2, John appreciated the opportunity that he had to co-develop technologies with their MOOC platform partners. This is because their partnership allowed the implementation of core technical activities in more effective or new ways compared to the past before using the MOOC platform. He stated, *"we're co-developing some technology that runs on the platform that allows students to do certain things more efficiently than before"* (LEC2). Collaboration between university teams and the MOOC platform partners for the development of new tools to facilitate participants' educational goals was also reported. However, these new tools were not always ready for use in a timely manner and participants had to wait for their subsequent module runs to implement them.

All the universities provided a set of central rules that were relevant to online learning design (e.g., structure, professional accreditation body requirements) and participants had to follow. These rules were discussed as bounding and sometimes restricting participants' design work. For example, in cases 3 and 4, participants experienced restrictions set by their university in relation to their module structures which, to some extent, determined their pedagogic

decisions. Maria had to design modules based on a specific weekly ratio of synchronous and asynchronous learning and teaching to secure university approval for her new programme. She said, *"I had format constraints. So, there was that conventional structure that I had to work with because I couldn't change away from that too much"* (LEC3). Another example was in case 2, where the unbundling[14] teaching model set by the university to manage scalability impacted the way John made decisions, particularly with regards to student-educator interaction. As seen in the below quote, the university had created a student support system with various mechanisms to be mainly managed by student support tutors and managers recruited by the university.

> **"***There is a certain distance between the academics and the actual students and that makes things quite difficult sometimes. So, in order for a student to ask a question, they have to post it into a forum and then it will be answered by online tutors who are employed by the wider group, not our university. And then, if that tutor cannot answer that question, they will get in touch with faculty, and you will answer to them. And then they will send it back to the students. So, we don't really directly engage with the students. This impacted my design decisions, but it is the only way to do it scalable."* (LEC2)

John recognised that this model of work may be the only way for individual academics to deal with the challenges of workload and management of large online student cohorts. He also reflected on the pedagogical shortcomings of this unbuddling of roles model and made decisions accordingly to balance the limited opportunities for educator feedback. One strategy he used was the design of peer-review activities to encourage an additional layer of feedback provision among students. Other necessary rules for consideration by participants, were to ensure that requirements and professional body standards by external accreditation bodies were embedded into their student learning journey (cases 1, 4, 5, 6).

6.6.3   Middle leadership involvement

The involvement of middle leadership in the design appeared to have some influential power over decisions (cases 1, 2, 3, 6 and 7). Middle leadership includes academic staff with roles as head/director of a department/faculty, with responsibilities in managing and overseeing the work of their colleagues. As seen in Table 6.5, leadership involvement was systemic or more informal (based on needs) in nature and was perceived as having a positive (cases 1, 2, 6 and 7), neutral (cases 4 and 5), and constraining (case 3) impact on participants' design work.

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[14] *unbundling* means the process of disaggregating educational provision into its component parts, very often with external actors (e.g., professional staff that recruit students, act as learning facilitators, gather student data, help with the design of educational resources).

Specifically, in cases 2 and 7, leadership feedback in the early planning stages was embedded in the design process and approval was required for the teams to carry on with the design. John perceived that the feedback he received from the director of distance learning who was based in his department and was a STEM academic was positive and gave him confidence to continue with his development. A more formal and complex approval process was described by the team in case 7. A board consisting of senior academics and senior members from the digital learning team reviewed the module's design in two stages; as a whole module design and a week's fully designed prototype before the team proceeded with the full development of their module. Feedback from this process was considered as enriching both from pedagogic and subject-matter perspectives: *"They would ask us to enhance activities here and there. Or they would query our plans for assessment, would that be too much, would that be suitable?"* (LEC7). However, in addition to this, several times during his interviews, Ethan highlighted the importance of working on an online degree which was their school's strategic priority. He also spoke positively about the fact that his team received senior support that enabled them to access resources for the realisation of more complex ideas.

> *"We knew that we could leverage on his cloud within the department, to involve others in the process, to draw on other resources across. And so that really empowered us to think through, you know, what we were doing." (LEC7)*

In cases 1 and 6 a more informal and peripheral contribution from the head/director of the educators' departments was observed. This support was provided when the educators needed further support or external ideas on specific aspects – *"…sometimes looking for external perspectives and it was [the head of the department] always coming in to say, what do you think of this? That was so key"* (LEC1). Interestingly, Anna reported that negotiation with and approval from the head of the department allowed them, on a few occasions, to overcome perceived constraints that were coming from their university's policies. For example, the tools recommended by the university, included in the university's social media policy, were seen as limiting for the implementation of specific educational goals and innovation. Therefore, by presenting reasonable arguments in line with data protection regulations, the team received approval from their head to use other tools that they thought to be more suitable.

> *"the social media policy would have really influenced our decisions if we did not have the legitimate argument to say, 'Look, here is a particular tool we want to use it. It isn't formally within the social media policy, but this is the only one that achieves, XYZ." (LEC1)*

In contrast to the abovementioned positive sentiments, Maria shared a range of perceived hierarchical and conceptual tensions with leadership-level academic staff. Although Maria was the co-degree director, operating in a leadership role for the online degree, she was a junior academic and she felt that leadership suggestions had a more forceful character: *"what I do not like is folklore where you know there is no evidence base and people who do not actually have to do this and have never done it, tell me that this is the right thing to do"* (LEC3). During the design meetings, Maria shared with her colleagues the feedback she received from leadership alongside her own (often contradictory to this feedback) views to be able to make decisions. An example was in relation to the role and length of content on the student learning experience: *"They insist that you produce less content and dumb it down to put it online because people's attention span is poor. I don't believe that"* (LEC3). In cases 4 and 5, leadership had a more silent or absent contribution, as participants did not mention it as an influencing factor during their interviews. However, a small number of instances were reported during design observations and interview discource where educators referred to the need to get approval for a few decisions (e.g., assessment, general design) from the degree directors.

6.7   Chapter summary

This chapter has focused on the socio-cognitive design processes that participants engaged with when designing for online learning. It demonstrated that participants followed a breadth-first iterative process as well as processes of framing and reframing that facilitated their design decision-making. Processes of sharing insider knowledge and expertise were prominent and discussed in nuanced ways by participants. The different levels of participant engagement in collaborative design (more collective, one-to-one support, or limited exchanges) across the cases appeared to account for different levels of design inquiry depth, perceived creativity, and practice redefinition. Participants also adopted an 'anticipating the future' stance to design by building design mechanisms for the next phases of a teaching lifecycle (facilitation, evaluation, redesign). A range of factors that influenced participants' design decisions were also presented at the levels of individual, team, community and network, and institutional. These different levels of factors and their key characteristics should be seen dynamically in interaction rather than on a single-factor basis. A deeper interpretation of their relationships using CHAT is provided in the discussion theme 9.2.

Chapter 7 | Results | Online pedagogic design decisions

7.1   Introduction

This chapter moves the attention from participants' design decision-making processes and factors influencing their decisions to their actual pedagogic decisions (design object in CHAT). It provides insights into the conceptual underpinning of online pedagogy and participants' intentions on how students should engage with their learning. Despite the variety of cases, regarding their online module disciplinary area (Education, Social Policy, Medicine, Business, and STEM), institutional context, and participants' experiences; commonalities in pedagogic underpinning among cases were remarkable. While not all participants described the following pedagogic aspects in the same way and to the same extent, these appeared in all the cases:

- Moving towards a student learning journey;
- Creating active, applied, and diverse learning opportunities;
- Fostering social learning: a complex web of learning mechanisms and 'spaces';
- Rethinking assessment for online learning; and
- Striving for the development of an inclusive learning environment.

These are discussed in turn in the following sub-sections.

7.2   Moving towards a student learning journey

Participants appeared to think about the design of an online module as creating a student learning journey. This was a strong theme that was present in participants' accounts. Specifically, while all participants acknowledged that the design of an online module requires more preparation and careful structuring than on-campus teaching, most of them[15] went beyond that thinking to also develop a narrative and/or use storytelling techniques. As seen below, the creation of an overarching narrative to frame the online module, but also create connections within and among weeks of learning and individual learning items (e.g., videos, learning activities, resources), was one of the participants' primary intentions throughout online learning design.

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[15] five out of seven cases as a primary focus, while the remaining two cases, put focus on logical sequencing (cases 6 and 7).

"We worked a lot with narrative to create engagement. So, we had threads that ran through the module and the different weeks of learning. These threads sometimes refer to previous learning to help kind of spiral learning and create recall." (MPC1)

"It's like a movie. There is a bigger plot that you need to tell the student. And you need to give the series, like from week one that could be another inner story in the big one, but it should connect at the bigger part in the end." (LEC4)

"You take a very campaign-based approach to it. So, you would build the structure of the learning around how you would actually build and deliver a campaign in the real world, so they could see the step-by-step processes they had to go through." (LEC5)

The overarching narrative creation aimed at helping students to make connections between the different concepts and graduate skills to be developed throughout the module: *"…they may need a bit of help drawing the dots"* (LEC3)*.* The narrative was constructed to motivate students' learning with what was shared by participants to be close to real-life or interesting threads. Such an approach was perceived as lacking educators' attention in their on-campus teaching, who characterised theirs and other academic colleagues' existing approaches as being topic/session/skill-driven.

"There was no overall picture of why you need to learn all these things... Now the way the course is structured, overall, has two large examples. I've chosen what I think are quite motivating examples and that I hope that they will enjoy working on those and understand how a bigger programme is written." (LEC2)

Participants also used two strategies to enable the design of a coherent online learning environment; the inclusion of clear signposting and transparent rationale behind each learning item shared with students: '*We justify the inclusion of the material and activities to the students. Every week, we have "Why am I learning this? How do I apply it? How does it fit to my roadmap?"* (LEC3). The establishment of learning patterns that encourage students to develop learning routines was discussed by some participants as another way to create a consistent learning journey. While in cases 1, 4 and 5 patterns were adopted in a looser sense, in cases 2 and 6, educators were following more firmly the same learning structure each week. For example, in case 1, students would be introduced to the week's key concepts through video(s) using analogies, metaphors or an engaging plot, followed by the key set of diverse learning activities, and ending with a reflection on their learning. In contrast, in case 6, Valeria described a pre-determined learning pattern based on which the students would be launched into a reading list and videos presenting key concepts to help them grasp new knowledge. This would be followed by one formative assessment task (different in nature across the weeks)

that encourages students to apply these concepts in practice and some opportunities for social learning (see section 7.4). The week would end with further resources.

> *"We follow the same structure every single week. So, they would know that each particular week will have a specific component and that will be repetitive. So, the structure will be consistent and there will be no surprises."* (EC6)

Similarly, in case 2, John described a set pattern of learning that requires learners to watch a video followed by a short quiz to check their understanding and then, engage with an applied programming activity. This pattern was repeated several times, and the week ended with a more cognitively demanding formative assessment task.

Several participants also appeared to step back from their individual modules and consider them in relation to the overall student online degree experience. They thought about the conceptual connections and interdependency of their assigned online module with other modules within the degree and how these may work together to enhance student learning collectively (cases 1, 2, 3, 4, and 6). For example, Mark identified that his module was very similar in its theoretical and conceptual focus to another one within the degree. Thus, he tried to differentiate it by focusing on a practice perspective and the development of practical skills. John, Maria, Anna, Valeria, and Leonardo emphasised the need to create connections with other modules and develop student skills that will be needed for subsequent modules *"There's a real kind of overarching design in how things are arranged, and where they're arranged so that they speak to each other"* (LEC3). Anna, Maria, and John further explained the different assessment methods developed in the various modules of the degrees by considering and ensuring their diversity and evolution throughout time.

Finally, while the narrative was created primarily by the teams or individual educators through creative processes, participants also highlighted that they deliberately brought in other external 'voices' to enrich the students' journey by exposing them to multiple and expert perspectives (cases 1, 3, 4, 5, 6, and 7). These external expert voices included industry experts, practitioners, other specialist academics and alumni and they were introduced through videos and live sessions. As seen below, this external expert content was positioned in suitable parts within the already well-engineered narrative to add value to student learning.

> *"We have a constant group of people in videos, who are reflecting throughout, and you can kind of follow their journey through it. […] It is not just us and the institution saying, you need to do this, it is from other living practitioners, colleagues like us, who have achieved these."* (LEC1)

"We've gone off and interviewed, grant-making bodies, editors of key journals, brand managers […] We've involved the ethics office, the research coordination office at our institution, and the graduate school who came and did some videos and developed some materials around grant applications and things like that. We've worked with the patient experience research group at our institution to do patient and public participation materials." (LEC7)

Therefore, collectively participants put emphasis on developing a student learning journey by employing a range of strategies that are summarised in Figure 7.1 and further expanded in the following sub-themes.
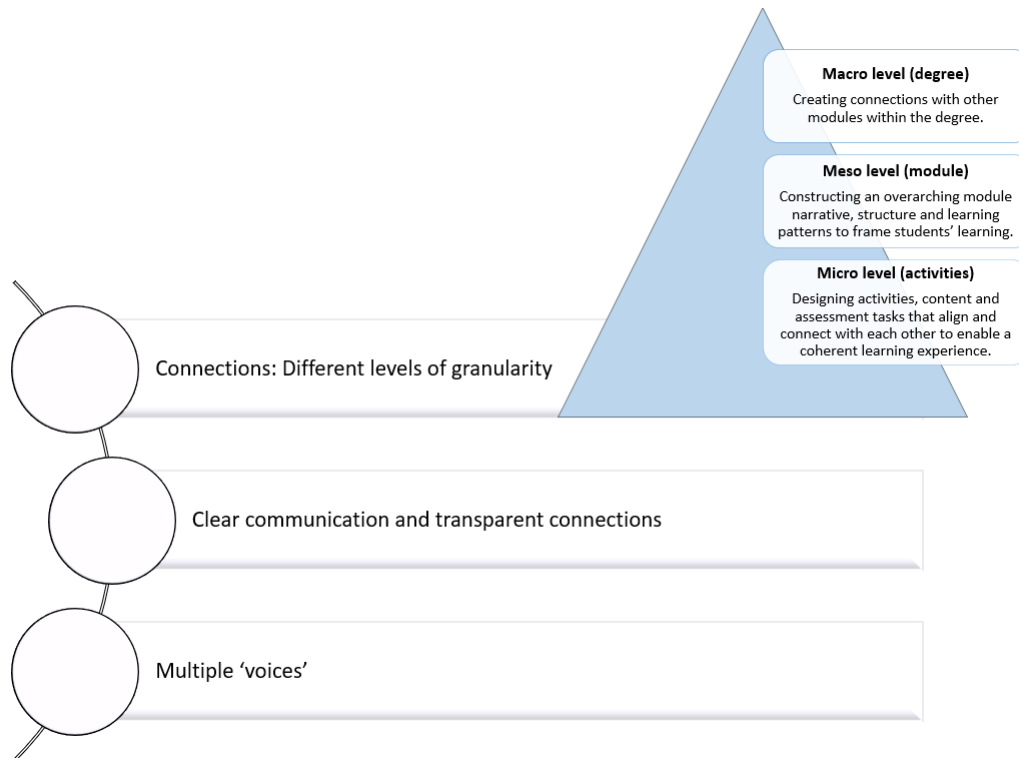
Figure 7.1: Components for building an online student learning journey

7.3   Creating active, applied and diverse learning opportunities

In all the cases, participants paid attention to designing a wide range of learning activities, which was described as an intention to encourage active learning. Active learning in this thesis context has been used as an umbrella term to describe the adoption of various pedagogic approaches to engage students in problem-solving, reflections, and active engagement with content and discussions, rather than passively listening to an expert (Bonwell & Eison, 1991). In this sub-theme attention is paid to the diversity and combinations of activities designed, their active learning rationale, and how the content was repurposed to support this rationale. Although social learning activities were key to enabling active learning, more in-depth insights into social learning are provided in the next sub-theme (section 7.4).

Participants shared the creation of a wide variety of learning activities integrated within their online modules. These included, but were not limited to quizzes, opinion-based and investigative activities, group activities, reflection activities, and activities that require students to develop an (shared) artefact (e.g., presentation, video, report). Indicative examples that evidence how active learning underpinned decisions are provided below.

> *"We encouraged quite a lot of active learning. So, we have built more opportunities for them to practice the skills that we teach them and less of just reading online. Trying to make sure that we've got discussions and things like quizzes, case studies, reflections, those kinds of things, which are more interactive for the online students."* (LDC4)

> *"We have become far more varied. So, there is always going to be lots of opinion-based tasks, controversial questions, posing a big question, trying to make them think honestly and critically. There will be other steps where we have this list of resources, we are giving you the choice to select one of them, but you must go away and critique and analyse and come back with your responses to, this question. In other instances, it will not be us directive, it will be, thinking about your own discipline, we would like you to go away and investigate xyz, or go away to talk to someone or do an interview, or take an image and post that."* (LEC1)

The selection rationale behind the activities appeared to be ill-defined by assigning specific educational goals and graduate skills development, such as to promote inquiry, debate, critique, and technical skills growth (e.g., programming skills, digital advertising evaluation). Notable was the attention paid to designing experiential activities; defined as activities to which learners apply their learning in real-life or authentic contexts to facilitate skills transfer. In some cases (cases 1, 3, 4, and 7), it was the first time that educators put such a great emphasis on creating this type of close to real-life activities to enhance their students' learning.

> *"We've gone out quite a length to mimic real-world experience to give them access to the key processes out there. We linked in resources from research organisations so that students could go out and trial things, building things with databases themselves."* (LEC7)

On the contrary, in cases 2 (STEM) and 5 (business) the inclusion of authentic and practice-based activities was transparently associated by educators with the nature of their subject and already adopted in other teaching contexts.

Participants' descriptions also revealed a bundled approach to the learning activities' design. This was discussed as a purposeful combination of two or more learning and teaching items. The most typical pattern was the presentation of context for learning through a scenario, a case study or background information in the form of text, video, audio, or website. This was followed by a learning activity *"…challenge activities, where it's like, 'okay, well I got as far as this*

in my video, here is something I could have done, which I didn't do, now you try and write that" (LEC2). Bundles of activities with a more sophisticated rationale were mentioned mostly in cases 1 and 3. For example, in case 3, participants focused on the iteration of student thinking, starting from the activation of student prior knowledge and moving towards the consolidation of new knowledge through combining three to five learning items.

> *"The first thing is for them to get themselves into a place where they think about how they would respond intuitively if someone disclosed something or they noticed something. Then, I give them the principles of how to respond and then, get them to re-reflect on it if they change any of their behaviour. So, it's, that sort of iteration of thinking and I want to move them beyond the yes no right answer."* (LEC3)

Overall, activity-based structures were prominent in participants' descriptions especially when demonstrating their online modules during the in-depth interview. To achieve that, a shift in the role of content for learning and teaching was also experienced by most of the educators who described their previous approaches as content-driven. In an online learning context, they instead created chunked and more concisely presented content (as prompted by the digital learning professional participants). This shift towards activity-based learning encouraged educators to become more selective and critical on which content to include to add value to the students' learning experience.

> *"…it's a lot quicker, less to read, punchier and much more informative content. So, deliberately, we had much less content because we thought that the assessment task was so big and it's about working in a group and the main learning needs to come from there."* (LEC1)

> *"…instead of writing text all the time, I try to have one paragraph of text, then a video or a picture or visual, then some type of interactive assignment, and so on."* (LEC4)

7.4 Fostering social learning: a complex web of learning mechanisms and 'spaces'

A significant focus of participants was on envisioning and creating multiple opportunities for social interactions among students, between educators and students, but also between students and other communities and/or networks. This theme evidences the diverse social learning mechanisms designed by participants and how these were seen as working in synergy to enhance student learning (see Table 7.1 for a summary of approaches per case study).

Participants described the inclusion of a range of social learning activities embedded in each week of learning. Examples of these included:

- discussion-based activities in which students were expected to share their work with their peers and participate in discussions,

- collaborative activities where students had to work in teams to produce a shared output (e.g., presentation, solve a problem), and

- peer reviews.

Social learning activities were designed either for students' asynchronous engagement based on their time and pace (see indicative quotes in Appendix J), or embedded in synchronous online sessions. For example, the design of synchronous online sessions was described by most participants as including a series of group activities and whole-class discussions, and not didactic online lectures to preserve immediacy and live interactions between students: *"…the ones who come in we make sure that they go into breakout rooms, share their research questions, share ideas for methodology. They get feedback, they present, they co-create"* (LEC7). Regardless of the participants' perceived importance of synchronous social learning opportunities, it was only in cases 1, 3 and 6 that online live sessions had a mandatory character, while in the remaining cases, they were optional for attendance. While social activities were a core part of the learning experience in all the case studies, in case 2, they were seen as an opportunity for creating a learning culture of sharing, albeit without any formal expectation for students to engage with them. Although John was a supporter of social learning, students' participation was seen as dependent on student personal preferences.

Notable were the considerations and rationale behind the designs of activities that aimed to promote the creation of and engagement with online communities (particularly in cases 1, 3, 6, and 7) as a key part of the learning experience. For example, in case 6, participants created a community exchange space called 'the clinical room' for students who were active medical professionals. This community space was designed as such to encourage students to share examples from their professional practice, pose questions and concerns, and ask for colleague advice on troublesome areas of their work. Therefore, it was seen as a learning mechanism to enhance professional practice sharing and collegial support. Maria with her colleagues, for example, designed cohort-level weekly synchronous sessions. These sessions aimed to build a community culture among students and degree directors. These were described as a 'hybrid space' that was formally set, but informal in nature. Their aim was to enable students to share

their research interests, provide feedback on their learning experience, and express any concerns they have so that educators can address issues in a timely fashion.

> *"I really wanted to create a culture which was mutually supportive and there was some peer support…Part of that two hours, we'll have different discussion activities, because they will want to create an informal cafe culture space within the online environment. It's community building. It's checking in with information, but I want very strongly that to be understanding that this is available, and they can talk to each other about their concerns, interests, and passion for Mental Health."* (LEC3)

Maria's vision was to offer a more integrated learning experience for students through these community-based sessions, by combining formal and informal learning as well as cognitive and welfare support: *"…it's much more inclusive and integrated and it's not so dependent on this individual personal tutor system. I like that collective model of functioning"* (LEC3). This approach revealed a departure from sole dependence on the traditional and central support welfare services of their university towards the adoption of a hybrid practice that facilitates multiple purposes (e.g., community building, affective and cognitive support) at the same time.

The creation of communities of practice was not only discussed at a module peer-level, but also in terms of encouraging interaction with the wider communities and networks (cases 1, 5, 6 and 7). For example, participants designed opportunities for student interaction with alumni, professionals, or academics from their own or other universities *"…interaction with the rest of the department, teachers, clinicians, other students, and alumni students. Again, collaborative people coming in, so they have a wide community to interact with"* (EC6)*.

Complex synergies of social learning activities and 'learning spaces'

Interestingly, although each of the abovementioned social learning activities had a specific educational goal, participants considered them as collectively having the potential to enhance the student learning experience. What was notable in participants accounts, was the description of new learning and teaching socio-material assemblages. For example, as reflected in the below quote, Anna described the fusion of:

- Constant group work: the online module included a large group formative assessment where students would work as members of a specific group throughout the module. To this end, the module was designed so that the assigned groups would engage in a smaller task on a weekly basis to compose a 'whole' by the end of the module;

- Cohort-level interactions**:** various discussion and group-based activities where learners could exchange their perspectives with other peers and at a cohort-level; and

- Entering external communities (beyond the programme's boarders): Student interactions with other professional communities and networks that are external to the online module both within the UK and globally.

> *"…making sure that learning is taking place across the entire cohort. So, it is not all about their group work, they will be paired and teamed up with different partners to get that fresh perspective, that different discipline perspective, experience…Also, asking them to talk to people outside of this environment online, to access other networks and they can actually spread that knowledge around."* (LEC1)

This position of the different and nested layers of social learning opportunities was expanded by considering the places and spaces that the students could enact them in. The below quote demonstrates a view which privileges flexibility and allows students to choose between various places – such as online, on-campus, in a library or coffee space, and at home – as potential imagined spaces for the implementation of the designed activities.

> *"…If they would like to come together as a group face-to-face, great, or in a coffee house. Or if they wanna book a room at the university's library or get together at somebody's home, that's up to them. If they wanna keep this virtual, or use the SharePoint, you know, a collaborative space, that is entirely up to them."* (LEC1)

At the same time, the selection of appropriate digital tools that could facilitate the designed social learning activities was discussed as another layer of considerations taken into account, with digital learning professional- participants having a critical role in this during the design.

Participants also described the various social learning opportunities from a 'learning spaces' perspective. It appeared that 'learning spaces' was a useful term to describe the nature and boundaries of the different learning experiences that participants wanted their students to engage with. The below quote can succinctly demonstrate, at a high-level, the new combinations of 'learning spaces' that were anticipated to contribute to student learning:

> *"…there are some informal spaces, the sort of discussion page, the more seminar-based spaces. But I also have made a huge effort to think about the online environment and its feel and the online community."* (LEC3)

Another lively example that supported this notion of learning spaces as being designed to work in synergy to promote a meaningful learning experience was in case 6. The learning spaces described by participants in the in-depth interviews were the following:

- the 'socio-cognitive' development spaces: the main asynchronous platform learning space with organised learning activities and resources,

- the 'clinical room': professional community space for participants' sharing of professional practice, posing questions and concerns, and getting advice,

- the 'bar meeting': informal space for student catch-ups and cohort bonding,

- a general forum space for questions and expression of concerns (equivalent to corridor and Q & A lecture spaces),

- social learning spaces where students would meet for their group/team work (e.g., videoconferencing tools and social media),

- the 'hub space' with induction information, rationale behind educational design, presentation of staff involved, and other general resources,

- the on-campus learning spaces (e.g., seminar rooms, labs, informal discussion areas) with equipment for use during their residential weeks,

- students' interactions through personal applications (e.g., what's app, slack) considered as spontaneous informal student exchanges during their learning,

- networked spaces where students meet and interact with other academics, clinicians, alumni students, researchers, and the wider university community, and

- a space within the learning platform with suggested extra-curricular activities.

All participants described the design of informal social learning spaces (e.g., discussion forum, social media setup) which were justified as compensating for the loss of students' corridor discussions or the questions students would typically ask in a lecture, workshop, or seminar. However, participants at the same time acknowledged that students may find their own ways of interacting with each other, more organically and outside of the designed spaces.

> *"Each week, we'd have a general discussion, which is just for students if they've got any sore points they want to talk about more generally."* (LDC4)

> *"We created a Slack space, we don't have access to Slack, but all the students for every specialisation have a channel and that's their main way to engage with each other."* (LEC7)

Educator role and positionality

Educators outlined their role in these social learning opportunities based on what relationships they were aspiring to cultivate. Table 7.1 below provides a summary of the anticipated role of educators in each case study. All educators highlighted their roles as facilitators and experts.

Regarding the facilitator role, this role was expressed as monitoring and guiding students' interaction to create a culture of cooperation and collaboration. The quote below exemplifies an emphasis on students' taking ownership of their learning, while educators would prompt students' interactions when needed, rather than having an authoritative role.

> *"I always encourage them to read other people's comments and learn from them […] and actually, instead of replying like an authority figure, I just let them discuss among them or let them share their expertise"* (LEC4)

Educators' role as experts in providing expert feedback was also shared by all the participants. However, notable was that educators were putting emphasis on their role as facilitator over expert – or vice versa – depending on their perception of their role, the learning culture they wanted to create, and the purpose of each activity. For example, in cases 3 and 5, educators mostly perceived their role as experts who would offer their expert feedback.

> *"…what we try and do is to give feedback on that, because otherwise, they're online giving their opinions. They're not necessarily very well-informed opinions. So, we need to go back and say, "Yes, that's correct. No, that's not correct". And try and do it from a best practice point of view as well. So, to give a lot of feedback to that group work."* (LEC5)

In cases 1, 3, and 4, educators discussed their role as one that supports their students pastorally and creates a safe space for sharing. This was expressed as paying attention to creating visually appealing and welcoming learning spaces through a conversational tone in videos and other communications with their students. Other techniques included educators regularly checking with students about their needs and signposting them to relevant support resources (e.g., mental health) when needed. Role-modelling through for example the sharing of personal stories in troublesome areas to encourage student participation and establish a more personal connection with them was also seen as key by Anna.

> *"The way that we support learning as well on online platform, is we share our stories. We share stories of when things have gone wrong, or we have not succeeded or a time when we were exactly in that situation as a student. So, the more we can give to support students to see that it is OK to talk about this kind of troublesome areas."* (LEC1)

Finally, educators in cases 1 and 6 also discussed their role as peers alongside their other roles. They recognised that they all (students and educators) were working professionals and could learn from one another by lowering the hierarchical barriers of student-educator relationship.

> *"We wanted to develop it in a way that the students could learn from us and we learn from them. So, we encourage people to participate and give their own opinion, not just ask us the maximum truth, because it's not the case. So, it's more like a group discussion altogether."* (EC6)

Table 7.1: Social learning considerations per case study

Case	Formal social learning activities	Community-building	Notion of learning spaces	Educator role
Case 1	-Discussion-based activities -Collaborative activities -Peer review activities	Yes	Formal/informal, community-centred, collaborative, cognitive, affective, physical/ virtual, synchronous/asynchronous digital tools mediated, hybrid	-Facilitator -Expert -Colleague/peer -Pastoral support
Case 2	-Discussion-based activities -Peer review activities	Partly/not explicit	Not transparently shared	External tutors as: -Facilitators -Experts
Case 3	-Discussion-based activities -Collaborative activities -Peer review activities	Yes	Formal/informal, community-centred, collaborative, cognitive, affective, physical/ virtual, synchronous/asynchronous digital tools mediated, hybrid	-Facilitator -Expert -Pastoral support
Case 4	-Discussion-based activities -Collaborative activities	Partly/not explicit	Formal/informal, community-centred, collaborative, cognitive, affective, physical/ virtual, synchronous/asynchronous digital tools mediated.	-Facilitator -Expert -Pastoral support
Case 5	-Discussion-based activities -Collaborative activities -Peer review activities	Partly/not explicit	Formal/informal, community-centred, collaborative, cognitive, affective, physical/ virtual, synchronous/asynchronous digital tools mediated.	-Facilitator -Expert
Case 6	-Discussion-based activities -Collaborative activities -Peer review activities	Yes	Formal/informal, community-centred, collaborative, cognitive, affective, physical/ virtual, synchronous/asynchronous digital tools mediated, hybrid	-Facilitator -Expert -Colleague/peer
Case 7	-Discussion-based activities -Collaborative activities -Peer review activities	Yes	Formal/informal, community-centred, collaborative, cognitive, affective, physical/ virtual, synchronous/asynchronous digital tools mediated, hybrid	-Facilitator -Expert -Colleague/peer

7.5 Rethinking assessment strategy for online learning

Assessment design was at the forefront of participants', and particularly educators' attention. For most educators (cases 2, 3, 4, 5 and 7) their transition to online learning presented a good opportunity to rethink their assessment approaches to be more suitable to the online context and/or innovate. Despite the range of subjects and an expectation that assessment may reflect this diversity, a remarkable observation was that approaches to assessment and their

overarching rationale had similarities among the different modules. These could be put into three categories as shown in Table 7.2.

Table 7.2: Assessment strategies and key characteristics per case study

Assessment strategy	Cases	Key characteristics and considerations
Continuous assessment	C1, C2, C3, C7	• Authenticity • Student effort distributed throughout the module • Educator and/or peer feedback to inform future action: "feed-forward" strategy • Strong integration into the module narrative
Combination of assessment types	C4, C5	• Authenticity • Combination of team and individual assessment • Teamwork well integrated into the module narrative
Timed online exam-based assessment	C6	• Translation of existing assessment strategy: from on-campus exam to a 24-hour question-based online assessment

Cases 1, 2, 3, and 7 are placed in the first category, where educators adopted a continuous assessment strategy. This means that the educators deliberately broke down the assessment into smaller parts to allow students' effort to be scaffolded and distributed throughout the duration of the online module: *"I want the students to be doing lots of programming throughout the term. So, something they're developing a deeper learning over time, rather than really intensively trying to do something at the end"* (LEC2). The reasoning behind this choice was so that students could gradually develop their practice. This would be through the provision of in-between formative by the educators, peers, or a combination of both, so that studebrs are in a position to enhance their subsequent actions. For example, Maria articulated that feedback cycles would increase student agency and monitoring over their own progress. She also explained her assessment decisions in relation to inclusivity. Maria wanted to create equal opportunities for all students to grow over time, rather than select an assessment approach that may privilege a particular student group (e.g., exams for students that are used to or perform well in exams): *"that was more inclusive, where students have more control over what they did and they could build and iterate towards something in a more manageable way."* (LEC3)

Two more foci of participants in this assessment category were on creating authentic, close to real-life assessment and carefully integrating those into the module structure. For example, a fully integrated approach was adopted by John who developed the summative assessment to

be an extension (in terms of its scenario and aim) of the two real-life programmes he used throughout the online module to engage students in various acquisition and application type of activities. Another example was provided by Anna who described the assessment as a large team-based formative assessment that resembled professional practice. It was divided into smaller tasks that were mapped to the other learning and teaching activities and spread throughout the weeks. This formative assessment would, in turn, act as the base for students' summative assessment; an individual reflection piece based on the team-work process.

> *"…a simulation task that we embedded throughout… We wanted to give them the option to see how it will be like. To do the research, to prepare the documentation, to have to defend it in front of a panel. So, we had to have it more closely aligned and tied in with everything to support them to do that."* (LEC1)

In the second category (cases 4 and 5), participants combined a team and an individual-based assessment to encourage teamwork that simulated professional life, but equally to examine individual learners' personal development. In both cases, participants highlighted their approach as moving away from exams which were mostly adopted in their past equivalent modules. Oliver attributed the shift of his practice to the belief that exams are not fit for purpose in today's world.

> *"Exams are pointless because the reality is that the ability to sit there and remember lots of stuff there's not really many scenarios in the real world anymore, where you haven't got access to the internet. So, I was quite keen to change it."* (LEC5)

Participants in these cases particularly emphasised the team-based assessment, by relating it to the nature of their profession where teamwork is vital for collective decision-making, critical appraisal, and team presentation; aspects considered when designing it. Mark also discussed the importance of developing assessment with the mindset that the final output can act as a showcase of work for future employment opportunities: *"…after they graduate, they don't have something to present. So, these are like showcases for them"* (LEC4). Finally, in the third category was case 6, which was the only case where participants kept the same assessment strategy with their on-campus teaching by only applying a slight adaptation due to the online medium. Therefore, the initial exam-style assessment was converted into a 24-hour timed exam to accommodate the students' different time zones.

7.6 Striving for the development of an inclusive learning environment

There was a broad agreement among the participants on the value of designing an inclusive learning environment. Inclusive learning and teaching in this thesis is defined as a recognition of all students' entitlement to learning opportunities that respect diversity, remove barriers, enable participation, and consider their various needs and preferences (Thomas & May, 2010).

To start with, a range of students' characteristics were considered during design which participants tried to reflect on their decisions by employing different strategies. Among the most commonly discussed characteristics were the diverse student disciplinary and professional backgrounds (cases 1, 3, 5, and 7 that were interdisciplinary or less specialist degrees), prior multinational educational experiences, cultural backgrounds, students with disabilities, and mature students. Based on these, a strategy adopted was to provide content that starts from the entry-level and progresses towards a more specialist-level. This approach was further enhanced by including diversified content and resources to address the different disciplinary and student needs and interests. For example, Anna elaborated on the changing demographics of their students which they considered when choosing content and activities.

> *"…their different disciplines coming into the remit, everybody needs to be able to connect, because actually, the sector is changing and individuals participating in our course have changed. So, we had to rethink, okay, If this is about being inclusive and allowing students to connect with the content, we need to reflect them within that. So that is something that we have really thought about."* (LEC1)

Efforts to decolonise the curriculum through deliberately including internationalised content that reflects a range of cultures and knowledge systems were notable in cases 1, 3, 4 and 6. Although this was not a common practice of educators in the past, they shared their efforts in carefully choosing literature and case studies that were not privileging the work of selected authors or countries. Such an approach aimed to provide more relatable content to international students and expose them to knowledge beyond the western orientation.

> *"Instead of just providing all the American or European examples, we are now trying to enrich it and provide more inclusive examples from different parts of the world. And it's really important for our programme because more than half of the people are coming from Asia or the Middle East."* (LEC4)

Interestingly, in cases 1 and 6, participants aimed to carefully choose diverse voices for the videos they were developing, along with culturally-inclusive imagery so that they do not privilege certain groups, *"…because we realised the voices we got were not diverse enough and*

so we had a lot of men, so, we had to change that" (MPC1). Designing open-ended tasks where students can explore and develop ideas based on their discipline, existing knowledge level, or giving choice among different topics were strategies employed in cases 1, 3, 4, and 5, which can demonstrate efforts for inclusive learning. The following quote illustrates this point: *"use google trends to search something relevant in your industry, so that they can relate with it, and then look at how a trend is changing over time and try and explain that trend"* (LEC5).

At the same time, creating opportunities for students to share their personal experiences on specific topics to celebrate their cultural and international traits and diversity were used as assets for learning: "*Given that we have a very international cohort, in this activity, we want to see what happens in their country and practice*" (LEC3). What is more, it was the first time that most of educators designed for online learning and, consequently, they emphasised key characteristics of online students that were not prominent in their past practice, such as the fact that online students are typically working professionals with multiple responsibilities. This consideration led to the design of learning structures that were seen as more flexible and adaptive to cater for busy lifestyles.

> *"With this structure, I actually wanted them to be like, okay, well, I can do this 15-minute chunk now and I can do that 15-minute chunk when I finish this, and so on. Because I also knew that online learners are blending all sorts of work responsibilities."* (LEC3)

The rationale for flexibility was also reflected in the formation of expectations of student participation based on different time zones, and work and family responsibilities which determined several decisions (e.g., assessment strategies and logistics, live session attendance and arrangements). The below example shows an effort for equitable arrangements for live sessions. This was supported through making online session recordings available for later use.

> *"…because we're all across the globe, it's a real big issue in terms of time zones. So, at the moment, what we've got is that office hours and live sessions alternate, between morning and afternoon UK time."* (EC7)

Finally, in online learning, inclusivity and accessibility are typically examined in terms of presenting learning materials in a variety of modalities (e.g., text, audio, video, images) and by providing alternative representations for the same information. This focus was evident in all the case studies and mostly encouraged by digital media producers and learning technologists who were responsible for ensuring that accessibility standards were met so that students with diverse needs have equal access to learning.

7.7 Chapter summary

This chapter has presented participants' online pedagogic thinking, as well as the actual pedagogic decisions they took during online learning design. Each of the five reported sub-themes underlined interrelated components of online pedagogy, and revealed nuanced commonalities and some differences among the cases. Across these sub-themes, authenticity, complexity (in rationale), and plurality of learning and teaching approaches were highlighted from conceptual, material, and actor roles (students, educators, community, networks) perspectives. Efforts to create a holistic online learning environment were notable in participants' discourse. Participants described the creation of webs of social learning activities and the design of anticipated learning 'spaces' to facilitate hybrid educational goals (i.e. to enhance cognitive, collaborative, community-building, formal and informal learning). The context-sensitive nature of learning and the diverse needs of students were also considered. These considerations led to the establishment of various strategies, such as decolonisation of content, open-ended tasks, respect for different backgrounds, cultures, and interests. These considerations reflect the key role of inclusive learning in contemporary learning design practice. The findings outlined in this chapter are advanced in the discussion section 9.3.

Chapter 8 | Results | Perceived value creation for educator growth and (future) practice

8.1 Introduction

This chapter presents the educators' perceived value of the interdisciplinary collaborative design for online learning for their personal growth and (future) practices. The areas discussed in this chapter based on educators' accounts include:

- Developing a (co-) design mindset and skills;
- Shifting pedagogic mindset: the present and future envisioning; and
- Growing learning technology and media production awareness and skills.

The findings of this chapter were a result of an inductive analysis process. To add more depth to each of these areas shared by participants in the in-depth interviews, I also conducted a comparison between pre- and post-interview data for each educator. This comparison proved to be a useful analytic strategy that offered further clarity and enhanced the evidence base.

8.2 Cultivating a (co-) design mindset and skills

In all the cases, the development of a design mindset and capabilities was seen as one of the key gains for educator practice. A range of design-focused aspects developed through the interdisciplinary collaboration were shared by participants. These are presented schematically in Figure 8.1 and reported in more detail in this section.
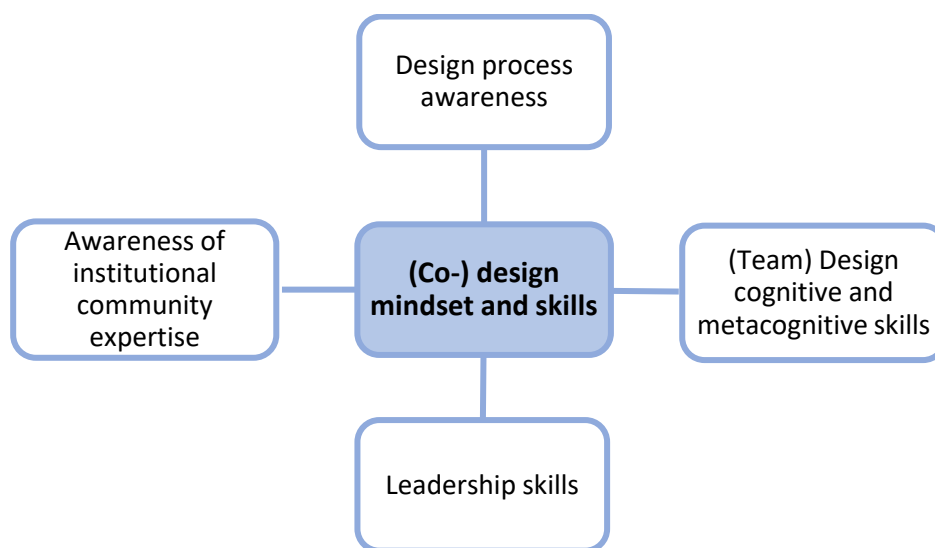
Figure 8.1: Key design mindset and skills aspects based on empirical data

Design process awareness

To start with, all the educators appreciated design from a process perspective. They appeared to have developed a greater awareness of, and critical stance to, processes that could enhance their existing design practice. In the below example, Mark shared how adopting a design mindset would be useful for future design activities not only identical to his current work but, at different levels; from the design of one activity or assessment to larger-scale educational developments. This design mindset included a logic of starting from high-level design considerations to adding more detail, a student-centred focus, and the attention to thorough creation of design outputs (e.g., assessment, activities, video) that meet standards (e.g., accessibility, writing style and scripts) that were highlighted during collaborative design.

> *"The overall design perspective, that mindset was very useful for me. So, whenever I design an assessment, or a piece of content, I'll definitely use the knowledge that I gathered during this design process [...] It improved my overall delivery skills for on-campus modules too."* (LEC4)

A sense of online learning design preparedness during COVID-19 was an immediate impact experienced by educators. In their interviews, educators shared that they were following a similar design approach during the pandemic to that adopted for deliberately designed online modules. They were more confident about the expectations, online pedagogic norms, and the time and effort it takes to produce an online module. For example, Alicia shared that her current design experience acted as a prototype and/or baseline for her COVID-19 related online learning developments. As seen in the quote, this was not only expressed in terms of the process, but also from a structure and pedagogic approaches perspective. This view was echoed in similar ways by other participants with more emphasis from early career academics.

> *"It's quite timely because of everything that's happening now. So, I feel I got a bit of ahead style as opposed to other colleagues, which has been quite nice. [...] I'm now developing another module that's for online in September. So, I always think about how we could use the same format to enhance learning in that way."* (EC3)

Familiarity with, and confidence in, using the design process was also seen from an effectiveness and efficiency perspective as most of the educators would continue with further online learning designs. This point is reflected in the following illustrative example by Oliver: *"When we go to build other programmes that will be slightly better and quicker because of it as well. So, I think we're all learning all the time"* (LEC5). However, to realise the value of this new design process, Ethan highlighted that the team had to first experience the benefits from

its adoption. These benefits were judged by educators based on the quality of the final design output and their students' learning: *"We felt good about what we did at the end of the day. So, we went into the design process, trusting the process that would produce things at the end"* (LEC7)*.*

(Team) Design cognitive and metacognitive skills development

Educators valued the development of (team) design cognitive and metacognitive skills that brought deeper discussions in subsequent design cycles (cases 1, 3, 4, and 7). Anna, for example, highlighted several times how the former learning designer's[16] continuous questioning and feedback throughout design acted as a model for the academic team. The academic team incorporated similar questioning techniques when working more independently in their next learning designs to push dialogue and intentionality when making decisions. Anna also shared the increasing confidence the academic team felt when moving between the different cycles of online module design and facilitation which allowed them to improve their practice and try out new approaches based on their lived experiences.

> *"The importance of the learning designer's role. That is huge, you can't even push yourself when you do not know what to ask. You do not know what you do not know. You really need somebody who knows how to ask questions for online learning to push design dialogue. […] Now, we have enough confidence to kind of be a bit assertive and talk to each other and ask those questions and we now know what we are looking for, we have that common goal."* (LEC1)

This insight was corroborated by Alex who argued that the academic team gradually became familiar with the design process and able to design for online learning more competently and independently.

> *"The academics now know how to write for an online course and are so familiar with the platform and its affordances. So, often their content is going directly on the platform which in a way is brilliant as that's showing the evolution of their knowledge of the whole design".* (MPC1)

In a similar vein, Ethan shared how the academic team's pedagogic design thinking evolved from the design of one online module to the next to become more creative and purposeful.

> *"It was the learning designer who was holding our hands in the first module. Now we know. So, it was more of an active discussion that we had, there were a lot of new ideas flowing, people were more competent to suggest different ways of achieving those activities."* (LEC7)

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[16] This refers to a learning designer the academic team had worked with before the design of the examined online module.

Both examples demonstrate educators' building of expertise. A gradual transition was shown from educators being dependent on digital learning professionals' input towards becoming more confident decision-makers as an academic team in later online module designs.

In parallel, in cases 1 and 7 (limited indication in case 3), participants reported increased ability and comfort in working with their colleagues more meaningfully as they had built shared goals and work ethos throughout the process. Educators were able to incorporate past feedback received by their collaborators from their recent design activity in the design of subsequent online modules. For example, Anna described how activities developed by her and her colleague (degree director) would be streamlined naturally even before they review them as a team. Although the academic team in case 1 had successfully collaborated in their on-campus teaching over several years, the way the online learning design was structured and performed, appeared to create a deeper working understanding among them.

> *"…let's say* [degree director] *would do the first activity, I would take the next activity and then in turns, etc. They tend to weave together very well. We were still refining it and seeing what it looks like for the students' journey, but I think that once you have that working understanding because you have that experience behind you, there were very few moments when we thought, ohh that content does not flow to the next content."* (LEC1)

Similarly, Ethan and Florence described how as a team, they gradually developed their work boundaries and culture (e.g., design routine activities, division of labour, specialism). They were able to work productively within those boundaries and avoid unnecessary tensions. Ethan also provided an example of how insights from other team members were critical in his thinking and decisions. He shared that he was able to recall useful collegial feedback and integrate it into his subsequent design work.

> *"…as a senior academic he was able to, I felt, and I reflected on this later on, to take the students' perspective […] So, I knew before I propose an activity in module two, I kind of synthesised this feedback already. I think that was a really important aspect of having this process of working on one aspect, and then moving on to the next one."* (LEC7)

Leadership skills development

The development of leadership skills in an online learning design context was also shared by educators with a leadership role within the design teams (cases 1, 2, 3, and 6). Specifically, the experience in designing an online module made the educators reflect on the design processes they followed and tried to further improve them based on identified issues. For example, John, by realising the time it took him to produce quality online learning in practice, decided to

change the design process so that the creation of the detailed module plan and the production of learning assets are intertwined rather than dispersed in time. This new strategy was considered to encourage more iterative and integrative work rather than having distinct stages, as was set by the university leadership and digital learning team. John highlighted the importance for his colleagues, who were new to online learning design, to understand the time and effort it takes to deliberately develop high-quality online learning from the start of the process, so that they can manage their time and other work responsibilities effectively.

Another example was in case 6, where Leonardo expressed the lack of academic and professional staff buy-in as an issue. He communicated this with the department's director which resulted in him receiving additional support for their next online modules design. Based on Leonardo's reflections, the team then recruited two alumni to work with them, and secured funding to develop more technically-advanced educational applications. Leonardo and Valeria also developed an improved process for design team work. Leonardo also expressed more confidence in his ability to create and effectively manage a whole online degree. In case 3, Maria realised that it was challenging, at times, to implement her teaching ideas, take decisions on certain aspects, and/or convince her colleague to do so too. This was attributed to her being junior and acting as an online degree leader. Thus, she concluded that senior buy-in was essential for such a large-scale design and educational transformation to happen.

> *"I would have bought in more senior support to start with because a lot of the stuff I can't take decisions. I'm not important enough in the university structure. And so there have been a lot of delays and obstruction that would not have been there if I was very senior. And universities are still very hierarchical places. That's another take home, get senior buy-in."* (LEC3)

In parallel, this experience of leading online learning design activities appeared to further improve the educators' communication and project management skills as leaders. This was perceived to be useful for their ongoing work in leading the development of (a) whole online degrees *"I'm now going to be able to communicate that much more convincingly, probably to new module authors, as you come on board. So, that improved me as a leader"* (LEC2).

Institutional community expertise awareness

Finally, in four out of the seven cases (1, 3, 4, and 7), educators expressed that the collaborative approach to design enabled them to grow their awareness of their institutional community

members with varied expertise. This growing awareness was seen as positive and having the potential for forming interdisciplinary collegial discussions in the future, when needed.

> *"I've liked working across the university teams like the library services, the HE and the digital teams. It just rounds out your teaching. You learn a lot from your colleagues. So, I would contact them in the future."* (LEC3)

> *"From this process, I realised how people are open to participate when you reach out, and to come and collaborate."* (LEC7)

8.3   Shifting pedagogic mindset: the present and future envisioning

All participants shared a shift in their pedagogic understanding based on the realised value of their learning designs and, on some occasions, students' responses to them. They also felt motivated and able to envision their future pedagogic approaches to improve their practice. At a conceptual level, by reviewing both interview sets (short and in-depth) educators in cases 1, 3, 6 and 7 explicitly communicated the development of a positive stance towards online learning. This is not to suggest that they were negative about it initially; however, at the beginning, they shared some reservations and uncertainty about the outcome of their work. Some educators had expressed several challenges they had to tackle, typically linked with the nature of their discipline, and their initial perception about student online experience as being socially poor. These reservations were not expressed by other educators (e.g., John, Oliver, and Mark) who were positive from the start of their engagement with online learning. Having invested significant time and efforts, educators were able to see the opportunities for students' learning and change their own pedagogic perspectives.

> *"…my own change in perspective…there are genuine opportunities within online learning […] So, as long as we think about them as opportunities and it is not just a 'tick box' exercise…I would probably say that mind shift, that is not as limiting as may be what I have previously thought and that you can be creative, but you need support to be able to do that."* (LEC1)

Participants also experienced online learning design as a professional development activity, as shown in this indicative example: *"I've gone through a completely different way of understanding how to deliver teaching. So, I think it was very positive in terms of personal development"* (LEC6).

All the educators described that the approaches they adopted in their online module (elaborated in Chapter 7) made them become more reflective and critical in their pedagogical thinking. It improved their overall pedagogic competencies that can act as a new base for their

current and future design and teaching practice. Each educator highlighted specific aspects at different levels of depth. The more widespread shifts in pedagogic thinking (see Appendix J for indicative quotes) included:

- changing the role of content to support active learning,
- creating a learning journey,
- rethinking how to enhance social learning,
- become more inclusive in learning and teaching, and
- using technology to enhance learning rather than as a repository with resources.

Overall, educators' engagement with online learning design appeared to create or reinforce a blurring of the boundaries between teaching modalities stance, alongside thinking about new pedagogic possibilities. This manifested in different ways. Specifically, educators in cases 6 and 7 were in the process of a permanent change in their on-campus teaching: "*…it did help us to move away from the lecture setup*" (LEC7). Inspired by their recent online learning design activity, the academic team, as well as their department, were moving towards blended learning approaches and thus, they were reconstructing their teaching. Those educators' approach was envisioned to follow a flipped classroom method, according to which students would engage remotely with the online materials (those developed for online learning), while the on-campus sessions would be dedicated to student-led active discussions and group work.

In cases 1 and 3, educators appeared to move towards more flexible, and boundary-free approaches. This means, their modules were designed to have both synchronous and asynchronous components. However, their vision for the synchronous part was to allow flexibility for students to either attend on-campus or online live sessions. Therefore, the focus was placed on design, pedagogy and learning context, rather than on physical presence. Physical or online attendance would be determined by students' needs and preferences along with each university's rules. Maria described this approach as "*…a cockroach programme, it can survive any delivery*" (LEC3)*.* Anna and her colleagues were empowered to move beyond their current thinking and create a new strategy for their live sessions' activities design to allow more flexibility and personalisation. According to this, the live sessions would not be pre-determined well in-advance. Instead, the educators would design the live sessions activities and structure at a later stage, based on their students' expressed interest, needs, and level of

online participation. Therefore, educators in this setting would actively observe online student activity to make decisions that reflect cohort-specific characteristics in their designs.

> *"…because we do not know how each cohort is going to respond, we observe their online comments in each of the activities. And we would decide, what is being more controversial? Where have we not had as much engagement? Why? There must be an issue where people are skipping an activity or have posted negative comments, or It could be kind of our sticky learning, and that's shaping us […] Then we would bring that and think, okay, how can we transfer that into a learning activity in the live session. So, it is more challenging for us because we can never plan too far because we do not know how this is going to shift from cohort to cohort… But we have moved away from that regimented structure that used to exist previously, that was very teacher-led and we decided which topics need to happen."* (LEC1)

In the remaining cases, educators generally shared that online learning design required more effort to think about techniques and activities to engage students. Thus, they speculated that successful online approaches could work and be re-used with their on-campus students: *"If you can successfully engage people online, those techniques will absolutely work on-campus as well"* (LEC2). Mark further justified this stance by discussing his recent experience of on-campus teaching where many students do not attend lectures anymore and they prefer to watch lecture captures. Therefore, on-campus teaching was seen as having the potential to be enhanced by using several new activities and content developed for the online module, making the overall learning experience almost identical in any learning and teaching mode.

To realise these newly envisioned blended and hybrid approaches, participants reported the benefit of being able to reuse learning assets that they had developed for their online modules. Examples included the reuse of carefully crafted reading lists, multimedia, expert videos, and several new activities. In case 4, Mark had the opportunity to work with a game developer and create a simulation to facilitate specific educational aims by providing close to real-life learning experiences to his students. The development of such more technically advanced activities was not possible before due to the lack of time, skills, and resources. Therefore, as shown in the below quote, the developed simulation was seen as valuable for student learning in any mode. Through this process of co-developing the simulation, Mark also built a deeper appreciation of the intersection between content, technology, and pedagogy.

> *"We thought maybe we can design a small simulation, and we can give students an imaginary budget, and they can play with that budget, and they can allocate their budget to different activities that you can't do easily on-campus. But now that I have this, I will definitely use this for my own campus programmes […] So that kind of interactive things are really useful, because it is the intersection point of technology, and pedagogy, right?"* (LEC4)

Finally, in case 7, the design of the online module provoked a permanent structural change to the equivalent on-campus degree. Ethan shared that the online module which was previously optional, would be now included as a core module in both on-campus and online provisions. This was due to the online module's perceived robust design which was re-assessed by leadership staff. Therefore, the educators and their wider department team realised the value of this process and its outcome by bringing change to the existing degree structure.

8.4 Growing learning technology and media production awareness and skills

Educators appeared to develop learning technology awareness and technical capabilities out of their online learning design process which was seen as beneficial for their current and future practice. Specifically, most of the educators demonstrated a growing awareness of the use of digital tools and platform features. These were discussed in relation to pedagogic goals rather than as technologies in isolation. For example, educators demonstrated confidence in selecting appropriate digital tools (e.g., discussion forum, peer-review tools) more independently than in their earlier design efforts: "*We now do have some experience with [MOOC platform], its potential, its features, and tools. We kind of know the assets that we can develop*" (EC7). This was also evident when comparing educators' initial interviews with their post-development interviews, particularly in cases 3 (Alicia), 6 and 7, where educators had not used digital tools other than PowerPoint before. In contrast, in post-development interviews, they felt confident in describing the use of various tools and thinking about future applications. Some educators also moved from a more uncritical use of media (videos, images, other resources), which was initially perceived as a 'must have' for replication of lecture techniques, towards a deeper level of intentionality in their use (cases 1, 2, 3, 4, 6, and 7).

> "*A good part of us being new to this thinking, 'and who is gonna read all of this?' 'We have to have a video, we have to have a picture, an animation' and the rest of it. Whereas now, we question the reason for having them with the media team. And there is a specific purpose and outcome for the video. And if it does not add value to someone watching it, if they are not able to take new information and glean new ideas, then, what's the point?*" (LEC1)

The development of technical capabilities was also perceived as useful for educators' future practice (mainly in cases 2, 3, 5 and 6). However, these were experienced at different levels and in diverse ways among participants. Specifically, in case 2, John wanted to develop his technical skills further and independently. He perceived that learning how to produce high-quality videos would be a useful skill for his future teaching activities. He achieved that learning

through using professional equipment and writing a code to enable specific functions when creating videos. In the face of the pandemic, this new skillset he developed was not only valuable for him, but also for his team. John was able to demonstrate his techniques to his colleagues who had very limited access to resources (e.g., media producers' support, equipment) and therefore, they had to become more self-sufficient "*This set of techniques I've developed, I'm now going to have to share with other module authors, so, unexpectedly, it's much more useful than I thought it might be*" (LEC2). In case 6, educators considered that they acquired new technical skills on how to set up and structure different activities using suitable functionality and tools on Moodle. Although this process was expressed as painful and time-consuming, both Leonardo and Valeria felt confident with their new skills "*…once you understood how to use everything came easier*" (LEC6).

In contrast with the self-directed skills development described above, was case 3, where the role of digital learning professionals was critical in coaching educators on how to use different tools and develop technical skills. As discussed several times by Harry and Matteo in case 3, their goal was to enable educators' growth and become more independent "*I wanted to support them in being able to do that themselves*" (LTC3). An illustrative example of such efforts was when Harry introduced the drag and drop functionality of the platform for allowing change in the sequence of activities and content. This was seen as useful for future activities as well as when the team will review the module after implementation "*That's helpful. It's just easy to move around. And when we review the module, we can see where things work, and we can just move items around*" (LEC3). In the remaining cases (1, 4, and 5), there was not much explicit discussion regarding technical capabilities development.

8.5   Chapter summary

This chapter has evidenced the three key areas that educators advanced during their online learning design activity with digital learning professionals, namely (co-)design, pedagogy, and learning technology and their intersections. The significance of these findings lies in the specification of aspects of educator growth within each of these areas. These are depicted in Figure 8.2 below and further expanded in the discussion section 9.4.

(Co-) Design	•Design process awareness •(Team) Design cognitive and metacognitive skills to push design dialogue and deliberation •Leadership identity and skills in an online learning design context •Awareness of institutional community and stakeholders' expertise
Pedagogy	•Conceptual acceptance of online learning •Growing repertoire of and criticality on pedagogical approaches in online and hybrid learning and teaching contexts •Reinforcing a blurring the boundaries between modalities stance and envisioning the future practice
Learning technology	•Awareness of digital tools and platform functionality •A more critical stance towards the role of learning technology and media for learning and teaching •Technical capabilities development (e.g. platform authoring, media production)

Figure 8.2: Areas of educator growth and value creation from interdisciplinary online learning design

Chapter 9 | Discussion

9.1 Introduction

The aim of this thesis was to unpack how educators and digital learning professionals make design decisions for online learning when they work together. It sought to investigate the processes they follow, the influencing factors for their design decisions, and the potential of collaborative design for educational enhancement and educators' learning. By adopting a multiple case study methodology and data collection through one-to-one semi-structured interviews, non-participant observations and document analysis, this research allowed for an in-depth investigation of this topic in seven UK-based interdisciplinary design teams.

This chapter advances the main findings presented in the results chapters by making explicit connections between themes, the theoretical framework employed in this research (CHAT) (Chapter 3), key conceptual constructs of design, and the literature (Chapter 2). The synthesis is presented in three discussion themes with pertinent points elaborated which, inevitably, have some overlap between them given the nature of this research. The overarching aim was to build a more holistic understanding of how it all works together (e.g., processes, actors, communities, rules, mediating arifacts) rather than to produce a clear set of rules and disentangled factors that explain success or failure in collaborative design for online learning.

By following a similar logic to the results chapters, the first discussion theme (section 9.2) argues for the multivoiced nature of online learning design, by discussing specific socio-cognitive and material-mediated processes that the study participants engaged with. It also examines the role of different actors and the impact of university-related factors during design decisions. The second discussion theme (section 9.3) moves on to debate the nature of and rationale for online pedagogic decisions taken by the participants. The third discussion theme (section 9.4) provides a detailed view on educators' areas of growth (co-design, pedagogy, and learning technology) and practice advancements cultivated from the online learning design activity. This final theme closes the loop by rounding and concretising the impact of some collaborative design processes and adopted pedagogic approaches on educators' professional practice. It confirms the symbiotic relationship between collaborative design and educator learning. This chapter ends with some further reflections on the findings (section 9.5).

9.2 Multivoicedness in online learning design: processes, actors, materials and their relationships

9.2.1 Design processes: integrated and forward-looking, framed and multi-expertise empowered

From a design decision process perspective, this thesis supports that participants adopted a breadth-first approach. This starts from the creation of a broad framework with key learning components (content, learning outcomes, assessment, narrative, core activities) and is followed by the detailed specification and construction of all the learning components of an online module in an iterative way. This process is in line with the so-called 'top-down' design process in the educational design studies of Bennett et al. (2017), Baldwin, Ching & Friesen (2018) and Martin et al. (2019) where broad ideas become more specific through iterative cycles of development and thinking, as well as the breadth-first strategy described in expert designers' literature (Ball & Christensen, 2019). The breadth-first design approach in most cases was guided by the digital learning professionals; therefore, a more expert-like approach to design was to be expected in this study's cases given their context (resourced design teams).

9.2.1.1 Integrated and forward-looking design process

When compared to outcomes-focused learning design models, including backward design and constructive alignment, this research revealed a more integrated focus on starting design points that could be characterised as learning outcomes-driven, content-focused, context-oriented, and student-focused. While there were variations in the emphasis placed on these points and their precise order, participants' accounts demonstrated their intertwined consideration. An important high-level consideration that has been overlooked in earlier studies but was highlighted by the majority of the participants was an orientation towards conceptualising and creating a learning context (context-oriented approach). In other words, a narrative, story, or overarching argument that underpins the online module under development. Participants started constructing this overarching learning context from the early design phases when looking at the 'bigger picture' of the online module and refined it through iterations and acts of zooming in and out to ensure connections among its parts. This emphasis goes beyond constructive alignment (Biggs, 1999) among learning and teaching components and requires more attention, particularly when the educational vision is to move

towards the design of an authentic, holistic, and contextually-framed online learning environment (details from a pedagogic perspective are provided in section 9.3).

Interestingly, this research demonstrated that participants across cases adopted a forward-looking or proactive approach to online learning design. This means that they not only focused on the design of worthwhile pre-defined activities for students, but they also actively thought about and built a range of in-advance mechanisms for enactment and facilitation, evaluation, and redesign to regulate and inform their future actions. Examples of these mechanisms included the design of reflective activities to gain deeper insights into students' learning, the use of learning analytics and observational data for timely detection of problematic situations (e.g., lack of student engagement and participation). The intention was to provide support and consider evidence-informed student insights during redesign (Table 6.2). This proactive design approach matches with Goodyear and Dimitriadis' (2013) conceptualisation of a forward-oriented design process as it includes planning and anticipation for future activities. It adds to the existing literature by showing an interconnected and continuous approach to design within, and in relation to, the broader teaching lifecycle activities (design, facilitation/enactment, evaluation, redesign) which were in sight from the in-advance design. Therefore, participants' actual practice went beyond simplified normative design processes (e.g., ADDIE, backward design) or teacher inquiry cycle descriptions which present the key teaching lifecycle activities as sequential, distinct, and somewhat separated phases.

The adopted forward-looking approach in online learning design can partly show a logic of the following, which were articulated during design:

- openness: perceiving their design work as not completely pre-determined, but open to interpretation and refinement,
- care: a desire to 'hear' and 'see' what students do and then support their learning accordingly, and
- appreciation for emergence: based on student action and activities' co-configuration by students.

These are significant orientations during design practice that align with conceptualisations of anticipatory design as an open-ended form of care for the future and an engagement with the unmanifested future (Ross & Collier, 2016; Osberg & Biesta, 2021).

Extending the point of the forward-looking design approach, notable was the plurality of these in-advance mechanisms considered by participants along with their associated thinking. Participants' construction of multiple mechanisms and their underpinning went beyond standardised, politicised, and accountability-focused approaches (e.g., assessment grades, satisfaction surveys, retention, employment) that universities use for evaluating educational practice and encouraging a performative culture (Biesta, 2009; Fawns, Aitken & Jones, 2021). Instead, participants combined those summative and product-driven mechanisms with what was termed in the results as 'formative mechanisms' (e.g., qualitative student feedback, team-level insights). The latter aimed to offer multi-faceted perspectives of the student experience and contextually relevant insights for future improvements.

Within the more integrated teaching lifecycle sketched by participants, an interesting observation can be made regarding the various HE actors' positioning. Teaching had traditionally rested with the educators (Bennett et al., 2017). This research shows that this is indeed the case for the online facilitation and enactment of learning activities where this study's educators or newly recruited academic staff had sole responsibility. However, findings also revealed a move towards a more collective responsibility of multiple HE actors (e.g., educators, learning designers, researchers, learning analytics experts) for online learning design (unpacked later within this theme), evaluation, and redesign activities. For example, as outlined in section 6.2.4, a common strategy for adoption during evaluation and redesign was the organisation of a (few) team meeting(s) among educators and other actors to bring together different insights (e.g., platform observations, student satisfaction surveys, reflections). This strategy aimed to enable collective interpretation of these insights by multiple actors with the ultimate goal of generating evidence-informed improvements for future online module runs. This is an important observation with implications for educators' positioning and relationships with other university actors across the teaching lifecycle. However, as Goodyear and Dimitriadis (2013) have posited, in reality, these redesign loops can be rare due to time and resource limited project-based innovations. Therefore, further research is required to gain a deeper understanding (see recommendation in section 10.4).

Beyond a more descriptive process perspective outlined above, this research revealed participants' ongoing processes of framing and reframing as key to broaden, problematise, and guide their design thinking and decisions. Framing acts were achieved by considering and blending different angles (e.g., disciplinary, module context, online learning, design habits of mind), actor expertise, and perspectives. Different facets of framing were presented in the results (sections 6.2.2 and 6.2.3) which expand the dominant discourse on collaborative design literature regarding educators' and digital learning professionals' expertise complementarity (e.g., Xu & Morris, 2007; Bayerlein & McGrath, 2018).

Specifically, this research suggests two dimensions of interest in relation to a combined view of *framing* and *multi-expertise empowerment* through educators' and digital learning professionals' knowledge exchange and integration. The first dimension focuses on the point of departure and orientation of framing. The second dimension hones in on the depth or newness of solutions/suggestions derived from the framing process. Regarding the first dimension, three broad framing patterns were revealed in the results; 1) student-oriented framing and reframing, 2) educator context-oriented framing, and 3) framing based on digital learning professionals' expertise and practice.

First, student-oriented framing included bringing various experiential and future-oriented (e.g., graduate attributes, anticipated learning experience) student insights to frame participants' thinking and justify solutions which, is in line with other studies (e.g., Mahon, 2014; Baran & Alzoubi, 2020). Team interactions also gave rise to imagining how students would act and feel when engaging in their suggested activities. Therefore, participants generally appeared to adopt an empathetic stance towards students' needs which aligns with a student-centred focus that the HE sector has advocated for, for many years.

Second, educators' problems of teaching practice and context-specific module information framed team discussions and led to the unpacking of pedagogic dilemmas to generate solutions. This framing orientation is important as it goes beyond normalisation and acceptance of problems that may remain unarticulated, and unresolved in everyday individual educator practice (Lefstein et al., 2020). Instead, team exchanges promoted re-interpretation and sense-making in a new teaching context. This orientation also emphasises that the elaboration of educators' vision and practice problems as core actors

of learning and teaching should be considered deeply, rather than merely following top-down principles for change (Fawns, Gallagher & Bayne, 2021).

Third, framing was heavily enacted by digital learning professionals who broadened educators' design problem arenas (Dorst, 2011) and acted as both skilled facilitators and knowledgeable partners (Goodyear et al., 2021) to enable more deliberate decisions. Specifically, digital learning professionals introduced online learning design foci (e.g., different forms of active and inclusive learning, educator roles, and forms of social learning) and directions which empowered educators to develop a revitalised view of learning and teaching in an online context. This was implemented through the promotion of theory-informed discussions underpinned by learning theories and models on how people learn online. Another way was through offering continuous expert feedback that added depth to educators' existing thinking and made pedagogic agendas more explicit in most case studies.

Importantly, the present findings offered rich descriptions on the use and role of a range of knowledge materials (e.g., design mapping tools, modelling materials, synthesised module architectures) mainly introduced by the digital learning professionals. These knowledge materials played a key role and were an addition to how educators typically enact their routine design activities and/or when they were not-supported (e.g., Bennett et al., 2017; Baldwin, Ching & Friesen, 2018). Therefore, knowledge materials acted as boundary objects and socio-material framing tools for leveraging participants' design thinking and team efforts. They allowed reflection on existing practice and refreshed thinking for their new online learning design context. Design mapping tools also facilitated exchanges among participants for knowledge integration and coordination which was perceived as productive, particularly in collaborative design contexts where there is interdependence among the various actors (Manzini, 2015). Another impactful example of knowledge materials was the synthesised online module architectures, created by educators themselves or digital learning teams. These synthesised online module architectures acted as design heuristics to simplify complexity and framed participants' decisions based on valued student experience features.

Although knowledge materials might be seen as practical and supportive in increasing confidence for educators and digital learning professionals, as Biesta posited, 'education

can never be practiced through fixed protocols, because in a very fundamental sense we are always dealing with unique and new situations' (Biesta, 2015, p.19). The findings of this research align with this stance and further argue that knowledge materials alone, without professional dialogue, skilled facilitation, and critical judgement, may lead to instrumental use and design fixation as specific solutions become highly prominent (Cross, 2018; Svihla, 2021a). Specifically, research evidence suggests that most educators tended to depend heavily on structures and ideas included in these knowledge materials. However, the adoption of a questioning technique among participants; a key epistemic action for expansive learning (Engeström, 2016), in the cases with a more collaborative approach to design, acted as a safeguard for complexity and deliberate decision-making.

This type of questioning was often neutral in content, continuous, and initiated primarily by the digital learning professionals. Questioning allowed educators and other colleagues to elaborate on and justify their proposals. Therefore, it helped them to avoid the mechanistic or uncritical adoption of components embedded in these knowledge materials. In contrast, in cases 2 and 6, where educators worked on a more individual basis, several decisions tended to be more standardised by following rigidly set patterns. Potential interpretations for this manifestation may include educators' familiarity with specific approaches and a lack of interactions with others to challenge their work. Another interpretation may be educators' intention to partly satisfy imposed institutional rules and thus, they follow a 'tick box' rationale in some design decisions.

The insights discussed above regarding the role of knowledge materials are important, particularly when relating them to the LD tool-based approaches to educator design support (Oliver et al., 2018) and the COVID-19 emergency developments. In the latter case, educator assistance was primarily, and inevitably, based on generic good practice tips and tricks, and lists with digital tools to facilitate teaching and learning (Rapanta et al., 2020). This research suggests that even if material-mediated framing is proactive, the static nature of that framing may limit the quality of the design decisions. Combining this more static material-mediated framing with critical collegial dialogue can allow contextually meaningful adaptations and innovations that elevate design decisions.

The use of CHAT through the conceptualisation of two activity systems proved to be particularly productive. It helped to more accurately capture the abovementioned

complexity and dialectic relationship between CHAT's different components (e.g., *subjects*: educators and digital learning professionals, *artifacts*: knowledge materials, research in online learning and discipline, *division of labour*: actor roles, contributions and power) and their role to participants' decision-making.

The second dimension of framing concerned the depth and/or newness of the design solutions that came out of framing and team multi-expertise knowledge integration. Based on the findings presented in section 6.2.2, design decisions emerged through translational reframing of existing pedagogic approaches and activities to be suitable for online learning (all cases), as well as creative framing which led to the creation of brand-new activities and rationale. An explanatory pattern that emerged when comparing the cases was that diverse (in expertise) team composition and a more collaborative approach to design (cases 1, 3 and 7) could account for descriptions of creative framing. Team brainstorming and building on team members' ideas led to novel activity framings, breaking away from established teaching habits that are embedded in educators' practice. This is a key proposition of CHAT based on the principles of the possibility of expansive learning enabled by intentional team efforts and leveraging on the socio-cultural diversity of partners (Engeström, 2001).

Finally, during the processes of framing and participants' insider knowledge exchanges, examples of tension among their views about learning and teaching were also present. Contradictory opinions gave rise to further argumentation, interpretation, and debates that led to concretising design decisions. Even when consensus was not built among collaborators, the multi-perspective elaboration, and sense-making processes they went through might have an interpretive value when reflecting on the success of their adopted approaches. These insights are important as, although debate and ideas justification are key activities to ensure deliberate decision-making (Walker, 1971), the literature has repeatedly shown that individual educators' decisions are mostly based on tacit knowledge (Markauskaite & Goodyear, 2014) and rarely based on educational evidence. This trend has also been observed when considering homogenous educator design teams (e.g., Gast et al., 2020; Lefstein et al., 2020).

9.2.2 Boundary crossing roles and practices: connecting the knowledge nodes

Findings revealed the influence of different communities, networks, and peripheral actors on participants' design decisions (see section 6.5). However, what was interesting in this level of design influence which will form the focus of this discussion theme, was the key role of digital learning professionals and educators as boundary crossing agents. This means that they brought external insights to their collaborative design context, by penetrating existing practice boundaries to inform their decision-making. The construct of boundary crossing (Engeström, & Kärkkäinen, 1995; Akkerman & Bakker, 2011) is used to allow for the meaningful interpretation of the findings. It can attend to details between the different activity systems and their distributed components and identify their relationships.

Digital learning professionals, and particularly learning designers and technologists (depending on the team composition), operated on a 'connecting the nodes' role during online learning design. To put it another way, they liaised with epistemically and socio-culturally diverse actors spread across their own university and beyond (e.g., students/alumni, researchers, specialist stakeholders, external partners). They then collated these actors' diverse insights and brought those to their immediate design team for consideration and negotiation. The access to these diverse actors was primarily determined by each university and their allocated resources (interaction between rules, subjects, and community to influence the activity's object). These actors could be seen as having a peripheral role in the core participants' immediate team design decision space. For example, students' direct involvement during online learning design was passive. Based on Druin's (2002) student partnership levels introduced in Table 2.5, students acted as informants and user-testers of already designed online learning environments. Therefore, although positioning students as partners and co-creators has been increasingly seen as a productive direction in the literature for empowering student learning (Bovill et al., 2016; Martens et al., 2019), in this research, students' input was mediated and coordinated by digital learning professionals and was limited to the final stages of design.

Interestingly, findings have emphasised the impact of collegial exchanges within university digital learning teams (e.g., this study's learning designers/technologists with their colleagues). These collegial exchanges generated, otherwise unknown or 'hidden' insights. These insights transcended existing boundaries of educators' practice such as the module team/individual educator, individual module/degree team, and disciplinary boundaries/other departments'

insights, and contributed to more coherent learning designs. This type of boundary crossing activity could be attributed to a positive collegial culture within the digital learning teams, which is pivotal for cascading practice and can inspire pedagogic practice, not only at the team level but also university-wide level. From a temporal perspective, the practice remit of digital learning professionals connected the past with the present and future by offering more mature suggestions (e.g., the role of videos, narrative) that emerged from earlier successes, failures, and historically evolving practices. This contribution is important as it accelerated the adoption of more promising online learning approaches for novice online educators, avoiding university community-known pitfalls. Overall, these additional perspectives were appreciated by educators and expanded their pedagogic thinking and final decisions. The outlined boundary crossing role of learning designers and technologists highlights the need for institutional acknowledgment and support of their role and its associated complexity. It also calls for paying attention to recruiting professionals with strong interpersonal skills including brokering and consensus building (Altena et al., 2019; Hart, 2020) to competently perform their roles.

Regarding the educators, this research echoes the literature on their social and professional exchanges with discipline-specific community members as credible information sources in their design and teaching practice (Agostinho, Lockyer, & Bennett, 2018; Masterman, 2019). However, interestingly, the novelty of the online learning design task for educators appeared to act as a boundary object and prompted the formation of new connections between educators with their colleagues. These colleagues belonged to the newly formed online degree team or were located in wider networks within and beyond their own university (e.g., individual contacts, vicarious observation of other academics' works through available MOOCs). The input from those colleagues was seen as contextually relevant (online learning) wisdom and their interactions cultivated a 'we are all in this together' mindset.

When putting the different layers of community and network-based influences together, the findings support instances of knotworking (Engeström, 2008). Relatively fluid combinations of expertise – 'knots' (e.g. peripheral stakeholders, colleagues) – within and across the two interacting activity systems were evidenced. Insights from loosely connected stakeholders and systems were coordinated, tied, untied, and negotiated (Engeström & Pyörälä, 2021) by the core immediate design team decision-makers (e.g., educators, learning designers) to enable fruitful decisions. Cases 3 and 6 (section 6.5.1) can act as enlightening examples that

demonstrate different facets of this claim and a dynamic relationship between participants' self-driven and institutionally-boosted efforts to access and consider the perspectives from these different 'knots'. Specifically, case 3 illustrates the power of educator self-initiative in acting as a boundary crossing agent by accessing a range of networks and communities to resource herself and bring these insights into the online module design team. This was combined with university support mechanisms, such as a mentorship scheme and the collaboration with digital learning professionals and their associated networks, thus, creating constellations of actors and resources that influenced design.

Case 6 evidences the snowball effect of university-driven support within the academic team's department, towards practice modelling and sharing between colleagues which is more organic and community-driven. It shows a connection between the past (historic and sustained collegial exchanges, top-down wisdom), the present (collegial support in different ways such as feedback provision, co-production), and the future (development of new design team composition to include alumni). Therefore, the abovementioned community- and network-based exchanges went beyond what would have typically been a narrow, single-actor, and module-focused bounded design process.

Altogether, this section highlighted the increasingly distributed nature of online learning design in HE. It recognised digital learning professionals and educators' boundary crossing roles and practices and how these are enacted in varied ways to inform decisions by considering multiple and diverse perspectives.

9.2.3 Team-level dimension of influences

This research revealed several insights regarding dynamics among educators and digital learning professionals that influenced their design team functioning and consequently, the way they made decisions. Building a trusting relationship, a highly cited condition (e.g., Stevens, 2012; Bayerlain & McGrath, 2018; Richardson et al., 2019) was seen as key by this study's participants and facilitated authentic exchanges among them. This condition was widely discussed by digital learning professionals rather than educators. This was to be expected as digital learning professionals' role, beyond their domain expertise, has been characterised as focusing on relationship-building (Fox & Summer, 2014; Altena et al., 2019) for creating an enabling and positive working atmosphere.

Being open to feedback and new ideas that may be domain-specific was the cornerstone for benefiting from interdisciplinary perspectives, which resonates with existing literature. This research that included both educator and digital learning professionals' perspectives, revealed that being open can be seen as a two-way attribute discussed by both actor group sides for optimal knowledge integration. However, similar to Richardson et al. (2019), findings support that building an open and trusting relationship among collaborators with diverse knowledge and roles is not a straightforward process. It involves an extended period of collective work rather than limited one-off exchanges or short allocated timelines. Stronger evidence on this point was provided in four out of the seven cases where participants reflected on their continuous cycles of online learning design and were able to appreciate the meaningful and more transparent exchanges with their colleagues.

Findings from this thesis maintain that collaborative design was perceived as a supporting emotional resource for most of the educators. Although educators considered their engagement with online learning design labour-intensive, collaboration with colleagues and digital learning professionals was seen to offer an emotional shelter. It supported them to cope with ambiguity, stress, and complexity, and find solutions to personally identified wicked problems, which – as the literature reports – are often experienced by novice designers (Lawson & Dorst, 2013). Even though emotions cannot be eradicated, findings support that sharing and self-disclosing them within a team can develop a sense of mutual responsibility and offer some comfort for the generation of ideas. This finding contradicts related studies to some extent, where, although the value of collaboration for quality online learning was acknowledged, educators often experienced feelings of pressure due to the intensity of collaborative work, associated tensions among collaborators, and their increasing workload (e.g., McInnes et al., 2020; Saunders, Brooks & Dawson, 2020). The latter, arguably more negative emotions, were only self-reported by a small number of participants in this thesis (n=2, cases 2 and 7). Overall, the role of emotions in design decisions is an important finding that draws attention to recognising, attending to, and working with emotions (e.g., anxiety, uncertainty, ambiguity, hope, desire) when designing novel learning spaces at both individual and team levels. Collaborative design can contribute towards the avoidance of paralysis and risk-aversity that may manifest due to negative emotions, while preserving and cultivating positive emotions that may lead to responsible experimentation and fruitful decisions.

A mixed picture regarding perceptions of the collaborating actors' roles and their enactment, (conceptualised as the horizontal division of labour in CHAT), was evidenced in this research. On the one hand, in half of the case studies, participants' expectations about different roles mirrored their actual contributions and skills and were aligned with the existing literature (e.g., learning designer as a design and pedagogy expert, media producer responsible for media development and technical support) (Mitchell et al., 2017; Aitchison et al., 2020). This is important, as a clear and shared understanding of roles can contribute to harmonious team functioning and benefit design decisions by blending relevant expertise (Bayerlain & McGreth, 2018). On the other hand, in the remaining cases, roles ended up being redefined for a variety of case-specific reasons (see section 6.4.1). This insight taps into existing literature that debates tensions between educators and digital learning professionals' relationships (e.g., Ritzhaupt & Kumar, 2015; Chen & Berliner, 2021). It specifically demonstrates that job title is not always a reflection of skillset (e.g., cases 1 and 3), and roles may be redefined or misinterpreted due to misconceptions about digital learning professionals' intentions, roles, and skillset (case 2- different roles acting mainly as administrative support).

Understanding the roles and responsibilities of all the interdisciplinary collaborators in online learning design has implications for the sharing of power during decision-making. Looking at power (vertical division of labour in CHAT) over decisions as an explanatory concept in collaborative design, helps us to appreciate why decisions may be taken in more or less collective ways (Bratteteig & Wagner, 2016). The present findings demonstrated a perceived power imbalance externalised by only the digital learning professionals, which was, nonetheless, independent of the level of collective work evidenced in each case study (Table 5.1). Existing studies have articulated digital learning professionals' unequal authority over decisions when compared with that of educators (Halupa, 2019; Aitchison et al., 2020). This research showed that, in most of the cases, digital learning professionals had a considerable influence on decisions (as discussed in previous discussion themes). However, they sometimes experienced limited power over their concretisation which was mostly seen as educators' responsibility. Based on these findings, it is useful to make a distinction between the concepts of *power* and *influence*, with the former representing 'an intervention in the action space of others', while the latter requires 'listening to the voices of the other participants so as to be able to convince them and to get them on board' (Zündorf, 1996; cited in Bratteteig & Wagner,

2016, p. 38). When it came to learning technology and technical decisions and their implementation, power was shared among collaborators or privileged those actors that had the relevant skillset to implement ideas (e.g., learning technologists, media producers). This observation potentially reveals a high dependency on participants' perceived skills, experience, and authority in specific domains.

Interestingly, in this research, most of the educators did not explicitly express concerns regarding a loss of agency from their immediate team-level interactions with digital learning professionals (case 2 is an exemption); a concern that was attributed to other institutional-level factors (see next section 9.2.4). This insight contradicts existing literature that reflects educators' fear of losing authority due to the unbundling of roles (Cowie & Nichols, 2010; Richardson et al., 2019). This difference with the literature may be attributed to the level of educators' experience; in this research novice online educators who feel the need for support and sharing of workload. Another explanation may be the generally positive relationships built between educators and digital learning professionals, which is not a given in mainstream design contexts. It may also be that the stance adopted by digital learning professionals was as such to reduce the emergence of relationship tensions. An example of this point was in case 3 where Harry and Matteo prioritised preserving a good working relationship that would allow for educator ownership, instead of insisting on their recommendations. Therefore, power asymmetry remained implied rather than transparently shared by educators. Whether and to what extent there should be equal power among educators and digital learning professionals can be questionable and dependent on educators' needs and the institutional vision for learning and teaching. Nonetheless, these empirical insights can act as a reflection point for universities, educators, and digital learning professionals.

Finally, a micro-level finding in relation to digital learning professionals' roles was that their awareness of and/or familiarity with the online module's subject area can be supportive for more meaningful suggestions. In most case studies, the digital learning professionals were based in central teams (apart from case 5). Therefore, it was individual digital learning professionals that were familiar with a specific subject area due to either their own education (cases 1, 3 and 7), or due to having worked on similar subjects before (cases 4 and 5). In the contrasting case 2, the perceived lack of professionals' subject matter knowledge was one of the reasons for rejecting collaboration, which may show the importance of this for some

educators. Although digital learning professionals' role is not meant to be that of disciplinary experts, in time-limited design teams, the lack of disciplinary awareness may lead to surface-level exchanges among collaborators that are of limited contextual relevance. This may in turn suggest that placing digital learning professionals in local school/department teams could assist with more efficient and subject-matter meaningful exchanges and design decisions. However, more research is required to examine the impact of local versus central digital teams' work on the quality of design decisions, as it may be argued that it is the 'distance' from the subject area and actors' socio-cultural diversity that can bring creativity to break disciplinary and/or departmental silos.

9.2.4 Institutional-level dimension of influences

This research uncovered a range of institutional-level interacting factors that had both an enabling and a constraining character on participants' design decisions. These factors are the influence of strategic learning and teaching activities, the institutional rules for online learning, and the involvement of middle leadership.

Strategic learning and teaching documents and activities shaped participants' thinking towards pedagogically significant aspects (e.g., inclusive learning, change in assessment). This finding reveals a better awareness of strategic direction when compared with previous studies where key decision-makers rarely referred to strategies as influencing their practice (Blackmore & Howson, 2012; Sharpe & Armellini, 2019). A clearly communicated university strategy that builds a shared vision, culture, and language among university actors can be useful in moving educational practice towards productive directions (Rapanta et al., 2021). Research findings revealed that two groups of actors were more likely to bring strategic insights to influence decisions; the digital learning professionals and educators with a leading role (module leaders and/or degree directors). Digital learning professionals acted as translators of strategic aims and mediators for their implementation which resonates with the recent literature on their role (Aitchison et al., 2020; Kandiko & Kingsbury, 2021). Educators within a leadership role may have greater access to learning and teaching strategies because they hear more about them and are more exposed to them in the various fora they attend. This finding on the impact of university strategies on decisions was further corroborated when comparing participants' discourse (via interviews, and observations) with the language and priorities depicted in the learning and teaching strategic documents which appeared to match. However, the degree of

actual influence on participants' decisions should be viewed critically. This is because the awareness and the use of language that is aligned with strategic goals may be due to a top-down requirement for compliance, instead of signalling a deeper consideration in practice.

Across the sector, universities are intensifying their efforts to develop educators' pedagogic expertise (Bennett, Agostinho & Lockyer, 2015). Although this research found that many participants had received formal training in HE learning and teaching (see Chapter 5), and/or had accessed educational development resources by their university, these had a limited impact on their decisions. It was mainly early career educators who found training a good starting point for building their pedagogic knowledge and skills (cases 4, 6, and 7). This variation in training efficacy for online learning may partly be subjective. However, it may also reveal that more sophisticated mechanisms are needed to be meaningful for educators who have different levels of pedagogic and learning technology expertise. This is because some educators found resources and training self-explanatory, or they did not feel that influenced their decisions. For some educators, the training they had received was not directly relevant to online learning. Therefore, it is also critical that training and resources are regularly refreshed to include contemporary thinking, activities and examples to align with educators' real-life design and teaching scenarios (e.g., hybrid, blended, fully online). Moving from single interventions to a more lifelong learning type of opportunities for educators as proposed by Bennett et al. (2018) may also be another promising direction.

This research evidenced how several institutional rules in relation to online learning (e.g., module structure, student contact time) acted as secondary contradictions among rules and subjects to shape participants' decisions. Newly introduced rules were perceived as requirements and boundaries within which participants had to take decisions. University rules appeared to challenge their agency due to partially serving standardisation and scalability motives which occasionally came into tension with participants' context-specific needs. The cases 1, 2 and 7 where the institutions had partnered with MOOC platforms have also offered new insights in this respect that require more scrutiny. As discussed in earlier chapters, the partnership between MOOC platforms and universities for credit-bearing learning is a phenomenon that has received attention in practice (particularly during the pandemic) and scholarship in recent years (Czerniewicz et al., 2021; Williamson, Macgilchrist & Potter, 2021). From a CHAT perspective, MOOC partners could be located in a third activity system with its:

- subjects: a range of professionals (e.g., learning designers, project managers, product developers) that interact with the university actors' activity systems;

- mediating artifacts: platform infrastructure, quality assurance templates, good practice guidelines;

- rules: rules for partnership, company strategies and culture;

- community members: other university partners, colleagues, HE and TEL communities;

- division of labour: professionals with varied expertise and responsibilities; and

- object: revenue, reputation, quality online learning, platform development.

Empirical data have shown that this third activity system was mostly interacting with the activity system of digital learning professionals (cases 1 and 7) who were mediating decisions, and resolving tensions among the remaining two activity systems (educators, MOOC partners). In case 2 it was a continuous interaction among the three activity systems.

From a material perspective, findings show that the infrastructure of MOOC platforms had pre-baked educational assumptions encouraging specific learning structures and/or activities that were, on several occasions, misaligned with participants' educational goals. Although any virtual learning environment (VLE) can be seen as underpinned by certain values (Anderson & Dron, 2011), it was participants in cases of partnerships with MOOC platforms that more transparently made this point. As Williamson (2020) pointed out, in those partnerships, there is a danger that learning design moves from the expertise of university teams to 'force-fitted' platform templates that can configure pedagogical possibilities. In such a context, universities can become attached to platform models that reshape their educational provision. While there is, albeit limited, evidence from this research to endorse this point, complex problem-solving at a team-level was essential to avoid uncritical conforming to the platform's infrastructure. The digital learning professionals had a central role when reimagining how to co-configure available tools and adapt activities to enable the desired educational designs. Interestingly, case 1 demonstrated that once participants became more familiar with the MOOC platform's different infrastructure, they partly appreciated the ways it had shaped their thinking towards narrative-based and social learning practices. Although this view was only partly evident in one case, it may reveal the critical role of partnerships that are aligned with a university's pedagogic vision, rather than formed mainly by financial criteria. It also shows the time it takes (more than one module's design) for key actors to adapt to, and potentially appreciate new

practices. However, it also appeared to be a two-way shaping process. On the one hand, the infrastructure of the MOOC platform partly shaped several decisions. On the other hand, however, participants defined their pedagogic needs which they shared with their MOOC platform partners to co-configure and co-design (new) features that enhanced their pre-existing practice. This may be promising in terms of allowing timely and dynamic change.

Findings also show a shift in the role of MOOC platforms; from providing their digital infrastructures for university online learning to becoming more active partners by shaping educational vision, processes, and introducing their own rules (Williamson, 2020). Rules such as MOOC partners' quality standards, although not rigidly applied in practice, may influence pedagogic directions. Recently, several scholars have advocated for a future of enhanced educational provisions that should not be driven by private capital, but instead by educators and university communities in understanding contemporary student needs and the definition of quality online and hybridised learning (Bayne & Gallagher, 2021; Czerniewicz et al., 2021; Williamson & Hogan, 2021). Although this research cannot answer such big questions, it has empirically demonstrated the further layer of complexity that these new rules and partnerships have brought to participants' online learning design work.

Middle (within the school/ department) leadership involvement in design was perceived to have influential power over several decisions in most of the cases (particularly in 5 out of 7 cases). Although several researchers have highlighted leadership involvement as an important condition for facilitating the implementation of desired collaborative design reform outcomes (e.g., Burrell et al., 2015; Newell & Bain, 2020), others (e.g., Mahon, 2014; Koeslag-Kreunen et al., 2018; Bayne & Gallagher, 2021) have shown that systemic involvement of leadership may create an atmosphere of surveillance and control that impedes positive outcomes. In this research, two patterns of involvement were identified. The first was a pattern of systemic and proactive interactions, where approval and feedback from leadership staff was a mandatory part of the process (rules in CHAT). The second was, an informal and reactive pattern, where leadership staff was acting more as knowledgeable community member(s) that were accessed by teams when needed (community in CHAT).

A surprising finding was that irrespective of the leadership involvement pattern, their role was seen as enhancing decision-making (four out of the five cases reported this influence). Feedback, confirmation for and generation of ideas reassured participants in their efforts

particularly when transitioning to brand new approaches. The results also indicate that middle leadership can potentially have a boundary crossing impact. This is by mediating and reducing tensions between the subjects (educators and digital learning professionals) and the imposed high-level institutional rules, in creative and flexible ways. This point was drawn from a) participants' reported ability to overcome issues through negotiation with leadership to approve fruitful ideas that fall beyond institutional policies, (case 1), and b) by using middle leadership power and networks to connect participants with relevant contacts and/or provide resources that enabled the implementation of complex ideas (cases 2, 6 and 7).

The remaining three cases offered different insights that, nonetheless, supported a deeper level of interpretation. On the one hand, case 3 demonstrated how unresolved tensions between the educator lead and leadership staff were perceived as threatening educators' agency and were attributed to hierarchical factors, a common manifestation in the literature. On the other hand, in cases 4 and 5, the lack of reporting leadership influence over decisions may demonstrate that liaison with leadership for approval is part of participants' routine work, a given requirement that remains almost unnoticed. Combining these case findings, it appears that the enabling or constraining effect of institutional-level factors on participants' design decisions was dependent on the dynamic interaction between:

- high-level leadership (e.g., through rules, strategies) and the general institutional culture (e.g., hierarchical and individualised versus encouraging collaboration and community-led practices);
- middle-level leadership's involvement and culture setting when involved in online learning design; and
- individual actors' (educators, digital learning professionals) perceptions and attitudes towards design, strategic activities, and the role of leadership in their work.

If one or more of those is not in alignment (e.g., hierarchical university culture despite positive middle leadership and educators' attitude) to enable a balanced symbiosis, then, emerging tensions may be hard to overcome as evidenced in this research.

A final observation was that, even though cases 5 and 7 were based at the same university, they appeared to be influenced differently by institutionally related factors. For example, in case 7, the results show that leadership involvement was key, while in case 5 it was almost

absent; In case 7 the team partnered with a MOOC platform which influenced design decisions. This may reflect the fact that different parts of a university may be at different stages of maturity in online learning and/or approach the design differently.

9.2.5   Individual educator-level dimension of influences

This research confirms the critical role of educators' prior experience, knowledge, attitudes, and beliefs in decision-making that is well captured in the literature (Mahon, 2014; Bennett, Lockyer & Agostinho, 2015; Tondeur et al., 2017). Findings highlighted two broad categories of influence regarding educators' prior experience. The first was the experiential confidence based on past experience of on-campus or recent online learning design and teaching and its success. The second was educators' practice problematisation, based on an identified issue they wanted to tackle, drawing from their experience as educators, students, or professionals.

However, more interestingly, the findings can offer reflections on educators' readiness for online learning, by comparing their experiences with the definition of novice online educators provided in this thesis. Novice online educators were defined as educators with no prior or limited experience (e.g., one year) in designing and teaching in credit-bearing online learning contexts, independently of the overall years of their teaching experience. This definition was primarily based on Kilgour et al.'s (2019) work and the assumptions in the literature that online learning design and teaching may require a range of skills for educators to enact it competently. The validity of this definition was confirmed by most participants by adding details that provide further specificity.

Specifically, there is evidence to support that educators with less than five years of teaching experience (Mark, Valeria, Florence) considered themselves novices in any learning and teaching mode. They found their collaboration with digital learning professionals essential as it brought specialised expertise. They also valued the work with more experienced academic colleagues who enriched their practice and divided their workload. Similarly, educators with 5-10 years (Anna, Maria, Alicia, Ethan) and 10-15 years (Leonardo) of experience in on-campus teaching, perceived themselves as novices to online learning and the collaboration with other HE actors was seen as key for making robust decisions and innovate. This was either due to perceiving themselves as adopting a relatively traditional pedagogy and thus, they wanted to further develop their practice, or due to perceiving online learning as a medium which requires

different pedagogy and skills. For example, in case 6, although Leonardo had 13 years of teaching experience, his teaching was based on traditional lecturing and lab-based workshops, which could not transfer to an online learning context.

Somewhat contradictory to the definition of novice online educators were cases 2 and 5. Although those two educators were classified as novices to online learning, they ended up being less dependent on colleagues and required different levels of support due to their perceived self-efficacy. This was justified through the educators' longitudinal engagement with MOOC (case 2) and online professional development (case 5) design and teaching activities. They considered their familiarity with online learning formats and their associated technical skills as transferable to credit-bearing online learning design. Furthermore, those two educators' existing versatile approach to pedagogy, which was already interactive (e.g., based on case studies, active learning) was perceived by them and digital learning professionals as suitable in any learning mode with some adaptations and thus, it increased their confidence.

The abovementioned nuanced findings on educators' prior experience and readiness for online learning align with recent pandemic-related literature (e.g., Cutri, Mena & Whiting, 2020; Scherer et al., 2022). Although these pandemic studies revealed mixed results, they concluded that most of the educators' perceptions about their readiness for online learning were low. Specifically, Scherer et al. (2022) examined and challenged the common assumption that experienced educators are better prepared for online learning and teaching by surveying 731 international HE educators. As in the present research, Scherer et al. (2022) argued that this assumption should not be seen linearly, but instead, their findings evidenced a variation of readiness for online learning across participants. Educators' readiness for online learning was mostly dependent on individuals' background and educational systems and not on their years of teaching experience. Indeed, the present research can add qualitative insights supporting that educators' (a) existing exposure to online learning, (b) learning technology skills, and (c) more advanced pedagogic practice in any teaching mode, are more fine-grained indicators that contribute to (an evaluation of) educators' readiness for online learning.

Educators' beliefs about learning and teaching also framed their design decisions. Evidence from this research supports that educators' educational beliefs and priorities were dynamically changing motivated by a range of connected aspects. These aspects include the changing contemporary global landscape (e.g., graduate skills required for students to excel in the

workplace, student demographics), shifts in pedagogic thinking during online learning design (see section 9.3), cumulative experience, own research, personal interests and preferences. Therefore, at an individual educator-level, design decisions were shaped by an intersectional combination of different subjective, contextual, and historical aspects and not a personal static and well-defined belief system. To this end, this thesis agrees with scholars who suggest that educators' beliefs are flexible, somewhat fragmented, and context-dependent (Markauskaite & Goodyear, 2014; Tondeur et al., 2017). Therefore, they cannot be classified in a unified belief system or based on the simplistic dichotomy of teacher-centred and student-centred.

Finally, most educators' general attitude and disposition to change and experimentation appeared to influence the way they went about decision-making. A key attitude supporting efforts of practice redefinition was to treat the online module as brand new, despite having an existing on-campus version. It was the sense of the novelty of online learning itself that appeared to act as a boundary object and motivated educators to rethink their practice and take this as an opportunity to create a more contemporary learning environment.

9.3 Expanding the object: towards holistic, multivoiced and connected approaches to online pedagogy

Chapter 7 presented a range of online pedagogic approaches and rationales as articulated by participants; some of which are already well documented in the literature of online pedagogy and/or the broader HE pedagogy in any learning mode. For example, promoting active learning, using multimedia to enhance learning and teaching, and considering students' diverse needs, among others, are key approaches (e.g., Baran, 2011; Baldwin, 2019; Martin et al., 2019). However, a noticeable pattern across the cases is the rationale and mindset behind decisions which resembled those of learning ecologies (Barnett & Jackson, 2020) (introduced in section 2.2.2.2). This is due to participants' descriptions of the design of systems of interactions among students, educators, other stakeholders, and the online learning environment, underpinned by holistic thinking and interconnections between various elements (e.g., spaces, people, tools, processes). Holism, multivoicedness and connectedness are used as more specific stepping-stone concepts that underpinned online pedagogy rationale in this section to move thinking beyond the dominant discourses in the literature.

Adopting a holistic view, which sees the world as 'an integrated whole rather than a dissociated collection of parts' (Jackson, 2019) is one of the key concepts of learning ecologies and a core design habit of mind in the design literature (section 2.2.2). A holistic approach to online pedagogy was embraced by all participants in various ways. One of the most pertinent findings was the participants' creation of a narrative that weaves a story for learning at multiple levels (whole module, weekly, bundles of activities). It signalled a departure from educators' disaggregated thinking (e.g., individual activities, content) and a focus on individual teaching session design. Weaving can be a meaningful metaphor highlighting the process through which participants create new relationships, affordances, and interactions between learning elements (combinations of activities, assessment, content, and narrative) (Jackson, 2019).

Narrative creation aimed to produce a context for authentic learning by evoking cognitive and emotional connections with relevant knowledge and professional practice. It was triggered by the perceived lack of educator physical teaching presence and immediate direction based on oral and visual cues in online learning (contradiction with past practice). To this end, participants brought their personas and expertise through creating narrative threads to scaffold and frame students' learning. As Fung (2017) argued, such an approach can be powerful to assist students with the construction of a more nuanced picture of how they relate to their discipline and the world around them, as well as their emerging sense of being and becoming. This understanding goes beyond the dominating discourse on educators' practice in the online learning literature, which emphasises the creation of a clear structure and content chunking (e.g., Kearns, 2016; Martin et al., 2019; Caskurlu et al., 2021). Nonetheless, these mechanisms were present in all the cases to create a coherent learning environment.

By adopting a holistic and connected approach to online pedagogy, participants went beyond the online module-level considerations to reflect the overarching student 'degree experience' in their decisions. Several participants drew connections of their online module and defined its positionality and uniqueness in relation to other modules within the degree. This thinking recognises the dependencies and relationships between smaller units (modules) in relation to the student experience at a more macro-level. As argued by some scholars, a degree design thinking approach that continuously accounts for the macro, meso, and micro pedagogic design elements is significant and can enrich the robustness of designs (Carvalho & Goodyear, 2018; Adachi & O'Donnell, 2019). However, it is rarely considered in routine educator design

practice that is more individualistic (*ibid*.). This research showed that the depth of such considerations was highly varied and often limited to surface levels and/or aspects that were 'cherry picked' by individuals. For example, the educators acting as degree directors (cases 2, 3, 6) were able and potentially had more agency to make wider degree considerations (e.g., assessment, design of degree community spaces). This finding may invite further thinking on how to organise design work so that these levels of design are better intertwined and not only dependent on limited individuals' fragmented insights.

A connected approach was also noticed in relation to assessment. Participants saw an opportunity to change or improve their existing approaches to assessment to be more contemporary and in line with students' professional practice. In four out of the seven cases, participants employed a similar continuous and authentic assessment approach, demonstrating an appetite for assessment *for* learning which has been seen as an effective assessment approach by key authors (Bearman, 2020). This approach encourages a learning culture shift where students are empowered to self-monitor their progress and engage with feedback cycles to improve their performance throughout the module learning journey (Winstone & Carless, 2019), rather than assessment serving the purposes of ranking, accountability, or certifying competences such as with more traditional approaches (e.g., exams, individual essays) (Gravett, Taylor & Fairchild, 2021). To this end, the often-distinct boundaries between learning activities and assessment in educators' past practice became blurred and there was a prioritisation of learning as an experience over assessment in its more traditional sense. This is a significant finding as changes in assessment have been repeatedly reported as a challenging process for educators (Scagnoli, Buki, & Johnson, 2009; Rapanta et al, 2020). Although cases 4 and 5 adopted different assessment methods from the other cases, they still focused upon the thorough integration of their two assessment pieces into the module structure, which shows a shift from a one-off assessment piece at the end of the module to a more integrated approach.

The findings of this research also demonstrated participants' attention to creating various social learning opportunities for their students to foster meaningful relationships and connections that can enhance their learning. This is line with the community of inquiry (CoI) model, empirical studies and good pedagogy principles which support a rich learning experience as one that encourages social learning through collaboration, community building,

and peer support (Garisson et al., 2001; Laurillard, 2012; Martin et al., 2019). However, an underlying thread throughout participants' descriptions was the synergy, interaction, and interdependence between the designed social learning opportunities, the ultimate goal of which was to holistically shape students' learning. Results demonstrated that participants did not only focus on formal social learning opportunities (e.g., through assessment or mandatory enactment by students) but also on the integration of informal and community-based learning opportunities as integral parts of learning. They also combined synchronous and asynchronous learning opportunities with designs that promoted different interaction patterns in scale (e.g., small group, cohort-level and network interactions) and intensity to collectively develop students. Therefore, there is an indication that pedagogic thinking may have transcended dichotomies of formal/informal learning, synchronous/asynchronous learning, and physical/material/digital towards a more complex and integrated understanding that sees the various approaches being intermeshed and contributing to the whole experience. This thinking aligns with learning ecologies (Yeoman & Carvalho, 2019; Barnett & Jackson, 2020) and current discussions on postdigital perspectives (Fawns, 2019; Macgilchrist, 2021) which suggest seeing activities and practices with a key criterion their purpose and more holistically and therefore, not in binaries. However, this was not a straightforward process and thus, the depth behind this thinking was varied and context-specific as shown during the presentation of the results.

The notion of learning space design was also prevalent in participants' descriptions, confirming its significance as discussed in more recent literature (Ellis & Goodyear, 2016; Goodyear, 2020; Gourlay, 2021; Pischetola, 2022). Learning space was used as a more abstract, yet multi-faceted concept by participants. It was used to demonstrate the complexity of decisions by bringing together the pedagogic purpose (e.g., community building, co-creation of shared outputs, inquiry), material (tools and their affordances to enable meaningful exchanges), place-based (on-campus, library, online, home), and affective perspectives (a 'welcoming' space, peer support, emotional reactions). Therefore, participants' descriptions revealed the creation of new hybrid socio-material assemblages (e.g., combinations of social, cognitive, material, place, and affective elements) for student learning which can signal a move towards more complex pedagogic thinking.

Connectedness and multivoicedness were seen in relation to different actors' positioning in the online learning design ecosystem and led to educators' role reconstruction. Findings in

most of the cases suggest a shift from singular perspectives and educator authoritative voice which was the case with on-campus prior teaching approaches towards the inclusion of and connection with multiple actor perspectives (experts, communities, student, and networks). Although educators had a core role in design and teaching, findings suggest that expertise and knowledge exchange were seen as distributed across different actors aiming to create a more rounded learning and teaching experience by exposing learners to diverse practices and people. Examples included inviting experts and alumni to synchronous sessions, recording videos with experts to embed within the modules, co-constructing narratives with collaborators (e.g., colleagues, learning designers, media producers), and encouraging students to interact with relevant networks and communities. Diversity of voices and perspectives was also achieved through the various inclusive learning strategies employed, such as the efforts to decolonise the curriculum and opportunities for students to share their international perspectives. These were considered for the first time (e.g., cases 4, 5, 6, 7) or in more depth than before (cases 1, 3) due to the multi-actor design effort that broadened the scope of the 'voices' included in the curriculum. Such a focus may be also underpinned by the heightened tension and politicising around issues of inclusivity and accessibility in universities.

In this climate, the educators' role became more multifaceted when compared with their past practice. The results revealed an emphasis on educators' roles as the co-creators of narratives, coordinators and remixers of multiple actors' voices and expertise, and resources to support the design of multivoiced learning and teaching environments. This is a significant focus which has not been highlighted in earlier literature where online educator roles were described at a higher level (e.g., pedagogical, social, technical, content expert, designer) (Badia, Garcia & Meneses, 2017; Ní Shé et al., 2019). It puts a lens on the collaborative and coordination-focused role of educators as well as the need for them to become narrators and storytellers with the ability to connect ideas and resources to ensure holistic and inclusive learning and teaching. Although this finding may be particular to the context of resourced collaborative design efforts, it can provoke further thinking about the positioning of, and the relationship between, the various HE actors, related communities, and educators.

A shift in the educators' role from being 'sage on the stage' to 'guide on the side' which is widely documented in the literature (Anderson & Dron, 2011; Baran, 2011; Ní Shé et al., 2019) was also identified in this research. Generally, most of the participants preserved a balance of

being domain experts by providing their expert feedback and being facilitators to enable student learning. In the cases where community building was regarded as a core educational goal, the roles of educators as peers/colleagues and providers of affective support were also prominent. This demonstrates a shift in educator power and positioning from being experts to intending to diminish the distance with their students by having a more equal role. These insights on the role of online educators together, enhance the current literature and have implications for the role and expectations of online educators.

Despite the idiosyncratic nature of pedagogical design and the ill-defined combinations of different learning activities by participants, a strong recognition for active learning was found. This was by repurposing the role of content for learning and prioritising active and deeper engagement with activities that address the cognitive and social aspects of learning. Participants demonstrated a particular focus on ensuring a variety of well-combined ('bundled' approach) activities that encourage, for example, inquiry, collaboration, reflection, and production. The rationale behind these choices was to expose students to diverse learning processes and experiences, which was, reportedly, broader than participants' past practices.

This focus on designing a range of activities was universal and independent of disciplinary contexts. The results presented only a weak indication of disciplinary differences which did not allow for a clear conclusion. For example, the STEM module focused on skills development and had a limited emphasis on social learning than the other modules, while the business modules had many close similarities including the assessments' design. Further research is required to examine disciplinary pedagogic differences and similarities by employing a larger sample for more meaningful comparisons. However, overall, the intention and efforts in designing diverse activities may be a significant shift for both the participants' practice and their institutions, signalling a move towards more current and purposeful learning and teaching approaches. Although the sector has long advocated for more (inter)active learning (Chickering & Ehrmann, 1996; Laurillard, 2012), it is still argued that designing deliberate active learning environments is a challenge that endures in HE. This is an insight confirmed in studies of educators' transitions to online learning during the pandemic which had little in common with deliberately designed online learning (Carrillo & Flores, 2020; Rapanta et al., 2021; Xie & Rice, 2021). A critical point for reflection and further attention may be, the deliberation behind

active learning designs. Is it a 'tick the box' exercise for HE actors, or is it indeed a need in their learning contexts?

Combined, these findings support a renewed and more complex understanding of pedagogy in an online learning context. The shifts in thinking and decisions made during design may indicate educators' re-culturation of pedagogic practice and rationale. The adopted approaches and ways of working could also be applicable to other increasingly hybrid learning and teaching contexts. However, it should be also noted that these findings do not suggest exemplary practice or that the outlined approaches can guarantee success for student learning. The below table summarises participants' (particularly educators) shifting pedagogic priorities, conceptions, and rationale in the form of contradictions with their past practice.

Table 9.1: Summary of shifting pedagogic thinking when transitioning to online learning

Historic view	New view and conceptions
A primarily session-based approach to design and teaching.	Multi-level connected learning. Employing holistic approaches to online module design and thinking about the wider ecosystem it belongs to: • Building an overarching module narrative. • Creating relationships among learning items and weeks. • Adopting a renewed and integrated view of assessment. • Developing connections of an online module with other modules within the degree and thinking about the 'degree experience'.
A more simplistic understanding of social learning: time and place bounded.	• Creating interdependent and complementary social learning activities to contribute to the whole learning experience. • Attending to the complexities of social learning and its mediation ('learning spaces' and digital tools). • Transcending dichotomies of informal/formal, synchronous/asynchronous, community/individual, cognitive/affective by building hybrid learning spaces and conceptualising how these can work synergistically.
Single educator responsibility during module design and teaching. Mostly singular perspectives.	Towards multivoicedness and epistemic diversity. • Multifaceted role of online educator: facilitator, expert, colleague/peer, narrative and storytelling (co-)creator, coordinator and remixer of multiple voices and resources, offering pastoral support. • Inclusion of distributed voices and networks to enhance the student learning experience (including inclusive practice considerations).
Focus on single activities and content.	• Focusing on the design of diverse learning activities and ensuring a purposeful blend. • Repurposing content to work in active learning structures while redefining its scope.

9.4 Expanding the person: transitioning to more deliberate and skilful learning design for the future

The socially situated and for this study's educators novel online learning design proved to expand their professional practice. Specifically, the development of a design mindset and skills, was evident in all the cases in nuanced ways, which is generally in agreement with earlier studies (e.g., Voogt et al., 2015; Horton et al., 2016). However, this research has added more detailed qualities that empirically define and refine the areas of design growth (Figure 8.2). Overall, the more guided, holistic, and social approach to designing for online learning boosted inner historic contradictions (Engestrom, 2001) with educators' past individualistic, tacit, and less systematic design approaches. The research evidence suggests that educators developed a refreshed understanding of what design is, particularly in an online learning context. This included the scope of design, design foci, the process it takes to engage with close-to expert design practice (e.g., breadth-first thinking) and familiarisation with knowledge materials that can mediate productive educational thinking. This rings true of 'know what' and 'know how' in McKenney et al.'s (2015) ecological framework for design knowledge (see section 2.2.3).

An increasing sense of preparedness and confidence to navigate complex design practice was shared by participants after the completion of their online module design and online teaching (in case studies where participants drew from more than one design lifecycles). This shows that participants' experience in online learning design acted as a blueprint and springboard for their future design practice. This finding may reveal the development of adaptive expertise (Hatano & Inagaki, 1986; McKenney et al., 2015) where design habits of mind are reproduced in new contexts by exhibiting responsiveness and efficiency. This is important as according to Goodyear, Carvalho and Yeoman (2021) capable educator-designers are the ones who can draw together the right sets of ideas, tools, data, and methods to tackle specific design problems. However, the level and depth of educators' designerly thinking remained largely self-reported evidence, drawing mainly from pandemic-related developments and/or subsequent design activities. To this end, more longitudinal insights are required to further support this finding.

Interestingly, a stronger collaborative relationship between educators and digital learning professionals (cases 1, 3 and 7), rather than the one-to-one (educator-learning designer) (cases 4 and 5), or the limited support approaches (cases 2 and 6), was an indicator for the

development of metacognitive design skills at both individual and team levels. Metacognition can be defined as educators' conscious awareness of their thought processes, self-monitoring, and being reflexive in their design practice (Flavell, 1976; Kiernan, Ledwith & Lynch, 2020). The deliberate and skilful expert designers' questioning, framing, and feedback techniques were attributed as key to such development. They moved educators through their zone of proximal development (Vygotsky, 1978) and contributed to the construction of design schemata which were then activated in participants' subsequent designs. This could be matched with the development of 'know why' design competency (McKenney et al., 2015) as it prompts justification of thinking. The findings also indicated that collective and scaffolded reflection-in-action in initial design efforts are vital for reflection-on-action in future activities. The development of collective memory and practice repertoires can act as points of collective wisdom and reference (Hakkarainen et al., 2013) in the pursuit of future shared design inquiries (section 8.2). This finding demonstrates the critical role of digital learning professionals who acted as role models and expanded educators' design habits of mind, rather than only the 'product' development (Aitchison et al., 2020; Goodyear, 2022).

This research also suggests educators' increasing awareness and appreciation of digital learning professionals and academic colleagues (peers, leadership staff) and their roles. This reflects the 'know who' knowledge of designers in McKenney et al.'s (2015) framework. Exposure to, and closer work with, multiple HE actors was only possible through the setup of the collaborative design activity. What is more, well-coordinated design actions between design partners (particularly in cases 1, 3, 4, 5 and 7) and a collegial atmosphere of support, were among the positive effects of sustained collaborative working (over several months or a year) that enabled more fluent team functioning and decision-making in subsequent design efforts. As argued by Hakkarainen et al. (2013), becoming a collaborative inquirer is a developmental process on its own. To this end, the ability of participants to work in synergy to pursue shared goals can show both personal growth and potentially a culture shift. This is useful particularly given that increasing numbers of universities are eager to cultivate a collaborative and community-based culture (Bayne & Gallagher, 2021) and move beyond the still dominating individualised academic cultures (Newell & Bain, 2018). Given the present thesis insights, there is an indication for a more connected university culture with conditions

for its realisation being a more widespread appreciation of the various university actors and awareness of when to consult relevant expertise to enhance educational practice.

Developing as leaders in an online learning design context was another interesting finding that has not received much attention in the reviewed literature. It demonstrated the value placed by lead educators on their lived experience of, and reflection on, doing online learning design. Lead educators gained a deeper awareness of the university ecosystem (resources, processes, people). They also enhanced their confidence in communicating the educational vision, shared practice tips, and addressed challenges with colleagues. Therefore, findings suggest the construction and evolution of their professional identity as (new) leaders in online learning, rather than leading from the top without having prior relevant experience or a current understanding of design practice in this context. The development of new online learning design process strategies (e.g., required resources, team composition) for improvement, as a result of reflexivity on their practice, not only contributes to educators' own growth but may also lead to advancements in the university-level design system which can be significant.

In addition to design-related knowledge, skills, and mindset, advancement in pedagogic expertise was notable in all the cases in nuanced ways. Despite the growth of online learning globally, including its widespread adoption during the pandemic, there are still educators who have reservations about its value as shown in several studies (e.g., Allen & Seaman, 2016; Czerniewicz et al., 2021; Williamson & Hogan, 2021). In this research, a conceptual acceptance and normalisation of online learning as a legitimate learning mode with rich opportunities for student learning was universal across the cases. This may show that more organised online learning design efforts, when experienced positively, can spread encouraging messages among the university community for supporting advancement in educators and university practices.

A wider and deeper understanding of pedagogic possibilities in an online medium and the development of new activities to be reused in other teaching contexts were evident across the cases. As addressed in the above discussion theme, a holistic, integrated, and connected understanding of online pedagogy was cultivated. However, as shown in the results (section 8.3), pedagogic growth and envisioning of future practice was highly personal and dependent on educators' stage of development. An explanatory pattern is that educators who had identified themselves as adopting traditional on-campus teaching approaches and were newcomers to teaching overall, re-envisioned their teaching towards blended learning and

flipped classroom approaches. This shows educators' new conceptions and purposeful combinations of teaching modalities to take advantage of affordances of place, people, and interactions. On the other hand, educators with a generally broader pedagogic repertoire moved towards flexible and personalised approaches with less binding to specific modalities. These more complex conceptions of pedagogy can act as a strong basis for further educator development and institutional pedagogic growth as the sector moves towards hybrid forms of learning which focus on giving students more choices over their learning pathways (Cohen, Nørgård & Mor, 2020; Rapanta et al., 2021; Pischetola, 2022).

Growing learning technology awareness and skills, and thus, developing a wider appreciation and competence for multimodal practices in the future, were evident in the findings. Examples provided in section 8.4 demonstrate a transition from more simplistic understandings of technology use (e.g., for conveying information) towards more creative and critical adoption, particularly in the cases of sustained collaboration between educators and digital learning professionals. Technical capabilities building (e.g., competent use of the platform) was also reported by most of the educators variously. Beyond educators' different levels of pre-existing technical capabilities that could explain this variation, the positioning of digital learning professionals played a role. In the cases where the technical implementation of team decisions was in the hands of learning technologists or media producers, there was no or limited reporting of technical skills development. Whereas in the cases where a 'coaching' or co-development approach was taken or when educators did the technical developments on their own, technical skills development was noted. This is an insight that universities should consider when building up design teams especially when the aspiration is to expand educators' technical capabilities to become confident and more self-efficient.

The impact of collaborative design can be seen from an educational sustainability perspective. Nonetheless, in this research, educational sustainability is mostly examined from potential rather than realised value as there was limited evidence in this respect. Educational sustainability is seen as the ongoing change of an educational innovation, which would continue in response to the needs and intentions of key university actors (Niederhauser et al., 2018). One of the more tangible sustainable outcomes was the continued use of new activities, assets, and in some cases, the whole online learning environment with minor adaptations in other educational contexts (e.g., similar modules, same module but different modality, re-use

by colleagues). This shows that investment in the conceptualisation of often high-quality learning environments may advance practice and be reusable in multiple contexts.

Design expertise is relevant not only in online education but in any learning and teaching context (Fawns, 2019). Therefore, the development of design habits of mind and technical capabilities outlined above are promising for supporting educational change over time. As Dorst (2019, p.125) pointed out, 'the outcome of design becomes a very flexible system with a built in, transformative teleology that keeps redesigning itself as time goes by and circumstances change.' This also speaks to participants' design of proactive mechanisms for reflection and evaluation (section 9.2.1). These mechanisms built during design can generate evidence-informed insights to allow ongoing adaptations based on new requirements. With the rapid changes in the educational landscape, a design paradigm that encourages more adaptable and creative approaches by key university actors to continuously shape their professional knowledge to fit to new situations seems to be vital, if done well.

9.5 Further reflections

This thesis set out to capture the voices and experiences of not only educators but also digital learning professionals working together towards the design of credit-bearing online learning. In Chapter 6, where the focus was placed on processes and mediating factors for design decisions, both sides of the participating actors are captured, and representative quotes are included to showcase different points. However, it could be observed that educators' voices were somehow 'louder' when describing the online pedagogic approaches and rationales behind decisions in Chapter 7. This could be an assumption made by an external reader based on the fact that the selected quotes in that chapter come primarily from educators. However, from an analysis perspective, all the themes, including Chapter 7, reflect both actor groups' data which were generally in alignment but expressed differently (e.g., specific versus higher-level, personal versus impersonal). An exception to this was assessment design decisions (section 7.5) which in the vast majority of cases, was a topic only discussed by educators.

There are several reasons behind, and interpretations for, the choice to include educators' quotes, which is useful to reflect on. First, a general observation when analysing data, specifically on online pedagogy, was that educators often provided a more specific and focused pedagogic rationale compared with that of the digital learning professionals who focused

mostly on underlying principles. This may be due to the fact that digital learning professionals work in parallel on several online module designs. To this end, during the interviews, it felt at times that digital learning professionals found it challenging to recall context-sensitive examples. Therefore, their descriptions remained at a higher level on several occasions.

Another reason behind this observation may be that educators were generally better positioned to showcase their new, shifted, or unchanged pedagogic thinking in an online learning context than digital learning professionals. This could be due to their ability to more easily identify shifts in their practice while working within their own teaching contexts. In parallel, this different level of reporting between the two actor groups might be due to digital learning professionals' familiarity and routine work in online learning design and pedagogy. To this end, it may be more challenging for digital learning professionals to share their approaches in a similar way to those of educators. This observation also reflects the different positioning of the two actor groups; with digital learning professionals working towards enabling educators' thinking and contributing to educational enhancement, while educators working towards the construction of a learning environment for themselves and their students and developing their expertise further. Digital learning professionals offered vivid examples of design processes, influencing factors, and their working relationships with educators. This aligns with their role to guide the design process, contribute with their expertise, and build productive relationships. Finally, this study's interview raw data consists of 1,046 minutes of interviews with educators and 518 minutes with digital learning professionals (Appendix I). Therefore, a level of dominance in the number of quotes from educators was to be expected; however, this is not to say that both actor group voices were not equally heard and analysed.

Chapter 10 | Conclusion

This chapter offers a summary of the key findings from this thesis. It presents its knowledge contributions and practical implications. It closes with recommendations for future research.

10.1 Summary of key findings

The growth of online learning in both research and teaching-intensive universities in the UK and globally, including the emergence of remote learning and teaching due to the COVID-19 pandemic, has intensified the need for more studies to help develop strategies for the design of high-quality online education. The underlying premise on which this thesis is based is that to better understand online learning design practice in HE, we need to holistically investigate how the key university actors – namely, educators and digital learning professionals – work together to make decisions, the factors influencing their decisions, and the nature and rationale behind their pedagogic decisions. Beyond the focus on what, how, why, and by whom decisions are made during online learning design, this thesis also examined whether and how the collaborative design contributes to educators' learning when working alongside colleagues with interdisciplinary expertise. It employed a multiple case study methodology, recruiting seven teams of novice online educators and digital learning professionals. A multi-staged (before, during, and after design) and multi-method research approach via semi-structured interviews, non-participant observations, and document analysis was used for data collection.

This chapter returns to the two research questions that framed this investigation and summarises key findings. These findings have been brought together into a visual representation (Figure 10.1) to facilitate a more rounded view. The first and main research question 'How do educators and digital learning professionals make decisions when they work together to design for credit-bearing online learning?' was split into three more specific subquestions which are addressed in turn below.

- What design processes do educators and digital learning professionals follow?

This thesis findings go beyond traditional and idealised stage-based design processes captured in normative frameworks to demonstrate the complexity and the processes that matter the most for enabling key university actors' decision-making during online learning design.

Specifically, the processes of framing and reframing played a key role and manifested in nuanced ways across the cases. Framing has received little attention in the educational literature, however, this thesis shows that it deserves wider consideration and awareness. It guided and expanded participants' design thinking, leading to the formation of novel ideas and/or the adaptation of existing approaches to be suitable for online learning. Throughout design, framing was: student-oriented, educator context-oriented (discipline, module, values, vision), and driven by digital learning professionals' expertise (theory-informed, material-mediated, design-led). Framing and knowledge sharing among participants (and other actors) enabled contextual sense-making, increasing awareness of different online learning design foci, reflection, and sometimes re-interpretation of participants' practice, which empowered participants' design decision-making. Importantly, this thesis evidenced that participants followed a forward-looking approach to design. This approach involved their proactive thinking about and design of mechanisms for gathering student insights to inform their future decision-making processes during learning facilitation and redesign. This finding invites thinking about the teaching lifecycle as an integrated whole and continuous cycles of development, rather than static, isolated, and distinct phases. Finally, design decisions were described as being made through a breadth-first and iterative process. This resonates with existing literature on experienced HE educators' (Bennett, Lockyer & Agostinho, 2017) and expert designers' (Razzuk & Shute, 2012) design practice. The adoption of this process was useful for blending and making explicit connections between different levels of design (e.g., activity, week, module, degree).

- What are the driving factors behind educators' and digital learning professionals' design decisions?

A range of interacting and interdependent factors at individual educator, team, community and network, and institutional levels, and informed by requirements of the wider education sector were presented in Chapter 6 and are illustrated in Figure 10.1 in concentric circles. As argued, focusing on the presence or absence of specific factors and characteristics may offer a simplistic view of the driving forces behind participants' decisions. Although the identified factors were presented on an individual basis to unpack key characteristics and nuances within

and across cases, CHAT proved to be a powerful framework that enabled me to draw relationships among these different factors which were elaborated on in section 9.2.

To briefly reiterate, individual educators' starting point, including their prior teaching experience, motivation, educational beliefs and values, and readiness for online learning affected design decisions (educator-level factors). Educators' values and beliefs about learning and teaching that have been formed throughout the years, or were based on their personal preferences, acted as a foundation for several decisions taken. These values and beliefs were not fixed, but flexible, multifaceted, and further shaped by sector-wide changes, such as contemporary graduate needs and new trends in global education (interaction of educators with the wider sector). Each educator's starting point also determined the value they saw in their collaboration with digital learning professionals and consequently, the way decisions were made (more or less collective). Educators with no prior experience in and perceived lack of readiness for online learning were highly dependent on input from other collaborating actors (interaction of the individual with team level). On the other hand, educators with perceived readiness for online learning were mostly influenced by individual, institutional, and wider-sector factors (cases 2 and 5) and to a lesser extent by their direct collaborators.

The interactions between educators and digital learning professionals played an important role in design decisions (team-level factors). This was expected given the setup of online learning design work to involve interdisciplinary academic and digital learning professional staff. The findings provided a detailed picture of how the different expertise and inputs of the participating actors enabled design decisions and whether contributions were given equal value. A distinction was drawn between 'influence' and 'power' over participants' decision-making. Educators exercised both, while digital learning professionals perceived their role and actions as mostly influencing decisions with only limited or no power for decisions beyond their niche expertise. This research also uncovered several team-level conditions that impacted not only the way decisions were made but also their nature (novelty and depth). These team-level conditions included providing emotional support, building a good working relationship, having trust in collaborators' expertise, and being open to feedback and new ideas. This finding confirms the centrality of relational dimensions in collaborative design.

Interestingly, diverse insights from other specialist stakeholders, communities, networks, and other work contexts were brought in, negotiated, and filtered by several digital learning

professionals and educators to shape their decisions. In this respect, this research supports the notion that educators and digital learning professionals worked as boundary crossing agents by breaking previously firmly established boundaries, such as discipline, module academic team, and academic-professional. Their boundary crossing practice was either self-driven or guided by the university's arrangements and rules for online learning design.

Institutional-level factors were also prominent in participants' accounts and confirmed the increasing top-down initiatives taken by universities to increase the quality of their educational provisions. Dedicated resources, allocated time for design, and middle leadership involvement were important factors. These factors had a mostly enabling impact on the generation and implementation of more complex pedagogic ideas (differences across the cases were discussed in section 9.2.4). Participants were working within the boundaries of university learning and teaching strategies, which turned their attention to some institutionally-valued educational principles. Newly introduced rules that were specific to online learning and partnerships with MOOC platform providers in three case studies also impacted participants' work. These new rules and partnerships created tensions between participants' pedagogic vision and practice and university-imposed directions. Overall, new rules and partnerships appeared to diminish participants' agency in making decisions to some extent, and increased complexity in their work.

- What are the pedagogic decisions educators and digital learning professionals take and the educational rationale behind those?

Chapter 7 presented relevant findings to address this research question and contextualised them within both the design and pedagogy literature in the discussion section 9.3. The outcome of this synthesis was to conceptualise participants' online pedagogic rationale and approaches as holistic, connected and multivoiced. The adoption of CHAT allowed for capturing educators' historic approaches to learning and teaching, which were then compared with the pedagogic decisions they took during online learning design. This approach added clarity and strength to this thesis findings (Table 9.1). Overall, participants' decisions were oriented towards the creation of a holistic student learning journey. They developed narratives that frame students' learning and allow meaningful connections between activities, subject-matter content, and assessment. The design of a wide range of learning activities with an active

learning rationale was also key to engaging students in different learning processes and developing knowledge and skills that are relevant for their (future) professions. Design decisions leaned towards providing students with diverse social learning opportunities in different forms (e.g., formal/ informal, collaborative/ peer-supported/ community-based, synchronous/ asynchronous) going beyond well-known divides between those forms of learning and teaching. Participants also designed activities to promote student interactions with not only their peers and educators, but also external networks, communities, and industry experts. Importantly, these interacting but different learning opportunities were seen as a network that can collectively shape student learning (see examples in 7.4).

By bringing together digital learning professionals and educators, universities typically aim for the design of high-quality online learning and the more pragmatic/technical goal of developing online learning environments to be used by students, academic and support staff. This thesis, through the second research question, examined whether and how interdisciplinary collaborative design may contribute to educators' learning and inform their future educational practice. This question was underpinned by the theoretical constructs of 'learning by design' (Koehler & Mishra, 2005; Cope and Kalantzis, 2005) and the possibility of expansive learning (Engeström, 2016). The findings presented in Chapter 8 and discussed in section 9.4 provided evidence that is supportive of the theoretical assumptions made behind this question. Specifically, three key areas of educators' development were identified: 1) a (co-)design mindset and skills, 2) a pedagogic mindset shift for an online learning context, and 3) growth of learning technology and media production awareness and skills. The degree of development of each area was dependent on educators' starting point and the quality of their interactions with their interdisciplinary collaborators.

The detailed dimensions of (co-)design mindset and skills discussed in the findings (see also Figure 10.1) were particularly enlightening. They empirically consolidate the validity of McKenney et al.'s (2015) ecological framework for educator design knowledge (introduced in section 2.2.3) and highlight the centrality of design in educators' practice by offering unique insights on specific dimensions of educator design expertise. An emerging dimension not discussed extensively in the literature was developing leadership skills in an online learning design context. This dimension draws the attention to the significance of educators with a leading role and their lived experience in the domain of online learning design. Their evolving

expertise and the potential building of a leader identity in this context allow for reflexivity and experiential awareness of complexities, processes, and required resources. Such development of leadership expertise is in turn useful when these academic leaders support their colleagues. It may also advance existing and/or longstanding organisational work patterns, norms, and processes for the design of robust digitally-mediated learning and teaching for which preliminary, yet surface-level evidence was provided by a few participants.

Collectively, Figure 10.1 illustrates the key high-level findings outlined above. The concentric circles part of the figure (left side) shows the mediating processes and interacting factors for participants' online learning design decision-making. The right side of the figure demonstrates the empowered outcomes emerging from these design processes and influencing factors regarding: 1) the online pedagogic approaches and rationale underpinning decisions, which proved to be richer and enhanced compared to educators' past pedagogic practice ('expanding the object'), and 2) the impact on educators' professional development and practice ('expanding the person').
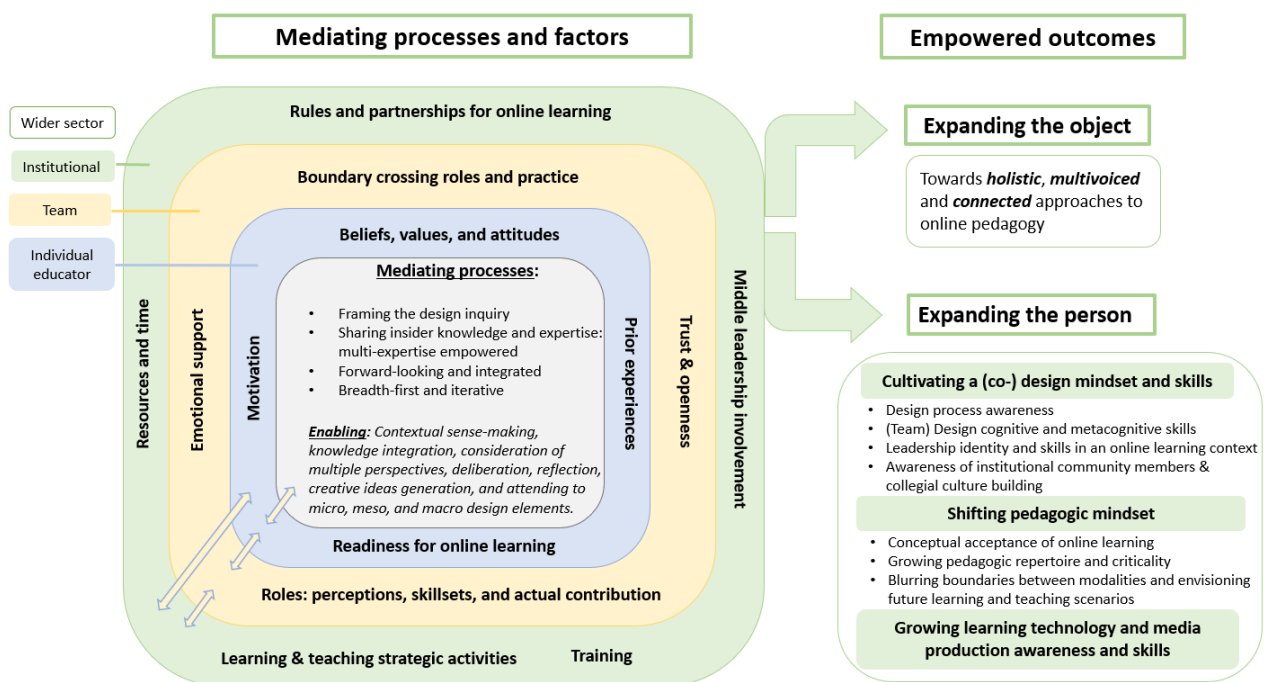

Figure 10.1: Visual representation of key high-level findings in the present thesis

Based on the above, I have answered the research questions I set, and I will now outline how this thesis contributes to knowledge, theory, and practice.

10.2 Contributions

10.2.1 Contributions to knowledge

The present thesis provides an empirically grounded and multifaceted understanding of online learning design in HE by including both educators' and digital learning professionals' voices in a single project. It contributes to knowledge by conceptualising the online learning design processes as integrated and forward-looking, framed and multi-expertise empowered, as extensively discussed in earlier sections. These conceptualisations add to existing discourse on design processes by offering practice-based orientations during design by educators and digital learning professionals.

Another contribution concerns the boundary crossing role and practice of learning designers, learning technologists, and educators. Although scholars have conceptualised learning designers and technologists as boundary crossers (e.g., Oliver, 2012; Jackson, 2020) or third space practitioners (e.g., Whitechurch, 2008; White, 2018), this thesis has offered a more fine-grained empirical view of their work when crossing different boundaries. The fact that several educators also operated in boundary-crossing roles shows their complex and multifaceted role in contemporary HE, particularly when they enter new domains of practice with new requirements, rules, and challenges. The distributed nature of online learning design and the ways decisions are made in UK universities, as evidenced in this thesis, can problematise the role and positioning of different actors and shape universities' strategies to build their preferred culture. For example, they can prompt thinking on how collaborative design and the institutional arrangements around that, reposition educators and digital learning professionals within universities and those actors' (lack of) ownership of online learning designs.

A further unique contribution to knowledge relates to the provision of a rich and contemporary understanding of online pedagogy grounded on participants' actual decisions and their underpinning. Online pedagogy in this thesis has been conceptualised as holistic, multivoiced, and connected, which resonates with, and empirically enhances (section 9.3) the current mostly theoretical notion of ecologies for learning and practice (Barnett & Jackson, 2020) in the context of online learning design. The outlined view of pedagogy is also in alignment with the key tenets of the emerging postdigital perspectives in education. Findings from this research support hybrid and complex combinations of different components (affective, material, social epistemic, technological, people's roles) at the same time that led to the

creation of new assemblages of learning and teaching activities. Therefore, the findings indicate an education paradigm that is not solely based on dichotomies and a narrow sense of learning (e.g., synchronous, or asynchronous, digital, and analogue) that focuses on individual students only. Instead, participants' insights suggest a move towards constructing an ecology of learning opportunities to holistically contribute to students' engagement and learning. This view of online pedagogy can be useful for educators, academic teaching teams, digital learning teams, educational researchers, and policy-makers as it can open up dialogue and new directions in pedagogic thinking, practice and research.

10.2.2 Implications for practice

The findings outlined in this thesis have practical implications for different actors, including individual educators and academic teams, digital learning professionals and digital learning teams, university leadership, industry partners, and researchers which are discussed in this section. Although it focused on online learning, it is acknowledged that the majority of recommendations drawn from the thesis are applicable to other learning and teaching contexts (e.g., blended, hybrid, and on-campus) and educational enhancement initiatives.

Implications for the epistemic aspects of collaborative design

This thesis has offered several micro-level mechanisms that could work in synergy to allow deeper online learning design thinking and exchanges among participating actors. These are:

- *Skilled facilitation* through continuous questioning and bi-directional feedback to scaffold decisions and allow participants' reflection and deliberation;
- *Encouraging theory-informed discussions* by bringing foci that are relevant to specific work contexts; and
- *Using various knowledge materials*, such as design mapping tools and modelling materials, to direct and inspire otherwise ambiguous and open-ended design activities.

The knowledge materials should be well-aligned with the overarching design goals and key actors' practice (particularly educators), as they may create additional burdens in their already multifaceted work. The findings highlighted that the use of knowledge materials should be combined with professional judgement instead of uncritical adoption of suggested approaches and ways of working. Moreover, some structure in design process that encourages for

example, a breadth-first approach and the use of knowledge materials, can allow the elaboration of ideas and knowledge integration among interacting actors (cases 1, 3, 4, 5 and 7). However, complex and rigidly structured design processes (case 2) may be a barrier to collaboration, and reduce educators' productivity. Findings demonstrated that design processes should be structured, but at the same time, adaptable to key actors' needs and preferred approaches.

Implications for the relational aspects of collaborative design

Useful points for reflection and practice are proposed regarding the relational aspects of collaborative design. First, collaboration was understood and enacted differently by participants across the cases. Participants' working relationship rarely met the key qualities of collaboration as reflected in the literature section 2.5.1. Instead, there were variations of collaboration or other forms of working relationships throughout the design process (see sections 5.9, 6.4 and 9.2.3 and Appendix J). These variations could act as a reflection point for both the actors involved themselves and their universities. In turn, university leadership and local academic and digital learning teams can set clearer expectations of what a collaborative relationship means and its benefits. If the vision is not collaboration, but other forms of working relationship that are a better fit for purpose to individuals/teams context-specific needs, this should be explicitly shared to set the expectations.

Second, in a similar vein, developing a more accurate understanding of key actors' roles, responsibilities, values, prior experiences, and positioning in collaborative design is key. This thesis evidenced that although digital learning professionals had an important role in collaborative design, not all of them contributed equally to decision-making, and their skillset was not always an accurate reflection of their roles. Therefore, there is a need for universities to rethink digital learning professionals' roles and implement purposeful recruitment of people with suitable skillsets who can act as change agents and operate in these highly complex and politicised roles. Findings suggest that digital learning professionals should be skilled in specific domains of practice, such as learning design, learning technology, and media production, but importantly to also have a range of soft skills. The most important attributes among others, are to be: 1) skilled facilitators (section 6.2.2), 2) able to work across boundaries by connecting diverse information and liaising with interdisciplinary actors (section 6.5.2), 3) able to

implement strategic initiatives by balancing tensions, and 4) able to build and sustain productive working relationships (section 6.4.2).

Third, in collaborative design, attention should be paid to providing educators with emotional support and creating a safe space during their transitions to new and complex educational activities. Online learning design, as evidenced in this research, can bring uncertainty, ambiguity, and stress not only to early career educators (however, there is a primary effect on those), but also to more experienced educators when undertaking new educational activities that fall beyond their immediate expertise and experience.

Towards a systemic thinking approach to online learning design and/or educational enhancement activities

The findings of this thesis provide evidence-informed insights that are useful for strategic planning for online learning and educational enhancement activities. They suggest that there is not a single solution or recipe that universities can adopt to support their key actors' in designing high-quality and pedagogically sound learning environments. For instance, formal teaching training to educators, or top-down strategic activities should not be seen as a panacea, as on their own they had only limited or no influence on participants' pedagogic decisions. Based on this research, a productive direction for strategic planning is to embrace a systemic way of thinking that combines diverse mechanisms at different levels in order to create the anticipated work culture and outcomes. Specifically:

1. *University strategic learning and teaching direction:* This thesis highlighted the need for dissemination and effective communication of learning and teaching strategic principles, values and activities. These can bring awareness and focus to important aspects of educational practice for educators and digital learning professionals to consider, apply and/or adapt them in context-sensitive ways.

2. *Middle leadership involvement* has the potential to facilitate the implementation of more complex pedagogic ideas and provide collegial feedback. Leadership style, however, should be accustomed to the team's/individual's needs and promote a supportive (e.g., cases 1, 2, 6, 7) instead of a hierarchical top-down culture that forces staff to follow specific directions (e.g., case 3).

3. *Cultivating a culture of collegiality* by providing formal structures, time, and multiple opportunities for collaboration and community-building among university actors. Examples towards this direction from the case studies included interdisciplinary collaboration for design, mentoring opportunities with experienced colleagues, and participation in innovation projects. Importantly, the potential *snowball effect of collegial interactions* to cascade practice within the university community, individual departments, and degree teams was partly evidenced. Specifically, case studies 3 and 6 show combinations of various types of collegial interactions encouraged through top-down and bottom-up initiatives which are informative for universities' future decisions.

4. *Need for organised university efforts to bring together the micro (activity level), meso (module level), and macro (degree level) elements of design*. Although the micro and meso design elements were thoroughly combined by participants, more attention to macro or degree design thinking is recommended for the design of a well-orchestrated degree learning experience, which was the study participants' vision. The degree design thinking approach can be realised with closer connection and co-decisions among degree team members (educators, digital learning professionals, leadership), to avoid the reproduction of fragmented module design and teaching by one/a few educators which is common practice at universities. To achieve this, universities require deliberate degree-level systems' planning (people involved, timetabling).

5. *Educator teaching training* should: i) be sensitive to their existing expertise and experience (e.g., early career academics may have different needs to mid-career), ii) align with contemporary educational practice (e.g., different modes of learning and teaching such as online, hybrid and blended learning), and iii) provide opportunities for engagement with authentic activities (see sections 6.6.1 and 9.2.4 for evidence). Educators' role was not only seen as this of designers, disciplinary experts, and facilitators of students' learning, but also as (co-)creators of narratives, coordinators and remixers of multiple actors' voices, guides for students' pastoral support, and peers. Based on this, training programmes can develop educators' awareness of, and suitable skills for, the effective enactment of their roles and their interface with other university and industry partners.

6. *Purposeful thinking* on how to set up collaborative design initiatives that target the *twin goal of educational enhancement and educator learning:* suitable expertise, sustained

collaboration (instead of one-off workshops), and deep design inquiry processes are important to achieve this twin goal. Universities can reflect on the nuanced findings of this research (Chapter 8 and section 9.4) and adjust their strategies to deliberately address both goals for a more sustainable and integrated educational development.

7. *Need for buy-in time*: universities should not only invest time and resources for the design of online learning, but also to downstream phases of the teaching lifecycle. In similar contexts to the present research, dedicated time for evaluation and redesign would be vital to ensure that some of the more 'experimental' approaches taken by participants to innovate are revisited and refined based on evidence-informed insights. Resources could be provided in the form of specialised staff, such as educational researchers, learning designers with research and scholarship backgrounds, or academic developers. These actors could help educators to analyse and combine different insights, make valid interpretations, and apply suitable adaptations. Training on educational evaluation to allow educators to engage with fit-for-purpose evaluation techniques and develop data literacy capability would also be useful.

Finally, this research also has practice implications for partnerships with MOOC providers for credit-bearing online learning. The misalignment between university actors' pedagogic vision with the platforms' infrastructure and the increasing complexity of design work reflected in the results can show that decisions on partnerships and/or selection of learning platforms should not be primarily based on revenue and leadership-driven reasoning and tradeoffs. Instead, on the ground educators and digital learning professionals as the core educational decision-makers in online learning should have a say in such decisions. These on the ground practitioners' educational needs, teaching context realities, challenges, and values should be considered when making these decisions. In addition, for the partnership between universities and platform providers to be productive, a close collaboration between both parties is necessary for the adaptation and co-development of platform features to match the educational vision and realities of universities.

10.3 Contextual acknowledgements

In this thesis, I acknowledge the fluidity of the domains of online learning and collaboration in design on which the focus is. I coincidentally conducted this research during a period when the COVID-19 pandemic shifted the HE sector and its key actors' experiences, expectations, and

familiarity with online learning due to the large-scale transition to remote learning and teaching. However, I had intentionally set this research so as to capture experiences of more 'typical' or supported transitions to online learning, rather than emergency transitions that might be less organised and deliberate. In addition, digital learning professionals' role during the pandemic shifted to various forms of support and work patterns with educators (e.g., provision of support through self-guided resources, ad-hoc interactions) and received a wider recognition within universities. Despite these sector-wide shifts over the past two years and the context-sensitive nature of research, this thesis as discussed earlier, offered a range of useful insights that allow reflection on current design practice and guidance for future more strategically planned efforts to support educational enhancements going forward.

Furthermore, educators and digital learning professionals volunteered to participate in this research and might have experienced the design process differently than their colleagues within their department and/or university. This is typical in case study research and qualitative research more generally. The selected participants might have been more motivated and positive towards online learning and innovation than other colleagues of them. This may explain their high engagement with online learning design and their passionate contributions to this research. The digital learning professionals of this research argued that the educators they worked with (this study's participants) were generally more open to educational change and their collaborative working relationship. They mentioned that this had not been the case with other educators they had worked with in the past, who were more resistant to change and mainly replicated on-campus teaching and learning in the online medium. Therefore, this thesis sample may lean more towards acceptance of online learning and innovation. However, I tried to tackle this potential limitation by retaining cases 2 and 6 where collaborative design did not work as intended and participants' experiences presented some differences with the other cases. This level of contextual variation may have offered a more pragmatic view that reflects some diversity of practice across university settings.

Overall, it is vital to highlight that the transferability of this thesis findings to other settings should be carefully made by considering the seven case studies' contextual information, the period this research took place, and the participants' specific characteristics (see Chapter 5 and section 4.6.1). While it was deemed to be impossible to recruit cases that account for all the combinations of interesting characteristics, this research included a variety of contexts

(universities, team compositions, design actors' prior experience, different disciplines). Despite the different contexts, there appeared to be many similarities across the cases which were discussed in detail in Chapters 6-9 and led to the presentation of findings in a cross-case synthesis account. There were also some differences, including but not limited to, influences coming from the partnership with MOOC platforms and embedded versus non-embedded digital learning professional teams. Nonetheless, given the nature and scale of this research, it was not possible to place causality with direct and clear relationships down to specific university types. The majority of the case studies (n=6) were based on research-intensive universities which may lead to the conclusion that these findings are more applicable to this type of universities. The only case study that drew from participants in a teaching-focused university was case 1 and the findings discussed had no significant differences when compared to all the other university contexts. However, there is not enough evidence to suggest that these two different types of universities (research- and teaching-focused) approach online learning design in similar or different ways, or that the factors that influence key actors' decision-making differ, as this was beyond the scope of this thesis. Therefore, future research may adopt a comparative approach and recruit a representative sample of participants around the different types of universities to identify similarities and differences that explain and shape key actors' practice in online learning design.

Another point worth noting is that the research design did not pre-specify the involvement of students as design partners within the participant selection criteria as it was naturalistic in nature. The student voice was not directly included, because in the collaborative design contexts that this thesis drew from, students were not actively involved in design decision-making. Instead, as discussed in the results and discussion chapters, the dominant manifestations of student positioning during online learning design decision-making were those of students as users and informants (throughout design), and testers in the final stage of the design process (cases 2, 4, 5, 7). This finding reinforces the current HE landscape according to which forming a collaborative partnership with students for educational development is still relatively rare in mainstream design and teaching settings (Sharpe & Armellini, 2019; Martens, 2021), or dependent on top-down university initiatives and individual educational research projects. This is despite the increasing body of literature and universities' efforts to shift the attention from perceiving 'students-as-consumers' towards

giving agency to students to become design partners and co-creators of their own learning environments (Bovill et al., 2016; Lygo-Baker, Kinchin & Winstone, 2019). Therefore, there is scope for more research and considerations of how we can enable students to become design partners and active contributors during online learning design and teaching activities to go beyond the mere consultation or representation of a single unified or oversimplified understanding of student voice.

10.4 Directions for future research

The findings of the present thesis can offer fruitful directions for further research to expand understanding in the domains of collaborative design and online learning in HE. This research revealed a forward-looking and integrated design process with participants' in-advance building of mechanisms (see Table 6.2) that collect diverse insights for use in future activities. However, it was beyond the scope of this thesis to investigate how these insights were actually collected and used, if at all, by participants throughout the teaching lifecycle(s). Therefore, a longitudinal approach to data collection that captures in detail more than one lifecycle would be informative. It would help to build a deeper understanding of the utility of these mechanisms and the insights they generate for decision-making. Such a research direction would add specificity on who are the university actors involved in the downstream lifecycle phases of online learning and what is their contribution. This proposed research direction may also contribute to the development of a framework suggesting sustainable and evidence-informed processes for continuous educational enhancement.

This thesis generated interesting insights into key university actors' online pedagogic approaches and rationales during design. However, the extent to which participants' adopted pedagogic approaches were effective or not, in terms of student learning, was beyond the scope of the thesis. Therefore, the next logical step would be to investigate the impact of these approaches on students' experience, engagement, and learning. The uniquely framed online pedagogy insights provided (holistic, connected, and multivoiced approaches) could act as a base from which to explore how such approaches are perceived and experienced from the student perspective. The insights from this thesis also call for the design of data collection instruments that are well aligned with the rationales and intentions of key university actors. Based on these findings, gathering generic insights through the use of standardised surveys, descriptive learning analytics, or observational data on student engagement with individual

activities would not be a useful approach. For example, the more generic data gathering would not allow for reflecting on the impact of narrative for learning or how the various social learning activities as a deliberate network of activities (rather than individually) can collectively impact students' learning (see examples in section 7.4). The research direction on the impact of the adopted pedagogic approaches to students' learning could also evidence the effect of collaborative design on quality learning and teaching. It may reinforce the argument that collaborative design deserves a more prominent place at universities.

To build on the findings stemming from the second research question and appreciate the potential impact of collaborative design on educators practice and educational sustainability, a longitudinal approach to data collection would be suitable to gather insights in more than one design and teaching lifecycles. This could be, for example, through observing and interviewing educators in subsequent design activities to capture the knowledge, skills, and approaches they used and what impacted their practice. It would also be useful to undertake a detailed examination of associated artifacts (e.g., learning environment, design documents) used and generated by participants to track their evolution.

Expanding the scope of the research to also examine the social and systemic impact of interdisciplinary collaboration for all the actors involved at multiple levels – individual, team, and university, would allow a broader understanding. For example, in addition to educators' expansion of knowledge, skills and mindset discussed in this thesis, more attention could be paid to the benefits of collaborative design for the digital learning professionals' expertise development as well as the wider university community. Future studies could also explore the routine and adaptive expertise that develop through and/or are required for collaborative learning design for all actors involved. These can be productive research avenues given some interesting insights surfaced in section 9.4 (e.g., the potential for a more connected university culture, the impact of co-design mindset for sustainable educational enhancement). These emerging insights, arguably, deserve further scrutiny to allow stronger evidence-based conclusions from dedicated longer-term research. For such research avenues, the value creation framework (Wenger-Trayner & Wenger-Trayner, 2020) would be a fruitful lens. This framework proposes eight cycles of value creation (immediate and potential, applied and realised, enabling and strategic, and orienting and transformative) which can be used to identify in detail the value created, or not created, over time within and across the proposed

cycles. The application of this framework could unpack the forms (positive and negative) that value creation can take and consequently, the mechanisms that enable or constrain it to support universities' decisions on the resource allocation and set up of collaborative design.

Future research could be conducted in different UK universities by using similar multifaceted foci, methodology, and multi-staged approach to data collection as the present thesis to enhance the evidence base. Importantly, it would be worthwhile to perform similar research in different countries and/or employ a comparative case study design (e.g., two UK cases and two cases from a different country) to examine similarities and differences across country contexts. Most of the studies to date, including the present thesis, draw primarily from 'western' educational contexts (Bennett, 2022). Therefore, there is significant scope for research that includes experiences of online learning design practice from marginalised and under-represented countries and contexts to enrich the field with diverse perspectives, experiences, and possibilities. Transnational studies may allow a better appreciation of macro-level influences, such as regarding the educational system, policies, key actors involved (e.g., marginal voices, inequalities, ways of working), and culture that were superficially discussed or absent from this thesis. A focus on the macro-level influences can be useful to shape educational policy grounded by empirical insights into HE actors' needs, values, and challenges.

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Appendices

Appendix A: Participant information sheet

Participant Information Sheet

Project title: Online Learning Design in Higher Education: People, Processes and Pedagogy

What is the purpose of the study?

This study will explore educators' and digital learning professionals (e.g. learning designers/ technologists, digital media producers) current practices and approaches to pedagogical design for credit-bearing online learning. Specifically, it will investigate the design and pedagogical decisions taken when designing for online learning and the factors that influence decision-making. The study will also seek to understand how the experience of designing for credit-bearing online learning may inform educators' future teaching practice. This is an exploratory study, which means that it will not evaluate online educational practice.

Why have I been approached?

You have been approached because you are a faculty member or a university professional (with expertise in design, pedagogy, media production) currently working together to design a credit-bearing online module.

Do I have to take part?

Participation is entirely voluntary. If you change your mind about taking part in this study, you will be able to withdraw two weeks following the first interview. If you decide to withdraw, all your data will be destroyed and will not be used in the study. There are no consequences to withdrawing from the study, and withdrawal will not have any effect on your work and/or relationship with colleagues.

What will be the level and type of my involvement in this study?

If you take part in this study:

You will be asked to participate in two interviews that will take place either at your office, or at an alternative, convenient location depending on your availability and preference.

1. The first **short one-to-one interview** will last approximately 15-30 minutes. At this stage, you will be asked to share some background information, your perceptions, experiences and current approaches to (online) learning and teaching.
2. The second **one-to-one interview** will be conducted once the online module has been fully developed and will last approximately 60-90 minutes. At this stage, you will have the opportunity to share your experiences in designing one online module. During the interview you will be asked to guide the researcher through your online module's site, while articulating key decisions you took during its design. This may help you to organise your thinking and provide concrete examples on the activities you designed for your learners and your decision-making process. However, it is entirely up to you if you want

to proceed with a short demonstration of your module in this way. Not demonstrating your module will not have any impact in your ability to continue with the interview. Academic staff will also discuss with the researcher how they think the experience of designing for the online module may inform their teaching practice (if at all).

3. In between the two interviews the researcher in negotiation with you and other team members involved, will identify few design meetings that the researcher can observe as appropriate and at your convenience. These **non-participant observations** will be part of your routine meetings with the university professionals/ or educators and no extra activities will be organised by the researcher. Moreover, the researcher will not participate or interrupt the flow of your meeting. These observations can offer useful insights into the considerations you make during the design, in your natural working spaces. You may be also asked to provide relevant (public) documents to the researcher (e.g. module specification and/ or documents that you may have used during the design of online activities depending on your practice). These will act as secondary sources of information to draw a more complete picture of your experiences and practices.

The interview and observations will be audio-recorded and will be transcribed for data analysis purposes. Data from observations will be in the form of field notes, and reflections. Field notes, audio-recordings and transcripts will not be disclosed to anyone besides the researcher and her supervisors. At data collection stage, all participants will be assigned a pseudonym, and no personal identifiable characteristics will be included in the data recording process. At data analysis stage, no data will hold participant-specific identifiable characteristics.

What are the possible disadvantages and risks of taking part?

Participating in this research will not bear any personal or professional disadvantage to you, and there are negligible risks associated with taking part.

What are the possible benefits of taking part?

Participating in this study allows for the opportunity to reflect on the learning and teaching approaches adopted in an online module as well as your overall educational design practices. Through this reflection, you may gain further insights into the factors that influence your decision making, as well as a more complete view of the online pedagogies that underpin your online module. It will also enable you to think about how the approaches adopted in the online module may be transferred or inspire your future teaching practice (if at all).

Will my participation in this study be kept confidential?

All information and data collected during the research will be strictly confidential and no personally, identifying information will be shared with others.

The project has been designed in adherence to BERA guidelines (British Education Research Association).

What will happen to the results of the research study?

This study forms part of a PhD research project. The raw data of this study will be kept in full until after the candidate's thesis is examined and passed. Data will also be kept for a further period for dissemination and publication purposes. The minimum retention period for research data and records is three years after publication or public release of the work of the research. After this point, the data will be reviewed with a view to full deletion when appropriate.

Data stored will be kept in a password protected files in line with Data Protection Act 1998 requirements.

The researcher will use pseudonyms rather than your real names so that it will be made sure that your identities are not revealed in any way. Moreover, no identifiable data will appear on any database or any resulting publication(s) of findings.

Who is organising and funding the research?

The research forms part of a PhD project, funded by Imperial College's Learning and Teaching strategy and hosted by Imperial College's Centre for Higher Education Research and Scholarship and Imperial College Business School.

Who has reviewed the study?

This study has been reviewed and received ethics approval through Imperial College's EERP committee.

Contact for Further Information

Miss Vasiliki Papageorgiou

Imperial College London, Centre for Higher Education Research and Scholarship and Imperial College Business School Education Office,

5th floor, Sherfield Building, South Kensington Campus

Email: v.papageorgiou18@imperial.ac.uk

If at any point you have any questions, please do not hesitate to ask the researcher at the contact details above. Your contribution to this PhD project is much appreciated.

Thank you very much for your time.

INFORMED CONSENT FORM

Project title: Online Learning Design in Higher Education: People, Processes and Pedagogy

Researcher's name: Papageorgiou Vasiliki
Supervisors' names: Dr Edgar Meyer and Dr Iro Ntonia

1. I confirm that I have read and understood the subject information sheet dated .... for the above study. I may keep this information sheet for my records and I have had the opportunity to ask questions which have been answered fully.

2. I understand that my participation is voluntary and I am free to withdraw up until two weeks following the interview, without giving any reason and without being penalised or disadvantaged in any way.

3. I understand that sections of my recorded comments and transcript text may be looked at by responsible individuals from Imperial College London. I give permission for these individuals to access this data as relevant to this and future research.

4. I am willing to have the interview and site observations audio-recorded.

5. I understand that this consent form will be kept separate from the data and that the researchers will maintain my anonymity throughout the project, including in publication.

6. I understand that data will be stored on password protected locked personal filespace until the researcher graduation at which time it will be deleted.

7. I agree to take part in the above study.

_____   _____   _____
Name of Participant   **Date**   **Signature**
(Printed)

_____   _____   _____
Name of Researcher   **Date**   **Signature**
(Printed)

1 copy for subject; 1 copy for researcher

Contact details
Researcher: Vasiliki Papageorgiou
        Email address: v.papageorgiou18@imperial.ac.uk

Appendix C: Email invitation template and project executive summary

Email Invitation template

Dear [Name],

I hope this email finds you well. I am a PhD candidate at Imperial College London conducting a study which aims to explore educators' and digital learning professionals' practices and approaches to online learning design.

Having identified that [University name] is one of the UK-based universities that offer credit-bearing online programmes, I am contacting you to discuss the possibility of you participating my research project. If you are not directly involved in online learning design activities, I would be grateful if you could provide me with useful contacts.

To give you some background information, by adopting a qualitative multiple case study research design, my study aims to: 1) explore the pedagogical decisions educators and digital learning professionals take when designing for credit-bearing online learning, 2) investigate the factors that influence their online learning design decisions, and 3) understand how the experience of designing for credit-bearing online learning may inform educators' future teaching practice. Data will be gathered through individual interviews, design meeting observations and analysis of useful documents. Please find attached an executive project summary for more information.

Please note that your participation is voluntary, and your contribution would be much appreciated. If you would like to discuss this further, I would be more than happy to meet you in person or online at your convenience. I look forward to hearing back from you soon.

Yours sincerely,

Vily Papageorgiou

Executive summary document

PhD title: Online learning design in Higher Education: People, processes and pedagogy

Researcher: Vasiliki Papageorgiou   **University**: Imperial College London

Project aims

This PhD study aims to:

- explore the pedagogical decisions educators and digital learning professionals take when designing for credit-bearing online learning,
- investigate the factors that influence educators and digital learning professionals pedagogical online learning design decisions and
- understand how the experience of designing for credit-bearing online learning may contribute to educator learning and inform (if at all) their future teaching practices.

Data collection methods

This study adopts a qualitative multiple case study research design (one online module team= one case). The researcher will seek to recruit approximately 5-7 module teams from different universities using purposive sampling method to gather participants that meet the study's criteria (more information can be provided upon request).

Data will be collected through:

- a **short interview** with each participant (approx. length: 15-30 mins) to discuss about their previous teaching and design experiences. This will be informal in nature and should be conducted as early as possible (after agreement of participation)
- an **in-depth interview** (in a one-to-one basis, approx. length: 60-90 mins) once an online module has been fully developed to capture your online learning design experience and practices.
- **non-participant observation:** depending on the way your online module team works; the researcher would like to observe few design meetings to gain insights into the considerations you make during your online learning design. Note that the project will **not** interrupt any naturally occurring meetings and/or decisions taken and it will **not** require any additional activities from participants' side.

Additional information

- This project will focus on one online module team (rather than the whole online MSc/ MA / BSc team). It seeks to recruit academic and professional staff that work together.
- This is **not** an evaluative project, and it does not seek to capture best practice in online learning. Instead, it aims to explore online learning practices that naturally emerge in university design teams.
- This project has received ethics approval through Imperial College's EERP committee and has followed the British Education Research Association (2018) ethical guidelines.

Appendix D: Short interview protocols

Short interview protocol for educators

1. Interview details

Participant:

Institution:

Module:

Date and time of interview:

Total time taken:

2. Introduction

Hello [name of participant], thank you for agreeing to participate in this study, your contribution and time is much appreciated.

As you have been informed, in this project I'm interested in exploring educators and digital learning professionals' practices and approaches to the pedagogical design for credit-bearing online learning.

So that I can concentrate on our conversation rather than take notes, I would like to record our discussion. Is that okay with you?

[Start Recording]

The aim of today's short interview is to gather background information about you as well as to capture your existing experiences and orientations on design for learning, pedagogy and learning technology. Please note that your answers should primarily draw from past experiences rather than the development you are currently involved in.

3. Background information

- What is your background?
- What subjects do you teach? What levels do you teach (UG/ PG)?
- How many years have you been teaching at university level? How many years have you been teaching the specific module that will be on the focus for this study?

4. **Training and familiarity with learning technologies**

- Have you received any training/ qualification in relation to learning and teaching in HE? What about online learning/ TEL?
- Do you use technology in your on-campus teaching? If yes, could you provide some examples?
- What is your experience in relation to online learning design? For example, have you ever designed any online module, short course, MOOC or online component(s) to your teaching (e.g., blended learning environment)?

5. **Prior experience and personal beliefs on learning and teaching**

- Could you outline the teaching and learning approaches you adopt in your on-campus teaching? / What are some core principles that guide your work as an x educator?
- What is the process you follow to design/plan your on-campus sessions?
- What do you think are the key factors that influence you decision-making when designing for student learning?

6. **Aspirations for online development and roles of team members**

- What are your motivations for developing this online module?
- How do you perceive your role in this development? What do you expect the role of other team members to be?
- What do you want to get out of the development of this module?
- Could you provide me with an overview of the online module?

Short Interview protocol for digital learning professionals

1. Interview details

Participant:

Institution:

Module:

Date and time of interview:

Total time taken:

2. Introduction

Hello [name of participant], thank you for agreeing to participate in this study, your contribution and time is much appreciated.

As you have been informed, in this project I'm interested in exploring educators and digital learning professionals' practices and approaches to the pedagogical design for credit-bearing online learning.

So that I can concentrate on our conversation rather than take notes, I would like to record our discussion. Is that okay with you?

[Start Recording]

The aim of today's short interview is to gather background information about you as well as to capture your existing experiences and orientations on design for learning, pedagogy and learning technology. Please note that your answers should primarily draw from past experiences rather than the development you are currently involved in.

3. Demographic information

- What is your background?
- How many years of experience do you have as a [learning designer/ learning technologist/ media producer] or other relevant/similar role?
- What are the subject areas of the courses/modules/degrees that you have contributed/ co-developed with academics? What levels were these courses?
- Have you received any training/ qualification in relation to learning and teaching in HE? What about online learning/ TEL?

4. **Prior experiences and personal beliefs on learning and teaching**

- How would you describe your role as a [learning designer/ learning technologist/ media producer]? What do you think is your contribution in the online learning design projects?

- What do you think is the role of other team members, from your perspective?

- What is good (online) learning and teaching for you? – Is there any difference between on-campus and online? If yes, what is this?

- What are the learning and teaching approaches you typically adopt when you design for online learning? Are there any specific approaches you follow or is it dependent on the project?

- What is the process you follow when designing for online learning with teams? Is there any specific process you have into place, or do you work based on academics approach? Why? If you use a specific approach, could you briefly describe it?

- Are there any factors that you have noticed may have influenced your decisions when working with academic teams in the past?

- What were your initial aspirations/expectations for the module under investigation?

- How do you perceive your role in this development? What do you expect the role of other team members to be?

Appendix E: In-depth interview protocols

In-depth interview protocol for educators

1. Interview details

Participant:

Institution:

Module:

Date and time of interview:

Total time taken:

2. Introduction

During this interview, you will be asked to respond to several open-ended questions that will draw from your experience when developing the online module. You may choose not to answer any of the questions. The procedure will involve taping the interview, and the tape will be verbatim. Your results will be confidential, and you will not be identified individually.

It may be useful, if you have access to the site of the online module to guide me through this, while articulating key decisions you took during its design. This may help you to organise your thinking and provide concrete examples on the activities you designed for your learners and your decision-making process. However, this is entirely up to you and the interview process will run based on your personal preference.

3. Process

- When you started designing this online module, where did you start from and why? What was the process you followed with the other team members (and individually) to design this online module?
- What did you do next? (+continuous prompting)

4. Online Pedagogy

Online module navigation along with explication of reasoning (not mandatory)

- What were the key considerations you made when designing for this online module?
- What are the key learning activities you designed in this online module? Why? (+prompting)

- How will the students be assessed? Why have you chosen this/these type(s) of assessment?

- What will be your role and interactions with your students based on this module's design?

- How did your previous experience in on-campus teaching informed, if at all, the way you designed this online module? What were the module components that you re-used (if at all) and why?

5. Influences

- What do you think has influenced the way you approached the design of this online module? Can you provide some examples on how these factors have influenced the approaches you adopted, and in what ways?

- What do you think supported and informed your pedagogical and design decisions in this online module?

- What challenges did you experience while designing the online module? What do these challenges mean to you and how did you overcome them, if at all? What were the strategies you used? How do you think they work? How do they influence your experience?

- How did you perceive the roles of the different stakeholders involved in this online module's design? / How would you describe the contribution and role of digital learning professionals during the design of this online module? What about other team members?

6. Lessons learnt and future practice

- Could you give me an overview of the lessons from designing this online module? What are your key take-aways? What have you learnt from this process if anything at all? What do you believe has supported your development (if anything)?

- What may be elements adopted in this online module that have the potential to inspire/inform your future teaching practice?

- What is one activity that you would like to experiment with in your next design for online learning?

7. Closing

Thank you for participating in this interview. I appreciate you taking time to do this. If you have any questions, please feel free to contact me.

In-depth interview protocol for digital learning professionals

1. Interview details

Participant:

Institution:

Module:

Date and time of interview:

Total time taken:

2. Introduction

During this interview, you will be asked to respond to several open-ended questions that will draw from your experience when developing the online module. You may choose not to answer any of the questions. The procedure will involve taping the interview, and the tape will be verbatim. Your results will be confidential, and you will not be identified individually.

It may be useful, if you have access to the site of the online module to guide me through this, while articulating key decisions you took during its design. This may help you to organise your thinking and provide concrete examples on the activities you designed for your learners and your decision-making process. However, this is entirely up to you and the interview process will run based on your personal preference.

3. Process

- When you started designing this online module, where did you start from and why? What was the process you followed with the other team members (and individually) to design this online module?
- What did you do next? (+continuous prompting)

4. Online pedagogy

Online module navigation along with explication of reasoning (not mandatory)

- What were the key considerations you made when designing for this online module?
- What are the key learning activities you co-designed with other team members in this online module? Why? (+prompting)

- How will the students be assessed?

5. Influences

- What do you think has influenced the way you approached the design of this online module? Can you provide some examples on how these factors have influenced the approaches you adopted, and in what ways?
- What do you think supported and informed your pedagogical and design decisions in this online module?
- What challenges did you experience while designing the online module? What do these challenges mean to you and how did you overcome them, if at all? How do they influence your experience?
- How did you perceive the roles of the different stakeholders involved in this online module's design? / How would you describe the contribution and role of your colleagues and educators during the design of this online module? What about other team members?

6. Lessons learnt and future practice

- Could you give me an overview of the lessons from this online learning design activity? What are your key take-aways? What have you learnt from this process if anything at all?

7. Closing

Thank you for participating in this interview. I appreciate you taking time to do this. If you have any questions, please feel free to contact me.

Appendix F: Observation guide

1. General information

Date:

Participants:

Module:

Stage of development and purpose of meeting:

Duration of meeting:

2. Indicative points for attention

- Organisational and human setting information
    - Who are the people participanting in the design meeting?
    - Information in relation to the meeting space, the purpose of the meeting and the design stage (e.g. initial meetings, mid-design meetings, final/review meetings).
- Design processes and roles/contributions of those involved
    - What is the design process participants follow during their design meetings?
    - What is the nature of participants interactions (e.g. problem-solving, sharing ideas and alternatives, negotiations, elaborations, feedback provision)?
    - What are participants in different roles doing and saying and what are their contributions? Who is involved in decisions? In what ways?
    - Whose voices and perspectives are heard the most/the least? Why?
    - What are the observed relationships and dynamics emerged during participants exchanges? How do participants manage tensions and disagreement?
- Design influences and reasoning during design
    - What is the basis of participants suggestions and decisions? Do they provide any justifications? If yes, what is their basis?
    - What is the role of mediating artifacts (e.g. design representational resources, research) in participants work? How does their presence shape what is done/not done?
    - Do participants refer to any institutional arrangements and rules? How does their presence shape what is done/not done?

- o Are there any contradictions or relationships with their past practice? If yes, what's this? How do they resolve breakdowns and conflicts?
- Orientations towards online pedagogy
  - o What are participants' focuses in relation to online pedagogy? What do they see as the key object of the activity?
  - o Points made in relation to the online module structure, sequencing of activities, types of learning activities, content presentation, design for interaction between students-students [social learning opportunities] and student-educators, formal-informal learning opportunities, assessment, feedback, use and role of technology.

Appendix G: Ethical considerations

Stages	How potential Ethical issues have been addressed
Prior to conducting the study	• I gained ethical approval via Imperial's Education Ethics Review Process (EERP) and other institutions (when applicable) from which participants belong to. • Since participants from 6 different UK universities were recruited, prior to their participation I gained formal written ethics approval from ethics gatekeepers at each of the participants' universities • Information was provided to (potential) participants with transparency on the data to be collected and their involvement to the research without disclosing any information or trying to persuade them to participate. • It was emphasised to participants from the early communications (recruitment stage) and at multiple stages during the research period that their participation should be voluntary and the fact that they may not want to participate would have no effect to their career or relationship with the other team members or their university. • To ensure that participants are fully informed about the study, they received well in advance a participant information sheet with all the details on the research (i.e., identification of the researcher, sponsoring institution, purpose of the study, benefits for participating, level and type of participation, guarantee of confidentiality). Throughout the research and before each data collection stage, I provided details on aims and how data collection would be conducted (time, nature of questions, activities, data recording) and allowed participants ask any questions or reject participation at any stage. • Participants were provided with a consent form that they would need to sign and return to the researcher prior to the study if they wished to participate. This was a pre-requisite condition for data collection to start and thus, I ensured that consent forms were collected and stored securely. When collecting consent forms for the study, I did not force participants to sign it. I respected any concerns expressed from the side of potential participants or lack of interest in participating.

	• Participants were also informed that they were free to withdraw their data at any point prior to anonymisation.

During data collection and analysis	• There were **no power issues**. I was polite and sensitive, introducing myself as a 'student conducting research for her PhD' to reduce any perceived power difference and the possibility of coercion. Moreover, a decision was made for educators and digital learning professionals to be interviewed separately to avoid the emergence of potential power dynamics between team members and for participants to feel more relaxed to share their experiences and the reasons they adopted specific pedagogical approaches.
	
	• During all the research phases, **participants' time and availability were considered and fully respected**.
	    ○ Interviews were scheduled and agreed based on participants' availability and on places that were more convenient for them and tailored to their needs. This was applicable to the cases of online interviewing where participants selected their preferred videoconferencing technology among the widely used across the UK universities during the pandemic MS Teams and Zoom. They also chose a time that was convenient for them.
	    ○ By recognising that the design of an online module requires a lot of effort during an extended period by the key participants, I identified in partnership with the participants the design meetings that may be more appropriate for the research and convenient for the participants to be observed. In cases where meeting observations were not possible, this was fully respected and apprehended and data were collected based on participants availability and willingness to be involved.
	
	• **Considerations for non-participant observation**: I tried to be as 'invisible' as possible to observe naturally occurring decision-making and interactions between participants by taking notes. No interventions, questioning, introduction of additional activities or evaluative comments were given to participants during observation (design meetings) that might have interrupted or distracted them from their work. Overall, this type of observation (non-participant) did not raise any inappropriate power issues. The main ethical issue that may arise from the non-participant observation is that of anonymity and

protecting the identity of the participants observed. To address this, I used pseudonyms in my field notes that were also used when communicating the data.

- **Considerations for interviews:** The first short interview aimed at gathering participants' background information and past experiences. One of its key objectives was also to build trust and rapport with participants to ensure a respectful and smooth experience for both the participants and I as the researcher. For the post-development in-depth interviews, a set of considerations was made when designing the interview questions such as to avoid the use of leading questions, prejudicial language and questions that make assumptions which are according to ethical practice. It is also recognised that potential bias in interviewing can always occur either intentionally or unintentionally. Clarification and co-construction of interpretations were made with participants through further questioning and elaboration. I also kept a research diary throughout the research to ensure that I reflect on my practice and identify potential bias, when possible, by generating multiple interpretations to explain participant behaviours.

- **Confidentiality and anonymity** of participants was ensured by using pseudonyms that protect identity at all times. All data were handled sensitively and stored securely according to Imperial College regulations. The raw audio-visual data will be destroyed as soon as possible, and anonymised transcripts have been stored separately from the key that may lead to identification. The research design, participant recruitment, data collection and analysis and dissemination stages were all handled in a professional, ethical manner following BERA guidelines.

- To reduce the potential risk of bias, I discussed interview, observational and document data along with their interpretation with my supervisors to mitigate against unconscious and conscious bias. As with all interpretive research it may be challenging to completely eliminate bias both from participants' and researcher's sides.

- To avoid disclosing only positive results and individuals' self-reports, I reported contrary findings and multiple perspectives.

Appendix H: Participant unique identifiers and pseudonyms

Case	Pseudonym	Participant's role	Unique Identifier
Case 1	Anna	Lead Educator	LEC1
Case 1	Alex	Media Producer	MPC1
Case 2	John	Lead Educator	LEC2
Case 3	Maria	Lead Educator	LEC3
Case 3	Alicia	Educator	EC3
Case 3	Matteo	Learning Designer	LDC3
Case 3	Harry	Learning Technologist	LTC3
Case 4	Mark	Lead Educator	LEC4
Case 4	Nancy	Learning Designer	LDC4
Case 5	Oliver	Lead Educator	LEC5
Case 5	Nadia	Learning Designer	LDC5
Case 6	Leonardo	Lead Educator	LEC6
Case 6	Valeria	Educator	EC6
Case 6	Karen	Learning Technologist	LTC6
Case 7	Ethan	Lead Educator	LEC7
Case 7	Florence	Educator	EC7
Case 7	Sophia	Learning Designer	LEC7

Appendix I: Further details on data collection

Cases	Number of interviews with educators	Number of interviews with digital learning professionals	Duration of interviews with educators (mins)	Duration of interviews with digital learning professionals (mins)
Case 1	2	2	135	78
Case 2	2	n/a	100	n/a
Case 3	4	3	188	161
Case 4	2	2	105	85
Case 5	1	2	69	74
Case 6	4	1	207	30
Case 7	4	2	242	90
Total	19	12	1,046	518

Appendix J: Supplementary indicative quotes

Supplementary indicative quotes for Chapter 6

- Perception and experience on levels of collaboration in design

C1	*"All of the sudden, it is more of a collaborative thing, rather than, them saying, OK I edited that, I worked on that, take a look what do you think? So, they were open, and we had all these team exchanges"* (LEC1) *"We have a constant process of feedback both ways"* (MPC1) However, a different dynamic expressed as well that denotes a less equal contribution: *"Obviously they design the course, they are the specialists in their subject, and we work closely to help them put that teaching into another form"* (MPC1)
C2	*"We are such a quite big team, lots of different people doing different things"* (LEC2) However, John worked on his own with limited, but necessary transactional and often administrative focused exchanges with other team members. The learning designer rejected participation due to her limited contribution which shows the unequal dynamic and individual educator dominance on design decisions.
C3	*"Co-collaborators, joint collaborators. So, working on this jointly"* (LEC3) - But also expressed as a support: *"the support that we have from the learning designer and the senior learning technologist has been excellent"* (LEC3) *"I need to use the skills that are out there, and it needs to be a team effort."* (EC3) *"It is very much of a partnership."* (LTC3) However, a different dynamic was expressed as well that denotes a less equal contribution: *"I try to coach and mentor them."* (LTC3) *"It is working in collaboration and enabling them to think it. Because if they think that they have invented it, and you know they may have much better ideas than I have, then, that is going to work better."* (LDC3) *"We are not the same, we are not certainly the people doing this, we are in a different place."* (LDC3)
C4	*"This module content is obviously a result of the online university team and the module leaders and key stakeholders and they're always, you know, in communication all the time."* (LEC4) *"…it's really a bit of a collaboration as a team. And like internally as a digital team as well."* (LDC4) However, a different dynamic expressed as well that denotes a less equal contribution: *"I feel like it is quite collaborative, but then I also feel like, it's probably, maybe some of the things I've sort of recommended or suggested haven't happened."* (LDC4) *"They just kind of advise if that content is good for online sometimes."* (LEC4)

C5	Educator and learning designer working within their domains of knowledge and expertise to integrate it. So, it was less about a collaborative relationship. • *"The learning designer was my single main point of contact throughout this, and we worked in partnership."* (LEC5) • *"You had the kind of you know, subject matter expertise and then you've got someone that's got the is basically an instructional designer kind of knows how to, to build these kinds of things."* (LEC5) • *"Oliver basically wanted to do the most of it himself. So, we had the initial meetings, I then sent him the module outline and guidance and he would basically fill in what he wanted, send it over to me, and then we would have a weekly catch up to go through it together. […] Then we went back to it, and he addressed my sort of more final comments."* (LDC5)
C6	Academics worked collaboratively, but they expressed the need for sustained interdisciplinary collaborative work with colleagues from the digital learning team, which was not always present, but instead, only at an *ad-hoc* basis. • *"Working as a team really helps, because you can put things into context"* (EC6) • *"I got help at the beginning. But I have to say, I would have loved to have a bit more support if that would be possible. I think personally that should be someone when you create a new course, and even with existing courses that can...I mentioned these a few times; to review, even simply looking at your, let's say, Moodle page, like we have done now, and then suggest. For example, 'you should add this or maybe you should modify that.' I know that there is now this baseline template that has been created, but I had little support throughout this design."* (LEC6) • *"We met to have an initial conversation where he talked about aims and objectives for the online degree, how many modules there would be, overall, that kind of thing. So, a little bit of a scoping meeting in which we talked about what he needed to achieve. And then subsequent to that, we had a couple of other longer meetings that you would say resource and planning, but also basic principles of learning design for the online space as well. And I didn't spend as much time with him as I had with the previous team [within their department], because Leonardo and his colleague, they were both reasonably capable with learning technologies. They are both enthusiastic teachers. And so, an awful lot of the advice that I gave them either seemed to be logical to them, and they were able to take it on board very quickly, or they were enthusiastic enough to be able to then use the framework and the guidance that I provided. And then, there would be occasions after that, where they would each have specific queries about the particular kinds of activities that they wanted to run, the tools that they wanted to use to support them, and that kind of thing.* (LTC6)
C7	• *"…it's all teamwork, as an academic team and then both with our learning designers, technologists, the managers"* (LEC7) • *"We work together as a team. But sometimes I think that's a matter of me just having slightly different opinions on maybe the teaching and learning approach sometimes. But yeah, you have to think of really strong ways to persuade them to see a real opportunity for the learners. So, you kind of push it perhaps a little bit."* (LDC7)

- Examples of quotes demonstrating the different levels (macro-micro) of expert feedback

Macro =holistic view of the module across the weeks	• *"Sometimes you get so involved in it, you don't often see the bigger picture. Because once you get to item level, you're so kind of focused in. So, that feedback is very useful."* (EC7) • *"…trying to make sure that constructive alignment is met when looking at the module as a whole."* (LDC3)
Meso =activity types and combinations	• *"…that video doesn't quite fit with the activity that you said we'll do, you know, there's a disconnect."* (LDC5) • *Digital media producer feedback on transitions and coherence between media, text and learning tasks. Feedback and suggestions are made for moving media to facilitate a meaningful and smooth learning flow. (MPC1, observations).*
Micro =activity level: wording, structure	• *"They say, okay, it will be good if you can provide some explanation or text material for this video or picture, etc. for students who cannot see it properly." (LEC4)* • *"The structure of that activity at the moment for us, when we are detached from the module and we came back to it, it's not very clear. Our students would benefit from having a little more about the objectives." (LDC3)* • *"So, whenever we say "understand", she [learning designer] would be like, "Oh, don't say understand", you know." (LEC7)*

Supplementary indicative quotes for Chapter 7 (Section 7.4: Fostering social learning)

"…discussion prompts, having regular just points, because I suppose different people like to do different things. Some people just don't care about the discussion prompts. They just want to work through and do all the work and get it done. I think even those people, if there's a discussion prompt, where they can see what other people are doing that kind of motivates people" (LEC2)

"In the middle of the week, we provide them a discussion activity and we tell them, provide your own ideas or own perspective for a certain topic. For example, for the first week, the discussion topic was like a workplace development, and it was about Brexit, and we said, "Okay, what do you think about Brexit and how it will play a role on you know, UK to its international marketing or a UK company international marketing strategy, etc. But that type of like, up to date discussion topic that we provide to students and try to let them bring their own research and own perspective" (LEC4)
"we've also got quite a few peer-review exercises where people will upload an answer and then you get other people to comment on other people's answers" (LDC5)

"So even if it is an online programme, we designed it in a way where they could meet researchers, where you expose them to more academia. So, they start to develop their own projects as well as to share those with their colleagues, be able to sort of peer review them as well. So that was really enriching as well." (EC6)

Supplementary quotes for Chapter 8 (Section 8.3: Shifting pedagogic mindset)

Changing the role of content for promoting active learning and creating a learning journey	*"The online experience actually made it really clear for me that I need to improve, and I need to create my content with a story flow. It's kind of telling a story to students. And it is better for students to learn in this way, instead of providing separate contents, that is, you know, something from that part, something from another part. It's really important for student learning that there is a flow at the background, that students can actually connect that bits and pieces that we're trying to teach them […] and I will definitely make use of them in the future when I develop a new module."* (LEC4)
	"Before I tended to overload them with talking, not because it was easier, but because I thought it was more valuable to them and they must get as much as possibly we can give them… but now I think I would definitely break down my teaching differently based on having done these online chunks. And I think I'm more concise and very much more to the point. And there's less room the stuff that perhaps is interesting to you, but not relevant to students." (LEC3)
Enhancing social learning	*"We learnt a lot about the use of language and how we formulate the tasks online. This was a key learning point for us in terms of how to actually write the tasks. So, if we would take a snapshot between this cohort when they did their very first module and now here on this module, what would you see on the first one is a lot of isolated comments and there is not a community. It would be, here is my task, I am posting here, and this is my response, move on. And if you take a snapshot of the same cohort on this final module, you can see clearly the exchanges, the interaction, the critique, the sharing of resources among them"* (LEC1)
Becoming more inclusive	*"I learned about inclusivity, and that my students who are not actually, sometimes they couldn't watch or read, etc. So, we need to think about the students for all types of experiences, or disabilities, etc. So, I learned that because previously, I wasn't thinking about that too much, right. So, I said that, okay, this is the content. But from that experience, I learned that inclusivity issues are really important. So, I will definitely keep in mind, and I need to be careful about this, in the future when I create new content."* (LEC4)
Moving from the use of the VLE as a repository to the design of richer learning spaces	*"I use the VLE for a much richer kind of experience for my students. To give you an example, I used to video capture my whole live lecture and then put that online. And that seemed reasonable, but I don't think anyone was watching them to be honest. So, now what I do, I do my live lecture but then, I will do quickly screen-captures later for the key points in the lecture. There'll be less minutes than there were in the live lecture, but there'll be a better reference. So, it's you know, how to make useful content for students, which I learnt by going online. And also, the use of different types of quizzes, thinking about…because when they're online you have to really think about how to engage them in proactive kind of learning.* (LEC2)