

Article

Designing Holistic and Multivoiced Online Learning: Higher Education Actors' Pedagogical Decisions and Perspectives

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Abstract: Higher education has witnessed continuous growth in online learning, further catalysed by the COVID-19 pandemic. Moving forward, it is important to transition from remote teaching to sustainable, high-quality and mature online learning practices for impactful student learning. This paper presents the findings of a qualitative multiple case study research that investigated the pedagogical decisions and rationales of educators and digital learning professionals in deliberately designed online learning contexts. Data were collected through 31 interviews, observations and documents from seven interdisciplinary design teams across six UK universities over an extended period. Three themes were constructed to convey key research insights including: (1) embracing a multi-level view of student learning journeys, (2) embedding multiple and diverse 'voices' and (3) creating a complex web of social learning opportunities and 'spaces'. The findings from this study offer a revitalised understanding of pedagogies suggesting holistic and multivoiced approaches to online learning. Findings pointed to the need for narrative-based approaches to online learning design, attention to purposeful hybrid learning spaces and an expansive view of educators' role. The insights presented in this paper can be enlightening for educators, teaching teams, digital learning teams, academic developers, researchers and university leadership, opening up dialogue and new directions for online learning practices and research.



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1. Introduction

The adoption of online learning and teaching within higher education has steadily increased [1]. Recent reports such as the U.S.-based CHLOE report [2] and the European annual survey [3] further evidence this trend, demonstrating a rise in the enrolment of learners in online programmes. Today's heterogeneous student population including traditional, mature and displaced learners with sociocultural differences requires sophisticated, flexible and personalised pedagogical approaches [4–6]. The COVID-19 pandemic further catalysed this move to digitally-mediated learning, 'forcing' educators to adapt rapidly to emergency remote teaching with often limited preparedness and resources to effectively navigate this new landscape and make decisions that reflect its contextual complexities [6,7]. This global expansion of online learning generates both opportunities and challenges, opening spaces for timely research, like the present, to inform the sector's transition to a more mature phase of online education. The work presented here focuses on deliberate online learning design for credit-bearing learning units. There are numerous works (e.g., [8–10]) that proffer discerning discussions on how such design work differs from responses to COVID-19 and amongst the various modalities of learning and teaching (e.g., fully online, Massive Open Online Courses (MOOCs), blended and hybrid learning).

Thorough in-advance design is crucial for online learning and teaching, given the limited opportunities for educators to make immediate adjustments and supervise students [4]. The numerous decisions made during the learning design process directly impact student engagement and learning outcomes (e.g., [11,12]). Learning design is a core responsibility of the educators, who should have developed the capabilities and knowledge to successfully enact their role [13]. Evidence clearly indicates that many lack the necessary design knowledge and digital capabilities [14] due to time constraints and work intensification [15]. Consequently, decisions are often guided by tacit knowledge and unarticulated rationales, hindering purposeful and innovative design choices that could benefit student learning [16].

The dynamic nature of online learning can prompt educators to rethink pedagogy and employ relevant teaching approaches, especially if their practices are still didactic [17,18]. 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 appreciation of the pedagogies and learners' needs in online education [14]. The existing literature has revealed inconsistencies in the quality of online degrees and there is currently limited comprehensive research on deliberately designed online learning practices beyond pandemic-focused studies [19,20]. Research into the students' online learning experiences has received ample attention (e.g., [21,22]), however, there is comparably limited understanding of the experiences of educators and digital learning professionals (e.g., learning designers, learning technologists, media producers) in designing and enacting online learning in university contexts, which the present research addresses. This is a worthwhile endeavour to understand the pedagogical reasoning behind decisions in online learning and support educational enhancement and innovation efforts.

In response to the challenges educators encounter when transitioning to, or engaging with, online teaching contexts and the demand for high-quality online degrees, universities are increasingly employing collaborative approaches to online learning design [23–25]. Collaborative design involves educators, digital learning professionals and sometimes other stakeholders (e.g., students, researchers, industry partners) who combine their interdisciplinary expertise and practices to collectively design robust online learning environments [26]. Educators contribute their disciplinary and pedagogical knowledge as well as an awareness of the students' characteristics and sector needs [27]. Digital learning professionals offer contemporary and evidence-informed insights into pedagogies and educational technologies (e.g., artificial intelligence, collaborative tools, simulations), aiming to select the most suitable approaches for specific contexts [23]. By considering the growing adoption of collaborative design, this paper investigates both the educators and learning design professionals' online learning design considerations and pedagogical decisions within a single project. This approach enhances the ecological validity of earlier studies that have often focused solely on one particular group (either educators or digital learning professionals).

In this paper, we report on one aspect of a larger study, which aimed to examine the purposeful online learning design practices of educators and digital learning designers. This paper focuses specifically on the pedagogical decisions as captured within the following research question:

- What are the pedagogical decisions educators and digital learning professionals make when designing for credit-bearing online learning and the rationale behind them?

We start this paper by presenting and connecting conceptualisations for high-quality online learning, encompassing dominant pedagogical frameworks as well as design, ecological and postdigital perspectives to education. The later perspectives can act as more contemporary framings for pedagogical thinking in digitally mediated learning scenarios. This is complemented by key empirical insights regarding online learning practices before, during and after the COVID-19 pandemic, highlighting current practices and challenges and contextualising the need for the present research. Following an outline of the methods used to undertake the research, the findings are detailed. These findings are

subsequently discussed, interpreting core themes, outlining contributions and proposing future research directions.

2. Literature Review

2.1. Conceptual Framings: Towards Ecological and Postdigital Perspectives

Scholars have developed various frameworks to convey features of high-quality online learning such as Garrison et al.'s [28] community of inquiry, Laurillard's [29] conversational framework, Redmond et al.'s [30] online engagement framework as well as rubrics and standards (see reviews: [31,32]). For example, the community of inquiry framework proposes a process for creating meaningful learning through the interdependent elements of social (learners' ability to interact socially), cognitive (knowledge construction through critical thinking and application) and teaching presence (educators' design and guidance on students' social and cognitive learning) [33]. These interdependent forms of presence are widely used to inspire learning designs and empirically evaluate the quality of online learning experiences (e.g., [34,35]). However, we contend that there is a need for studies that explore online learning practices in less bounded and normative ways to uncover novel facets to advance the field. Therefore, this section explores design, ecological and postdigital perspectives that have not originated within the online learning domain, but can inform research interpretations and practice.

Drawing upon the literature in disciplines including architecture, product and professional design that emphasise the systemic and holistic nature of design [36] can offer rich insights that translate well into the online learning design context. Systemic and holistic design involves keeping the bigger picture in mind while addressing specific micro-level aspects, ensuring that decisions made and/or artefacts developed are well-integrated into the larger systems [37]. Nelson and Stolterman [36] describe this holistic design approach 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). However, educational studies suggest that the design practices of educators are often less holistic and systemic compared to professional designers [38]. This may stem from the educators' difficulty in talking about design explicitly, and bringing the macro (degree-level decisions, wider context influences), meso (module-level decisions, multi-stakeholder influences) and micro (i.e., individual activities) elements of learning design together into a cohesive process [39].

Systemic and holistic design further resonate with ecological conceptualisations in education (e.g., [40–42]), which have recently received increasing attention. Barnett and Jackson [41] propose that ecological thinking fosters a relational understanding of education that supports students' learning across multiple contexts, with various stakeholders and communities, using resources and engaging in different activities and processes that are part deliberate and part-opportunistic or informal [41]. The educator-designer role is to integrate these elements in authentic and meaningful ways. Learners are recognised as co-architects of their learning, organically shaping their own learning ecologies to achieve their personal goals [43]; this may often be dismissed in formal educational settings where the focus is on what happens 'in-class' (on-campus/virtual) and the designed assessment tasks. Therefore, ecological thinking focuses on the relationships between learners and their learning contexts in a broad and inclusive manner, embodying notions of life and growth.

Another critical perspective that aligns with the aforementioned constructs is the postdigital. The postdigital perspective challenges the notion of online learning as being disembodied and detached from the physical and material realm [44]. It avoids binaries such as between online and offline/on-campus, technological and human, old and new media and real and artificial [45,46]. A powerful positioning is that education can never be solely online or on-campus and every teaching scenario, no matter its conceptualisation (e.g., online, blended, on-campus), should explicitly consider the inextricable links and complex hybrids of digital and non-digital, material, social and biological [45,47]. Postdigital perspectives, therefore, shift our thinking from narratives around digital technologies as

merely supplementary, or technological innovation and determinism [48,49] to critical views on the integration of digital technologies in educational scenarios. Such views are not widely established within day-to-day practice and thus can act as a useful counterpoint to current perceived experiential wisdom.

2.2. Empirical Perspectives of Online Learning Practices

Before the COVID-19 pandemic, a limited but growing number of empirical studies investigated deliberately designed online learning. Pre-pandemic studies mostly focused on the pedagogical practices of experienced or award-winning educators (mainly situated in the U.S.), aiming to provide guidelines of what good practice looks like (e.g., [50,51]). Therefore, there is scarce research offering a holistic evidence base on online learning practices representing diverse experiences across the sector. Existing studies have revealed the employment of diverse teaching approaches, with experienced educators designing synchronous and asynchronous activities to foster student active engagement and social interactions [52,53]. For instance, Kumar et al. [52] reported on the efforts of educators to empower student learning through activities such as creating digital content, engaging in peer reviews and collaborating on cross-university projects.

Another common theme is online educators' shift from less structured teaching methods to thoroughly organised course structures (e.g., [54,55]). Chunking content into smaller units and creating short videos to compensate for the absence of physical presence were also prominent approaches [50,56]. Synchronous sessions and online office hours were employed to facilitate one-to-one communication and address individual student needs [50]. Although educator face visibility and time synchronicity are prevalent, the educator's online presence can take different forms, which, as encouraged by Bayne et al. [18], requires rethinking by key actors. Despite a growing emphasis on aligning assessments with the diverse needs of students, authentic assessment contexts and leveraging digital technologies [57], several educators replicate traditional methods (i.e., exams, essays) from on-campus to online learning contexts (e.g., [58,59]), with only a minority adopting new or employment-relevant approaches. Therefore, supporting educators in reimagining assessment approaches is crucial for enriching student learning.

More recent research has explored the experiences of educators and students during the abrupt transition to remote teaching, assessing whether it facilitated any positive changes in pedagogical practices (e.g., [60,61]). For example, Gonzalez et al. [61] examined the experiences of 151 Chilean educators and found that despite the challenges encountered, they embraced various digital tools to maintain interaction, engaged with detailed learning design, established a more empathetic stance towards the students' needs and identified gaps in their assessment practices. These practice shifts were seen as valuable for the educators' continuous development of online teaching. However, studies have revealed that many educators perceived their readiness for online teaching as low [62,63] and expressed concerns about the teaching quality (e.g., [64,65]), necessitating further institutional support.

Studies indicate that when educators work in isolation to design online learning, they tend to directly transfer structure, activities, content and assessments from on-campus to online learning environments (e.g., [66,67]), which can be a suboptimal strategy [68]. During the pandemic, many educators used videoconferencing tools for synchronous sessions to replicate on-campus teaching experiences [65] and pre-recorded videos [69], while original assessments were translated to an online format with minor adjustments (e.g., [70]). Such findings show somewhat superficial and instrumental levels of pedagogical changes. However, online learning should not merely reproduce what is perceived to be the 'real' on-campus experiences. Instead, we echo Bayne et al.'s [18] view that 'digital education reshapes its subjects' (p. 146) and should be approached on its own merits with attention paid to its unique social, cultural and technological contexts and novel possibilities [45,71]. Other studies have offered an explanatory lens on the educators' pedagogical choices, reporting heightened anxiety, fatigue, frustration, grief and overwhelm brought on by

the pandemic [72], emphasising the importance of creating supportive conditions for informed and resilient pedagogical decision-making. Therefore, the existing literature shows the increased engagement with online and remote learning and teaching and offers an important empirical base on which to build. However, there is still much to explore, especially for moving on from rushed or outdated practices towards more critical and mature pedagogical practices in online learning contexts. The present research taps into this area and aims to draw a contemporary picture of the pedagogical thinking and practices in online learning, based on the educators and digital learning professionals directly involved.

3. Methodology and Methods

This study employed a multiple case study methodology [73] that focuses on naturalistic practice-based investigations without manipulation by the researchers [74]. The in-depth and context-sensitive nature of case study methodology aligned with our vision to build a rounded understanding of the pedagogical thinking and decisions of key university actors through their lived experiences. Data from seven case studies were collected by the lead researcher through 31 one-to-one semi-structured interviews and non-participant observations of design meetings. Documents including design artefacts, module descriptors and learning and teaching strategies acted as secondary data sources to corroborate the evidence. The data collection period was between June 2019 and November 2020. While part of the data collection overlapped with the COVID-19 pandemic, this research excluded emergency transitions to remote learning and teaching [10] and solely focused on deliberate efforts to design modules within online degrees. This research took place in the United Kingdom where online learning was a relatively new endeavour for many universities or specific departments/schools that embarked on a journey to increase their online learning provisions during the data collection period.

3.1. Participants

Data were collected from seven design teams at six UK-based universities engaged in ongoing online learning design and teaching activities. A purposive sampling strategy was employed to recruit participants with relevant experiences and perspectives to maximise what could be learnt [74,75]. To this end, the participants were recruited on the basis that they: (1) were working within an interdisciplinary team consisting of educators and digital learning professionals, (2) focused on credit-bearing online learning (excluding MOOCs and remote teaching) and (3) were in the process of designing the online module(s) to move beyond a one-off retrospective interview data collection to enrich the existing literature. Disciplinary diversity in participants was also sought, as were years of teaching experience, roles and institutional contexts (see Table 1). Seventeen participants were included, of which ten were educators and seven were digital learning professionals in various roles. Ethical approval was granted from all institutions involved. Table 1 provides a summary of the selected case and participant characteristics. Participants and their universities were not identified to preserve confidentiality and a pseudonym was assigned to each participant.

Table 1. Case studies and the participants' characteristics.

Case Study	Pseudonym	Participant Role	On-Campus Teaching Experience	Online Learning Design and/or Teaching Experience	Disciplinary Cluster and Area of the Online Module	University Type
1	Anna Alex	Module leader Media producer	6–10 years 11–15 years	1 year 3 years	Social Sciences (Education)	Teaching-focused
2	John	Module leader and degree director	11–15 years	0–1 years	STEM (Computing)	Research-intensive

Table 1. Cont.

Case Study	Pseudonym	Participant Role	On-Campus Teaching Experience	Online Learning Design and/or Teaching Experience	Disciplinary Cluster and Area of the Online Module	University Type
3	Maria	Module leader and degree co-director	6–10 years	1st time	Health and Social Care (Social Policy)	Research-intensive
	Alicia	Module co-leader	6–10 years	1st time		
	Matteo	Learning designer	n/a	4 years		
	Harry	Learning technologist	n/a	4 years		
4	Mark	Module leader and deputy degree director	0–5 years	0–1 years	Social Sciences (Business)	Research-intensive
	Nancy	Learning designer	n/a	6 years		
5	Oliver	Module leader	6–10 years	0–1 years	Social Sciences (Business)	Research-intensive
	Nadia	Learning designer	n/a	2–3 years		
6	Leonardo	Module leader and degree director	11–15 years	0–1 years	Health and Social Care (Medicine)	Research-intensive
	Valeria	Co-module leader	0–5 years	0–1 years		
	Karen	Learning technologist	n/a	10 years		
7	Ethan	Module leader	0–5 years	1 year	Health and Social Care (Medicine)	Research-intensive (same university as in case 5)
	Florence	Module contributor	0–5 years	1 year		
	Sophia	Learning designer	6–10 years	3 years		

3.2. Data Collection and Analysis

One-to-one semi-structured interviews ($n = 31$) were conducted in two phases. Phase one interviews took place at the earliest possible stage of the online learning design process and resembled a natural conversation (mean duration: 33 min). The aim was to gather each participant's past experiences, pedagogic conceptions and practices to build a contextually rich understanding and rapport with the participants. Phase two in-depth interviews (mean duration: 66 min) were implemented once the participants had fully developed one (or more) online module(s). Interview protocols with open-ended questions were designed to elicit rich descriptions and explanations of significant characteristics and assumptions regarding the participants' pedagogic design decisions and practices (see Appendix A). To further enhance the participants' retrospective insights, a stimulated recall strategy was employed during the phase two interviews. Stimulated recall serves as an introspective research procedure prompting participants to revive their experiences through a 'think-aloud' approach. It can facilitate participants' thinking, enabling them to justify their actions at a given time through the provision of examples from their practice [76]. Study participants navigated the online module they designed while articulating their decisions, dilemmas and underlying rationales. Notably, fourteen out of the seventeen participants took part in both interview phases, while three participants completed one interview that combined the two phases due to their preference and/or challenges faced during the pandemic. All interviews were recorded and transcribed verbatim for analysis.

Between the phase one and two interviews, non-participant observations of team design meetings were conducted to gather in situ data on participants' authentic thinking, which may not have been fully captured through the interviews alone [73,74]. Although all the interviews and observations were planned to take place in-person, the pandemic lockdown restrictions necessitated rescheduling data collection activities for remote implementation (via Microsoft Teams or Zoom). This shift to remote data collection was considered reasonable and maintained research integrity.

Thematic analysis [77,78] served as a flexible method for synthesising empirical data, enabling the examination of the perspectives of diverse participants from multiple sources. Braun and Clarke [78] delineated three distinct approaches to thematic analysis: coding reliability, codebook approaches and reflexive analysis. The former two, reliant on structured coding approaches or multiple coders for a more 'accurate' coding process, were deemed less suitable for our research due to their rigidity. We therefore adopted reflexive thematic analysis, which aligned with our aim of organically and holistically exploring key themes and patterns across the dataset and uncovering unexpected insights to advance

the field [78,79]. This method acknowledges the uniqueness of each researcher's analysis outputs, emphasising that descriptions, narratives, and discussions should not be seen as straightforward representations of reality. Although some scholars view subjective meaning-making and openness to multiple interpretations by situated researchers as weaknesses, reflexive thematic analysis considers these as valuable resources [78]. A potential drawback of reflexive thematic analysis is its time-consuming and resource-intensive nature; from our perspective, however, this approach allowed us to embrace the richness and nuances of the data collected, aligning with the interpretivist paradigm we adhered to in this research.

An inductive approach was employed for analysing and coding the data, which was conducted in two levels: (1) within each case study, treating each case as a whole study [73] and (2) across cases by combining and synthesising the findings of the seven cases to strengthen the research. The six phases of the thematic analysis process—data familiarisation, codes' generation, themes identification, themes refining and defining and report production, as defined by Braun and Clarke [77,78]—were broadly followed. Transcripts from all interviews, observations, informal discussions and documents were analysed both manually and using NVivo 12. An iterative analytic process led to the construction of initial themes that were revisited and refined to provide a more coherent set of themes. A comparison between the two interviews with each participant was also conducted to increase clarity of the data by tracing shifts in the participants' pedagogic mindset over time.

Three key themes were developed as part of the data analysis, which are explored in the next section using illustrative quotes to highlight core components. Despite the variety in cases, commonalities in the participants' pedagogical approaches and underpinning were remarkable and therefore, we present the findings in a cross-case synthesis account.

4. Findings

4.1. Embracing a Multi-Level View of Student Learning Journeys

Participants across case studies appeared to approach the design of online modules as creating student learning journeys with interconnected pedagogical considerations made at multiple levels: micro (activity level), meso (module level) and macro (degree experience), which are elaborated on in the following sub-themes. These sub-themes are presented based on their centrality as perceived by the study participants, rather than following a hierarchical order (e.g., biggest to smallest units).

4.1.1. Crafting Module-Level Narrative Threads

All participants acknowledged that the design of an online module required more preparation and careful structuring compared to their on-campus teaching. However, most of them went beyond this thinking to also develop an overarching narrative and/or used storytelling techniques to frame the online module as a whole:

'The online experience made it really clear for me that I need to improve and create my content with a story flow. . .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. . .It is better for students to learn in this way, instead of providing separate contents.' (Mark)

'We built the structure of the learning around how they [students] 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. I believe the best teaching is when you're using a story, a kind of journey you're taking students through.' (Oliver)

Participants put emphasis on constructing the module's narrative(s) to ignite the students' motivation for learning, drawing upon elements that resembled real-life situations or engaging storylines. Educator-participants identified this approach as being overlooked in their on-campus teaching. Many described existing approaches as predominantly fo-

cused on a list of loosely connected topics/theories/concepts inherited by past module leaders and an attention to individual teaching sessions. The illustrative example below demonstrates John's transition from teaching programming techniques through individual standalone examples to building two large applications (currency trading and multimedia systems). These applications served as contexts for teaching different techniques while also integrating activities and assessments within this new module structure:

'Before there was no overall picture of why you need to learn all these things. Now the way the module 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.' (John)

4.1.2. Adopting an Integrated Approach to Activities' Design and Assessments

The participants' descriptions revealed a bundled approach to the design of learning activities that involved the purposeful combination of two or more learning items (e.g., in-text content, video, activity, reflection point) to enable the development of a coherent student learning journey:

'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, to get them to re-reflect on it if they change any of their behaviour. So, it's that sort of iteration of thinking.' (Maria)

This approach was observed during design meetings, where team members regularly examined and refined the connection between learning items to ensure smooth and meaningful transitions among activities. The articulation of a transparent rationale behind learning items shared with students was a key strategy bringing the activities together: *'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?'* (Maria). The activities themselves were diverse including the students' engagement with quizzes, investigative tasks, group activities, reflection exercises and projects involving the creation of (shared) artefacts (e.g., presentation, video).

'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 be, thinking about your own discipline, we would like you to go away and investigate xyz, or talk to someone or do an interview, or take an image and post that.' (Anna)

Activity-based structures were prominent in the participants' descriptions. A shift in the role of content for learning and teaching was also experienced by most educators, who described their previous approaches as predominantly content-driven. This shift prompted educators to be more critical in selecting content to add value to the students' learning, an approach they preserved in their teaching in any modality: *'... 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 that are connected'* (Mark).

Regarding assessment design, for most participants, their transition to online learning presented an opportunity to rethink their assessment methods to be more contemporary and better integrated into the module learning journey. Notably, in four out of the seven case studies, the participants adopted a continuous assessment strategy. They deliberately broke down the assessment into smaller parts mapped against the structure of the online module to allow the students' effort to be distributed throughout the 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 intensively trying to do something at the end'* (John). John exemplified a fully integrated assessment approach by designing the summative assessment to be an extension, in terms of its scenario/framing and aim, of the two real-life

applications he used in his module, showing continuity and encouraging more advanced problem-solving. Similarly, Anna described the module's assessment as neatly embedded in the module structure and resembling professional practice:

'...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.' (Anna)

The reasoning behind this choice was for the educators, and sometimes peers, to provide in-between formative feedback so that the students could gradually enhance their subsequent actions. Maria articulated that feedback cycles are a pivotal part for students monitoring their own progress in a more manageable way and offering equal development opportunities for all students regardless of their diverse starting points.

4.1.3. Considering the 'Degree' Learning Journey

Several participants stepped back from their individual modules and considered them in relation to the overall student online degree experience. Anna, John, Leonardo, Maria and Valeria emphasised the need to create connections with other modules and develop student skills that were needed for subsequent modules:

'In terms of the whole program design, the core modules build the foundations for the optional modules that come next. There's a real overarching design in how things are arranged so that they speak to each other.' (Maria)

The participants with a degree-level leadership role further explained the different assessment methods developed in the various modules of the degrees by considering and ensuring their diversity and evolution throughout time. Additionally, digital learning professionals worked concurrently on multiple online module designs with module teams/leaders of the same degree. They offered cross-module perspectives that promoted, for example, the design of varied learning activities instead of repeating similar types across the modules. They also sought to space assessments to prevent students from experiencing assessment overload and anxiety within a single semester. Digital learning professionals also had regular exchanges with their colleagues to make decisions that considered the whole degree learning journey: *'...this is not only one module that lives in isolation, but this is a whole program of study. So, adopting good practices from other modules and ensuring a good range of activities was key.'* (Matteo).

4.2. Embedding Multiple and Diverse 'Voices'

The narrative flow across weeks of learning and the connectivity between activities within an online module were primarily created through team brainstorming and the synthesis of ideas between educators and digital learning professionals: *'We were looking for analogies, metaphors, things that allow the students to connect this new learning with their previous knowledge. We had a conversation back and forth about a creative way to frame those ideas'* (Alex). Participants highlighted that they deliberately brought in other external 'voices' to enrich the students' learning experience: *'We have a constant group of people, who are reflecting throughout, and you can follow their journey'* (Anna). These included industry experts, practitioners, other specialist academics and alumni who were introduced through videos and live sessions to expose students to multiple and expert perspectives and their diverse experiences. These external 'voices' were positioned in suitable parts within the already well-engineered narrative to add value to student learning.

'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. We invite previous students to come in to present their work.' (Ethan)

The inclusion of global-minded content that reflects a range of cultures, knowledge and value systems to offer relatable materials to international students and expose students to diverse perspectives was notable in four case studies. This practice was previously uncommon among the participants, who shared their efforts in selecting content and avoiding bias towards specific authors, cultures, or countries.

'Instead of just providing all the American or European examples, we are now trying to enrich it and provide more inclusive examples and cases from different parts of the world. And it's really important for our programme because more than half of people are coming from Asia or the Middle East.' (Mark)

In cases 1 and 6, the participants went as far as choosing culturally inclusive imagery so that they did not privilege certain groups and ensuring truly diverse voices for the videos they developed: *'...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'* (Alex). Creating opportunities for students to share their personal experiences on specific topics to celebrate their cultural and international traits and diversity and allow for cross-cohort fertilisation of knowledge were also 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. It's very important that they learn to respect each other's views'* (Maria).

4.3. Creating a Complex Web of Social Learning Opportunities and 'Spaces'

Participants placed significant emphasis on envisioning and creating numerous opportunities for social interactions not only among students but also between educators and students, as well as between students and other communities or learning networks. Participants provided a range of examples of discussion-based activities, peer reviews and collaborative activities embedded for asynchronous engagement based on students' time and pace as well as in synchronous online sessions on a weekly basis. They described a shift in the role of synchronous sessions from traditional, mostly didactic lectures to featuring group activities and whole-class discussions. This change aimed to maintain immediacy and live interactions among 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'* (Ethan).

Notable was the rationale behind the design of activities aimed at fostering online communities, integral to the students' learning experiences. For instance, Maria and her colleague (degree co-director) developed cohort-level weekly synchronous sessions, described as a 'hybrid space'—informal in nature yet formally timetabled. These sessions aimed to facilitate the sharing of research interests, offer feedback on learning experiences and address student concerns promptly.

'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.' (Maria)

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'*.

While each social learning activity served a distinct educational purpose, participants viewed them collectively as having the potential to enrich the student learning experience. Remarkable were the participants' descriptions of new socio-material learning and teaching configurations. For instance, Anna highlighted the fusion of:

- Constant group work: the online module included a substantial group formative assessment, requiring students to work within assigned groups throughout the module.

Each week, these groups had to engage with smaller tasks, ultimately contributing to a cohesive project by the module's end.

- Diverse discussion and group-based activities where learners could exchange their perspectives with other peers at a cohort-level synchronously and asynchronously.
- Interactions with professional communities and networks that were 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'. (Anna)

This rationale was expanded by considering the places and spaces that students could enact them in. The below quote demonstrates a view that privileges flexibility to allow 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 SharePoint, you know, a collaborative space, that is entirely up to them'. (Anna)

The selection of appropriate digital tools (e.g., Padlet, Anwegarden, Microsoft Teams) that could facilitate the designed social learning activities was discussed as another layer of considerations, with digital learning professionals playing a critical role in this during the design. The participants' accounts revealed a mutual shaping between the affordances of technological tools and the pedagogical rationale of activities. For instance, in case 1, Anna shared the use of a new platform function called 'study groups', which was perceived as promising for addressing the challenges related to online group work engagement. This function offered unique features compared to other digital tools, allowing a reimagining of online group work including: (1) a time limit for student groups to complete tasks to encourage participation and clarify expectations and (2) two separate spaces: a private area for group discussions, negotiations and the synthesis of responses, and a public space where group outputs were shared with the entire cohort by the specified deadline. A few counterproductive examples were shared by Florence, who perceived the platform features as insufficient for the implementation of the team's envisioned activities.

Participants utilised the notion of 'learning spaces' to elucidate the nature and boundaries of the varied learning experiences they aimed for student engagement. The following quote encapsulates this idea and succinctly demonstrates the novel amalgamation of learning spaces:

'...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.' (Maria)

Case 6 provides another compelling example with Valeria and Leonardo identifying multiple learning opportunities and spaces, as illustrated in Figure 1. These spaces represent combinations of informal, formal, semi-formal, technologically-enabled, social and physical spaces to foster interactions between students and various stakeholders to enable the students' growth.

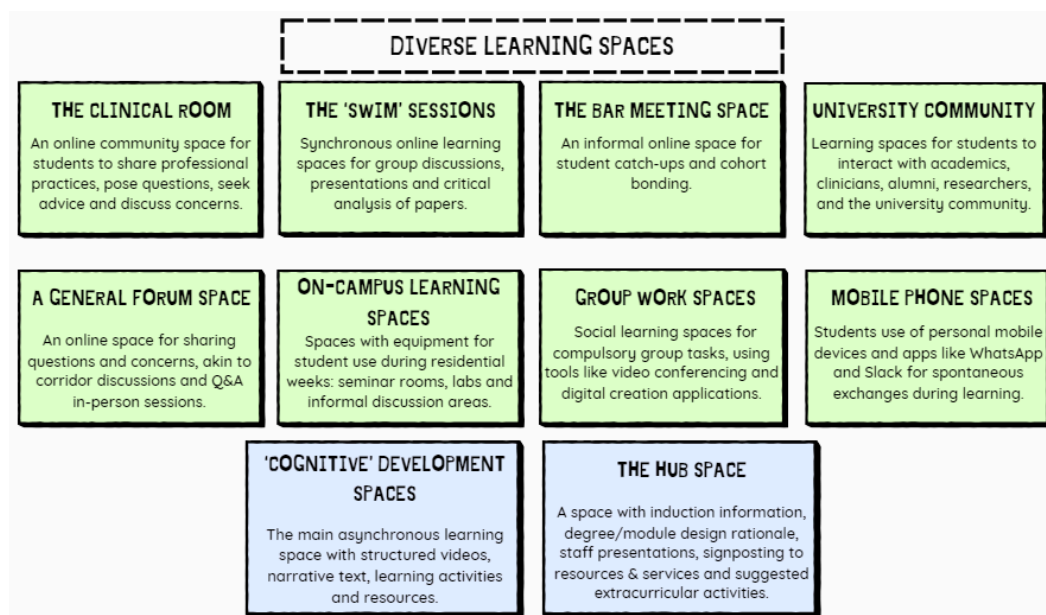


Figure 1. Example of learning spaces designed by participants in case 6 (the green squares represent social learning spaces while the blue squares individual learning spaces).

All of the participants also described the design of informal learning spaces to compensate for the loss of students' ad-hoc corridor discussions or the questions students would typically ask in a lecture, workshop, or seminar: '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' (Nancy). However, they acknowledged that students often find their own ways of interacting with each other, more spontaneously and outside the designed learning spaces.

Educator-participants also outlined their role within these social learning opportunities based on the relationships they were aspiring to cultivate with their students. All educators highlighted their roles as facilitators for monitoring and guiding students' interactions to create a collaborative and community-based culture:

'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.' (Mark)

Educators also perceived their role as experts through providing feedback. Participants placed emphasis on their role as a facilitator over expert—or vice versa—depending on the perception of their role and the purpose of each activity. Some participants underscored their role as peers. They recognised that the reciprocal learning opportunities inherent in the student–educator relationship were particularly applicable to their teaching contexts where students were working professionals: 'We wanted to develop it in a way that the students could learn from us, and we learn from them' (Valeria). Finally, in four case studies, the participants articulated their role as involving responsibility for creating a safe learning environment for students and offering pastoral support. This was achieved through creating visually appealing and inviting learning spaces and resources and adopting a conversational tone in the videos and other communication channels. Role-modelling, by sharing personal stories in sensitive areas to encourage student engagement and establish a deeper connection, was another example: 'The way that we support learning online, 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.' (Anna).

5. Discussion

It is well-recognised that the successful implementation of online learning is multidimensional, context-dependent and requires multi-actor productive collaborations [55]. By

investigating the deliberate efforts of educators and digital learning professionals working together to design credit-bearing online learning, this study's contribution lies in the advancement of the sector by building evidence beyond 'speedy pedagogies' [80] and educational developments that are, perhaps, less thoughtful and driven mainly by reactionist augmentations, especially notable during the COVID-19 pandemic [65].

In our study, we found that participants engaged in multi-level thinking when designing their online modules, while the notion of connections was evidenced across our findings. In this discussion section, we examine our key findings through the lens of connections at multiple levels (see Figure 2). Furthermore, we use the concepts of holism and multi-voicedness to paint a comprehensive picture that represents our participants' pedagogical approaches and rationales and to move our thinking beyond the dominant discourses grounded in communities of inquiry [28] and normative principles of online learning.

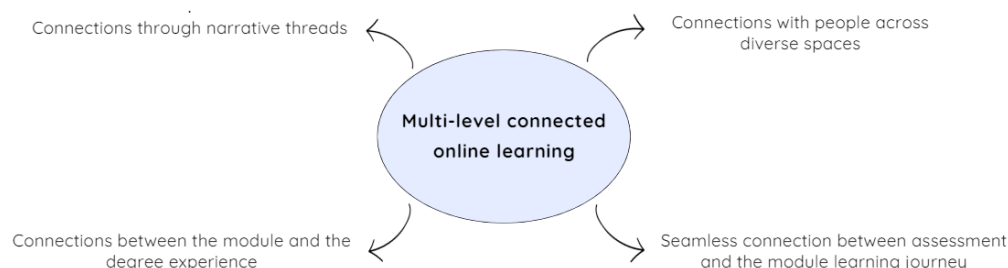


Figure 2. Four overarching discussion themes representing participants' pedagogical considerations and decisions during online learning design through the lens of connections.

5.1. Connections through Narrative Threads

One of the most pertinent findings in our study was the participants' creation of narrative threads that wove a story or stories for learning, signalling a departure from the educators' disaggregated thinking (e.g., focus on single teaching sessions, individual activities or content) towards holistic learning journeys for students. Weaving can be a meaningful metaphor [81], aptly describing how the participants established new relationships, affordances and interactions between different learning components at multiple levels including module-wide, weekly and activity-level. Embracing a holistic module view, the participants leveraged their personas and expertise to develop interesting and context-sensitive narratives to scaffold students' learning and evoke cognitive and emotional connections with relevant knowledge and professional practices. Such an approach aligns with the conceptualisation of learning ecologies [41] and can be powerful in assisting students construct a nuanced understanding of their discipline as well as their emerging sense of relating, being and becoming. Unlike the current literature's predominant emphasis on the educators' creation of clear structures and content chunking [50,51,56], this paper evidences narrative-based approaches to online learning design, developing the overall debates for practitioners and researchers.

5.2. Connections between the Module and the Degree Experience

Our analysis illuminated how the participants' pedagogical decisions did not only reflect the online module they were designing, but also the overarching student 'degree experience', recognising the interdependencies and relationships between smaller (i.e., module, a week of learning) and larger (i.e., degree, communities) learning units. Yet, the depth of such considerations varied across cases and was limited to aspects that were 'cherry picked' by individuals. These individuals were educators with leadership roles who had oversight and more agency to make wider degree-level decisions and digital learning professionals. Less experienced educators, not accustomed to such considerations, benefited from team exchanges, making new connections between a module and the students' broader learning experiences. This suggests that creating teaching teams consisting of academic staff with varied levels of experience can be a fruitful approach, enabling the

consideration of multiple perspectives and fostering educator professional growth. The role of digital learning professionals was also crucial in this respect, as they facilitated collaboration and knowledge-sharing across various online modules within the same degree as well as with other stakeholders within and beyond the university (for further details, see Papageorgiou [82]). Overall, the interdisciplinary collaborative design context enabled the generation of otherwise unknown insights to the teaching teams. Notably, there were indications that the participants surpassed traditional boundaries such as individually owned modules versus module teaching team responsibility and looking at the 'degree experience', individualistic versus collaborative learning design, and academic versus professional, contributing to a shift in culture.

This finding aligns with, and contributes to, the argument by scholars that a degree design thinking approach that continuously accounts for the macro, meso and micro elements can enrich the coherence and robustness of learning designs and student learning (e.g., [39,83]). Therefore, it shows a positive step towards the direction of degree design thinking, which is typically overlooked in the educators' routine design and teaching practices. It further invites deeper thinking on how universities can organise meaningful learning design activities (e.g., degree-level system planning, people involved), irrespective of delivery mode.

5.3. Seamless Connection between Assessment and the Module Learning Journey

A holistic and connected approach was also noticed in relation to assessment design with the participants reimagining or enhancing existing assessment methods to better reflect contemporary professional practices and societal needs, which supports recent calls in the literature [84]. The continuous and authentic assessment approaches taken in more than half of the case studies demonstrate an appetite for a learning culture shift, empowering students to self-monitor their progress and engage with feedback cycles to improve their performance throughout the module [85]. The often distinct boundaries between learning activities and assessment in the educators' past practices became blurred, prioritising assessment as a learning experience. This approach contrasts with traditional assessments, such as exams and essays, which often serve purposes of ranking, accountability, or certifying competences [86]. This finding is noteworthy considering the repeatedly reported challenges that educators face in assessment change processes both before and during the pandemic, where many educators engaged mostly instrumentally with the digital and assessment redesigns [70].

5.4. Connections with People across Diverse Spaces: Multivoiced Learning and Educators' Multifaceted Roles

Our study highlights the participants' commitment to creating diverse social learning opportunities and cultivating meaningful relationships for high-quality learning experiences. An underlying thread throughout the participants' explanations that is worth further scrutiny was the synergies between the various social and distributed learning opportunities they designed for online students. The evidence suggests that participants more deeply considered how to shape the students' learning, transcending dichotomies of formal versus informal learning, synchronous versus asynchronous learning, and physical versus digital. The participants developed a nuanced and integrated perspective that recognised the interwoven nature of approaches, contributing to the student learning experience collectively. This insight may mark a departure from simplistic distinctions between different modalities and empirically enhances the mostly, thus far, theoretical conceptualisations of learning ecologies [41] and postdigital perspectives [46,47] within the context of online learning design.

Within this frame, participants used 'learning space' design as a more abstract, yet dynamic and multifaceted concept to convey their decisions and the multiplicity of opportunities designed for their students, confirming its significance as per the recent literature (e.g., [87,88]). The participants' articulations revealed the creation of new hybrid

socio-material assemblages, bringing together the pedagogical purpose (e.g., community building, co-creation of outputs, inquiry), materials (tools and their affordances to enable social exchanges and learning), place-based (on-campus, library, online, home) and affective perspectives ('welcoming' space, peer support). This finding indicates more complex pedagogical designs and rationales, calling for further investigations in the sphere of hybrid learning spaces in online education; specifically, how they are designed and the patterns of use by students (or lack of). However, surfacing such deliberate considerations put into question the general assumptions about learning spaces. Arguably, the return to on-campus teaching activities may move online, and hybrid teaching models back into a separate mode.

Our findings support a shift from well-reported singular epistemological frames of thought such as 'Western' knowledge [89] and the authoritative voice of individual educators that is still prevalent in their on-campus teaching practices [90]. Instead, educators increasingly include the viewpoints and practices of diverse actors, showing an appreciation for distributed expertise and the students' exposure to epistemological plurality. Examples included involving diverse experts and alumni in synchronous sessions and/or videos, co-constructing narratives with digital learning professionals and colleagues, efforts to internationalise the curriculum and encouraging student engagement with relevant networks and communities. Gravett's recent study [91] also supports the value of incorporating different voices in learning designs, drawing on a series of videos developed by a teaching team for a private online course that collated perspectives from multiple stakeholders. Gravett [91] problematised the impact of the artificially cut, fragmented 'presences', and snapshots of these stakeholders' voices within online learning for both the educators and participants. Our study expands on these critical perspectives by demonstrating various approaches with the potential to enhance multivoicedness across the wider online learning and teaching ecosystem, and thus beyond the instance of 'engineered' videos. These findings offer valuable points for reflection and raise questions for examination such as: How might such multivoiced and distributed paradigms of online education shape and impact the identities and practices of the educators and students? How can professional development programs be (re)designed to support online educators' growth reflecting this epistemologically plural landscape? How do students navigate and learn in these multivoiced learning environments?

Importantly, our study indicates that the educators' role has become more multifaceted compared to past practices, particularly emphasising their roles as co-creators of narratives or storytellers, disciplinary experts, learning designers, peers, remixers of diverse voices and facilitators of multivoiced learning environments. This nuanced focus has not been explored in the existing literature to the same extent where online educator roles are often unpacked at a higher level (e.g., pedagogical, social, technical, content expert, designer) [17]. It underscores the collaborative and coordination-focused role of educators and the need to adeptly connect ideas and resources to facilitate holistic and inclusive learning environments. Two observations may be drawn from this. First, while this finding may be specific to resourced collaborative design efforts, it prompts further thinking about the positioning of, and relationship between, the various university actors, related communities and educators. It illuminates the capabilities, practices and role expectations of online educators that can inform professional development activities. Second, it raises questions about the now common approaches to decolonising and internationalising the curriculum and how this is conducted in online learning contexts where the academic voice is no longer the sole contributor in the design process.

6. Conclusions

To shed light onto the complex and evolving landscape of online education, this study explored the pedagogical decisions made by educators and digital learning professionals during online learning design. Little research has been undertaken within higher education settings that has examined the perspectives of both actor groups in a single project. There-

fore, our research offers an evidence-based and revitalised understanding of pedagogies within online learning contexts underpinned by the notions of holism, multivoicedness and connections. We found that the participants (1) embraced a multi-level view of student learning journeys, (2) embedded multiple and diverse ‘voices’ and (3) created a complex web of social learning opportunities and ‘spaces’. Our findings indicate a more mature education paradigm that is not based on dichotomies or a narrow sense of learning and teaching (e.g., synchronous versus asynchronous, formal versus informal). A shift towards designing an ecology of diverse learning opportunities that can collectively shape student learning was evidenced, which can be considered in any teaching modality.

One of the key contributions of our study is the recognition of narrative-based approaches in online learning design for increasing motivation and meaningfully framing student learning. We suggest that this insight extends beyond the current literature discourse that primarily emphasises the creation of thorough and logical course structures and is applicable across teaching modalities. This finding can also enrich the literature of learning design processes (e.g., [38,51]) by suggesting the importance of constructing overarching narratives as a fundamental element and starting point during the (re)design of existing or brand-new modules and/or degrees. However, we also acknowledge the challenges inherent in crafting imaginative and/or disciplinary context-sensitive narrative threads, underscoring the need for well-orchestrated (interdisciplinary) teamwork and time investment—a crucial consideration for universities seeking to enhance their online learning offerings. Furthermore, our research presents an expansive view of online educators’ roles. Given that more and more educators are tasked with designing and teaching in online learning contexts coupled with the increasing complexity and uncertainty in higher education, our insights that gravitate towards educators as collaborators and co-creators (see details in Section 5.4) can inform professional development programmes and institutional support initiatives aimed at enhancing teaching practices.

In conclusion, we believe that the presented research insights can be enlightening for educators, teaching teams, digital learning teams, academic developers, researchers and leadership staff, opening up dialogue and new directions for digitally-mediated learning practices.

Contextual Reflections and Future Research Directions

We acknowledge the large-scale engagement of teaching communities with online learning, particularly accelerated by the COVID-19 pandemic. Despite sector-wide shifts, we believe that our study offers valuable insights into more advanced online learning designs and associated pedagogical rationales that can inspire research and practice. Participants volunteered to participate and may have been more motivated and receptive to online learning and change than their peers. Therefore, our findings may not represent the views of the broader teaching communities including educators who may be sceptical and resistant to online learning. It is vital to stress that the presented findings do not necessarily suggest exemplary practices, but insights into the complex considerations of committed and thoughtful educators and digital learning professionals.

This study can offer fruitful directions for future research. Specifically, we highlight an opportunity for deeper investigation into how educators and digital learning professionals craft narratives at different levels (e.g., module, activity) during learning design. Such investigations could entail analyses of the processes, language, artefacts and interactions involved in collaborative narrative creation, aiming to achieve a more comprehensive understanding. Exploring disciplinary variations and identifying patterns in narrative construction could also enhance our understanding and guide teaching teams interested in adopting narrative-based approaches. Additionally, most participants in our study were affiliated with research-intensive UK universities. Therefore, future research should explore online learning practices in other university contexts by including participants from underrepresented countries or European universities with emerging attention to online learning to enrich the field with diverse experiences and possibilities.

It was beyond the scope of this study to examine the impact of the participants' online learning design decisions on the students' experiences, engagement and learning outcomes, which could be the focus of further research. Importantly, our findings emphasise the need for fit-for-purpose data collection methods that align with the pedagogical intentions and complex learning designs of the university actors. We contend that standardised surveys, descriptive analytics or observational data on student engagement with individual activities might not capture the nuanced impact of, for example, the multi-level connected online learning opportunities sketched out in our findings, on student learning. Therefore, there is a need for more aligned, and perhaps creative approaches to data collection (e.g., story completion method, arts-based methods involving the participants' development of drawings, visual journals or other representations). Finally, another promising research direction would involve exploring the detailed design of online learning spaces and the students' co-configurations and experiences within them, particularly as current studies predominantly focus on physical spaces.

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Institutional Review Board Statement: The study was conducted according to BERA (2018) research guidelines and approved by the Education Ethics Review Process (EERP) committee at Imperial College London (EERP1819-045, approved 5 June 2019).

Informed Consent Statement: Written informed consent was obtained from all participants involved in the study.

Data Availability Statement: In compliance with ethical guidelines, the data from this study are not openly available to protect the privacy and confidentiality of the study participants.

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Appendix A. Indicative Questions Included in the Interview and Observation Protocols

Indicative interview questions

- Can you describe how you designed this online module?
- What were the key considerations you made when designing this online module?
- What are the key learning activities you designed in this online module? Why?
- How do you assess students in this module, and what led you to choosing these assessment methods?
- What will be your role and interactions with your students based on this online module's design?
- How did your previous experience in on-campus teaching inform, if at all, the way you designed this online module? What were the module components that you re-used (if at all), and why?
- How did you perceive the roles of the different stakeholders involved in this online module's design?

Indicative areas of attention used in the non-participant observation of team design meetings

- What are the participants' orientations in relation to pedagogies in an online context? What is the object of their shared design activity?
- What specific considerations are raised regarding the online module's structure, sequencing and types of activities, content presentation, social interaction opportunities (student–student, student–educator, student–other stakeholders), assessment, feedback, and technology use?
- How do participants justify their suggestions and decisions, if at all? What informs their proposed ideas or decisions?

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