Exploring hybridity during a global pandemic: a study of educators' perceptions of hybrid teaching in a UK research intensive university

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August 2023

This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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Abstract

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Exploring hybridity during a global pandemic: a study of educators' perceptions of hybrid teaching in a UK research intensive university

This thesis captures educators' lived experience of teaching undergraduate students in one research intensive university in the United Kingdom during a time of uncertainty and rapid changes to pedagogical practices in response to the Covid-19 health pandemic. The research methodology was informed by phenomenography and data included semi-structured interviews and photo elicitation. Variations in educators' perceived experiences of hybrid teaching during academic year 2020-21 were identified, as were some common characteristics. The findings were considered using a sociomaterial framework to make visible and challenge beliefs about teaching in bounded campus spaces. Findings were interpreted using a postdigital perspective to consider the intersection between digital technology, pedagogy and the social elements of education. They contribute to an emerging and valuable body of knowledge about teaching during times of crisis, uncertainty, and rapid change, to provide insights which will be useful to inform future periods of disruption and crisis in order to be better prepared. The research also provides insights into changing understandings of digital pedagogies by capturing nuanced and contextual understandings of changing teaching practices and some considerations about how these changes might inform teaching practices beyond the pandemic are offered.

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Acknowledgements

I have been lucky enough to have support from a variety of sources whilst contemplating undertaking this PhD and this has helped motivate me as I encountered the highs and lows of undertaking a PhD whilst juggling my other commitments. I was encouraged by my colleagues who have continued to support me throughout the last 5 years. I want to thank Daphne and Cathy who encouraged me to apply and who continued to support me during my research. My thanks also go to Vel and Jon who supported my application and provided encouragement during my research. I also want to thank Neil and Jenny for finding the time to listen to my ideas and who provided much needed sense checking throughout the difficulties of juggling my research with a full-time role.

My friends and family have been supportive in many different ways and probably didn't realise how encouraging it was to be asked every so often how things were going. In particular I want to thank my husband Gary who has been willing to listen to me as I talked through various aspects of my research and for always being interested in my work. He gave me the time and space I needed to work and was willing to adjust his plans when I decided I needed to push on for an hour or two (often longer). His encouragement and support have been invaluable. Thanks to my parents Juan and Arthur for supporting me through my non-traditional education journey and for encouraging me to undertake my undergraduate degree as a 'mature' student.

Thanks to my peers on the various educational research PhD programmes at Lancaster and in particular to those who provided support and encouragement during the Saturday PhD study days I participated in. These were a lifeline and I want to thank Dr Ann-Marie Houghton for facilitating these, providing words of wisdom, and for being willing to give up her Saturdays to support us.

Thanks to the staff from the Educational Research department at Lancaster University, in particular thanks to my supervisors, Dr Murat Oztok and Professor

Murray Saunders who have provided support, valuable feedback, and encouragement.

A massive thank you to Shelaine who provided much needed encouragement and for being willing to proof-read my thesis, and to Neil who provided useful feedback on a chapter I was struggling with.

Finally, thanks to those who were kind enough to participate in this research during a very difficult and intensive period in their lives.

Author's declaration:

I confirm that this thesis is my own work and has not been submitted in substantially the same form for the award of a higher degree elsewhere.

Signature Celeste McLaughlin

Chapter 1: Introduction

1.1 The rationale for this research

The rapid shift to remote, online and hybrid teaching in response to restrictions imposed by the Covid-19 health pandemic offered an opportunity to explore how educators adapted their teaching to incorporate digital pedagogies and approaches. The focus of this research is educators' experiences of hybrid teaching during the first full academic year of the pandemic (AY 2020-21) in one research intensive UK university. All research participants were academics teaching in the university and I have opted to use the more inclusive term educators throughout this thesis. Undergraduate teaching was selected as a focus as there was minimal online delivery and some reluctance to adopt digital approaches in the undergraduate curriculum resulting in very mixed experiences of blended approaches prior to the pandemic. This offered the opportunity to capture educators' experiences across a mix of disciplinary areas incorporating a diverse understanding of digital pedagogy and approaches.

1.2 The research questions

The research has been designed to address three research questions:

1. How is the hybrid teaching experience perceived by educators teaching undergraduate courses in a research-intensive university during the Covid-19 health crisis? (RQ1).
    a. What role does the material have on the perceived experience of hybrid teaching? (RQ1a).
    b. How are digital technologies perceived and what role to they have in shaping hybrid teaching practices? (RQ1b).
2. What are the common characteristics of hybrid teaching identified by these educators? (RQ2).
3. How do educators perceive the impact of hybrid teaching beyond the Covid-19 health crisis? (RQ3).

1.3 Situating the research

There follows a brief overview of the context of the research and some information about the institution where the research took place.

1.3.1 Teaching during the Covid-19 health pandemic

This research took place at one research intensive university in the UK during Academic Year 2020-21, the first full academic year of teaching during the Covid-19 global health pandemic. This had an impact on all aspects of life as well as the teaching and learning experience, and teaching during this period was challenging, uncertain, and practices changed and evolved. The university campus was closed for long periods during this academic year and much of the teaching and learning took place digitally. Campus based (in-person) teaching was prioritised for some disciplinary areas, mostly for clinical subjects and when in-person teaching could take place on campus, when strict lockdowns had been eased, there were still tight restrictions in place. These included limitations on class sizes, social distancing of 2 metres had to be maintained, one-way systems were in place, face masks were mandatory unless there was an exception for health reasons and enhanced Personal Protective Equipment (PPE) was required for teaching clinical subjects. For those students who were timetabled to have some in-person teaching on campus, they were often placed into ‘bubbles’ to minimise mixing of students in an attempt to stop the spread of the virus.

It is important to highlight the stressful, uncertain and unfamiliar context during the time period of the research, and to consider the implications that this is likely to have had on the teaching and learning experience, as well as life more generally. Aspects of teaching during a global pandemic, the restrictions that were in place, and their implications for teaching and learning are explored throughout the findings of this research project.

1.3.2 The institutional context

The university which is the focus of this research is large organisation with over 15000 staff and a total student population of over 45000. There are over 8000 academic staff based in 3 academic Colleges comprising of a number of Schools with an undergraduate student population over 26000, most of whom are full-time. The university has a very devolved structure and decision making about the adoption of hybrid teaching was made by Colleges and Schools within the organisational hierarchy.

1.4 A summary of the research approach

The research approach was informed by phenomenography (Marton, 1986) when designing the collection and analysis data although some adaptations were made to the approach (outlined in more detail in Section 3.4.3). Phenomenography aims to identify different experiences and understandings of a phenomenon (Cousins, 2009) and this approach has been widely used to research teaching and learning in higher education (Entwistle, 1997; Tight, 2016). It provides a way to identify qualitatively different ways of understanding a phenomenon, in this research that of hybrid teaching. Phenomenography is concerned with people's conceptions of the world and how things appear to them, and analysing conceptions of hybrid teaching offered a way to capture educators' perceptions of their experience of hybrid teaching and to identify the common characteristics of the approach using a well-established and accepted methodological approach.

Interviews are commonly used to gather data in phenomenographic research, and 16 semi-structured interviews were conducted and analysed. A questionnaire was used to inform the selection of interview participants and triangulate findings. Photo elicitation was also adopted to capture participant generated visual representations of hybrid teaching and this aligned with the theoretical framework adopted, that of sociomateriality.

1.5 The theoretical framework

A sociomaterial theoretical framework was adopted to discuss and situate the findings. Sociomateriality offers educational researchers a fine-grained understanding of their research topic (Fenwick et al, 2011) and a way to explore the messiness in pedagogical processes to help with understandings of material and non-material elements (Fenwick and Landri, 2012). This framework offered an opportunity to gain insights into the complexities and messiness of adopting hybrid teaching by making visible micro and everyday aspects of education.

Sociomaterial approaches help us make visible and challenge boundaries such as the virtual or online versus the in-person and material elements of hybrid teaching, as well as the embodied elements in a hybrid approach. Sociomateriality offers an extensive and well-established theoretical framework to interpret my findings although I also recognise the influence of a postdigital perspective on my interpretation which considers the intersection between digital technology, pedagogy and the social elements of the educational process.

1.6 The significance of this research

The findings of this research contribute to knowledge a number of ways.

- They address a research gap identified about the staff experience of teaching in online contexts.
- They contribute to a growing body of knowledge about teaching during a time of crisis by capturing a nuanced and contextualised understanding of teaching in a hybrid mode during the Covid-19 health crisis. Both innovations and barriers to hybrid teaching are identified, which will inform lessons learned about teaching during a time of crisis and help leaders and educators prepare for future unexpected changes.
- The findings challenge widely accepted beliefs about teaching in bounded campus spaces.

- The findings offer a practical tool for educators to explore digital pedagogy through the development of a Hybrid Teaching Continuum which could be adapted to other educational contexts.

1.7 An overview of the thesis structure

Chapter title (and number)	Overview
Situating the literature (Chapter 2)	A selection of online, blended and hybrid teaching literature is used to contextualise emerging literature about teaching during the Covid-19 health pandemic and inform the research questions.
Methodology (Chapter 3)	An overview of the research design and rationale for the phenomenographic informed approach adopted. This includes detail about data collection and analysis and the research paradigm.
The hybrid teaching experience (Chapter 4)	Findings and discussion to address RQ1, RQ1a and RQ1b: How is the hybrid teaching experience perceived by educators teaching undergraduate courses in a research-intensive university during the Covid-19 health crisis? (RQ1). What role does the material have on the perceived experience of hybrid teaching? (RQ1a). How are digital technologies perceived and what role to they have in shaping hybrid teaching practices? (RQ1b).

A continuum of hybrid teaching (Chapter 5)	Findings and discussion to address RQ2: What are the common characteristics of hybrid teaching identified by these educators?
Teaching beyond the Covid-19 health crisis (Chapter 6)	Findings and discussion to address RQ3: How do educators perceive the impact of hybrid teaching beyond the Covid-19 health crisis?
Conclusions (Chapter 7)	The conclusions chapter provides a summary of research findings addressing each of the research questions. These are contextualised in terms of uncertainty and evolving understandings during a global health crisis. The significance of the findings is explored, and some recommendations are provided.

Table 1.1 Overview of thesis structure.

Chapter 2: Situating this thesis in the literature

2.1 The purpose and scope

The topic of this research is HE educators' perceptions about their experience of hybrid teaching so focusing on hybrid teaching literature seems like a logical starting point. There is a need to consider a wider literature base beyond that of hybrid teaching, and this review will also include literature about online, blended and digital teaching and learning. This will inform all three research questions by providing a more holistic overview of the digital pedagogy landscape.

Prior to including this situating chapter in my thesis, my intention had been to integrate my exploration of the literature into my findings and discussions chapters (4, 5, & 6) to help me make sense of my findings and I adopted this approach whilst writing these chapters. My thinking was that this would enable me to embed aspects of the discussion in a systematic way as I synthesised my findings. This decision was made in part because of the word count limitations of this thesis, and it removed the need to repeat my findings in a separate discussion chapter as I wanted to allocate as much of the word count as possible to explore my findings. Incorporating literature within the findings chapters has helped me to contextualise the research findings by aligning them with relevant literature whilst discussing my findings. This enabled me to situate and justify my thinking whilst exploring literature and that helped me make sense of my findings at the point of writing about them, and my hope is that this makes reading the thesis more coherent.

I thought it was important to also incorporate a smaller chapter focusing on pertinent literature about hybrid teaching given the interest and focus on researching this topic during the Covid-19 pandemic which has resulted in an emerging body of literature. The intention was that this chapter would not provide a review of this extensive and rich body of literature, rather it should provide some history and context and thus help me draw on the research and identify which aspects I think are important for my research. This would help me situate the existing literature and identify what I might add to this body of knowledge.

This chapter will explore understandings of hybrid and blended teaching which are continuing to evolve. A brief overview of the rich and extensive online and distance education literature will be provided to highlight what is already understood and to identify aspects that are pertinent for this research project. The intention is to explore literature about online and blended learning to draw from this body of knowledge and to contrast it with emerging conceptualisations of hybrid teaching in order to offer a broader understanding of digital pedagogies and practices and their influence on emerging understandings of hybrid teaching. A holistic perspective is taken when exploring emerging literature about hybrid teaching in order to capture some understanding of the direction of travel during a period of substantial disruption and change. Finally, postdigital and sociomaterial theory is briefly explored to highlight how this can help understandings of digital pedagogy and practices which emerged from this research.

2.2 Digital teaching approaches

Hybrid teaching is not a new pedagogy and existed prior to the Covid-19 health pandemic. The Quality Assurance Agency for Higher Education (QAA) published a taxonomy for digital learning which provides some guidance on the various terminologies used to describe digital teaching approaches. The taxonomy was produced to provide guidance for educators during the Covid-19 crisis and digital education scholars and practitioners from across the UK HE sector contributed to the document. The taxonomy highlights that hybrid learning is often used interchangeably with blended learning although the taxonomy does go on to offer a distinction between the two terms with blended terminology being more prominent in the UK. They are both used to describe combinations of in-person teaching, as well as learning that takes place in the digital environment. The taxonomy concludes that the terms are used to describe a breadth of different models and no fundamental differences have been identified between the two terms (QAA, 2020, p.3). The taxonomy highlights the terminology used in digital teaching and learning is fluid and evolving and changes depending on context and audience. This reflects my own experience of adopting digital teaching approaches over the last 20 plus

years and aligns with the findings of this research where understandings of hybrid teaching evolved.

2.2.1 Online teaching and learning

The field of online and distance learning has been explored extensively and has a rich history. There are two aspects of this literature of relevance to this research, evidence that online teaching is an appropriate pedagogical approach, and insights into how educators adapt to the online teaching environment in higher education. Addressing concerns about the quality of online approaches is helpful when considering the impact of hybrid teaching beyond the Covid-19 health pandemic (RQ3). Understanding the ways online teaching have been adopted will be useful when identifying experiences of hybrid teaching during a time of crisis (RQ1) to compare findings, identify common characteristics (RQ2) and document any new practices.

A report by Siemens et al. (2015) provides an overview of the research literature in distance, blended and online education. The purpose of the report was to inform future research and teaching practices in digital learning by evidencing the rich history of technology in education. This extensive project collated and synthesised existing research and has helped me contextualise and situate the existing rich body of literature with my research findings. The authors highlight the importance of human and social interaction in the literature and identify faculty development and organisational change (amongst others) as areas needing further exploration. The importance of the human and of social interactions is an aspect that is revisited in section 2.3 and researching the experience of hybrid teaching at a time of rapid change will help inform understandings about both faculty development and organisational change.

The Siemens et al. (2015) review focused on evidence provided by meta-analyses and systematic review literature relating to distance education, online learning, and blended learning. Their findings indicate that when properly planned, designed and supported distance education is equivalent and, in some cases, more effective than traditional (face-to-face) classroom instruction (2015,

p. 11). There is a perception that online learning is of lower quality despite research showing otherwise (Sinclair & Macleod, 2015; Ross et al, 2019; Fawns et al, 2020; Hodges et al, 2020). The transition to online teaching is challenging for educators (Preston, 2018) with technology-led conceptions being prominent in the design and implementation of new academic practices (Kirkwood & Price, 2013). There is a need to find new ways to innovate and engage students in online and digital spaces rather than replicate on campus teaching (Morris & Stommel, 2018).

2.2.1.1 The staff experience of online teaching

The body of literature about online learning has in the main focused on the student experience. There has been less focus on the staff experience of teaching in online contexts (Bair & Bair, 2011; Preston, 2018; Aitken & Loads, 2019; Bayne et al, 2020) and this research project focuses on the experiences of teachers to narrow this gap by adding to understandings about teaching in online and hybrid contexts. I considered it important to understand how online educators adapted their teaching in the online environment and focused on literature about teaching approaches and practices in this section.

Baran et al. (2011) conducted a review of online teaching literature to synthesise and offer a critical examination. They reviewed both qualitative and quantitative literature and detailed their rationale for what to include in their review which encompassed a 20-year period. They observe agreement in the literature that online teaching is distinctive from face-to-face and that distinct online pedagogies are required and argue that the role of online teachers needs to be examined in order to identify distinct pedagogies as they emerge.

Although not focussing on online teaching specifically, the study by Englund et al. (2016) identifies important considerations to understand HE teachers' conceptions and approaches to teaching with technology. This 10-year longitudinal study took place between 2004-14 in order to identify changes in conceptions and approaches to teaching with technology over time. It adopted a phenomenographic approach to identify variations in these changes.

Conceptions were identified as individual's beliefs about teaching and learning whilst approaches were strategies adopted as part of teaching practice. They concluded that experienced teachers failed to develop their conceptions and approaches to teaching with technology over time. In contrast novice teachers did, and that they adopted more student-centred approaches. Experienced teachers were less likely to change their approach to teaching using technology and when they did then the change was gradual. This has important implications for adopting hybrid teaching and how experienced educators perceive the adoption of technology as part of their hybrid teaching approach.

Threshold concepts have been used to explore ways academics struggle when attempting to adopt new technologies. Threshold concepts open up new ways of thinking about something that was previously unavailable, and are transformative and troublesome (Mayer & Land, 2006). They involve exploring liminal spaces when trying to understand a concept. These are unstable and in-between spaces which involves identify shifts (Cousins, 2006). Kilgour et al. (2018) consider the role threshold concepts have on novice online HE educators. In a mixed method study they identified a set of threshold concepts relating to online pedagogy. Twelve threshold concepts were identified themed around preparation and course design, online presence (teacher, social and cognitive), and interaction and relationships. This builds on Baran et al. (2011) who identify a requirement for distinct online approaches. Understanding the threshold concepts identified by Kilgour et al. (2018) can help with the development of novice online educators as they negotiate new teaching approaches which may conflict with existing approaches. Identifying these threshold concepts could help with the development of effective support for the development of online teaching practices (Northcote et al, 2011; McGowan, 2012). The threshold concept literature may offer ways of understanding the difficulties educators have when adopting unfamiliar pedagogies, technologies and practices.

2.2.2 Blended and hybrid teaching and learning

This section focuses on blended and hybrid teaching and learning to capture understandings of how this has been adopted prior to the pandemic. An awareness of the evolution of blended and hybrid approaches and the terminology used to describe them are important to help situate and conceptualise common characteristics of hybrid teaching (RQ2).

There has been a focus on blended learning throughout the pandemic and since the government restrictions have eased and university campuses have started to open up there has been a growing interest in understanding the role of blended learning in the HE sector. Several reports have been published during 2022 and although not peer reviewed, they have considered pertinent literature and expertise in the field of digital pedagogies. They are included here as they provide a helpful overview of the history and current context in flexible, blended and hybrid pedagogies.

A report about modes of learning commissioned as part of an Advance HE project (Hack, 2022) focused on flexible learning. The authors assert that blended learning has been common practice in UK HE since the early 21st century and acknowledge the rapid changes occurring during this time which has been accelerated by the pandemic. They emphasise the importance of using the same terminology to manage expectations and propose and define a number of terms to describe flexible learning. These include in-person learning, synchronous online learning, directed learning, and suggest these modes can be combined to offer a choice of time and place of learning.

The Office for Students (OfS), an independent public body reporting indirectly to the UK Parliament, established a review panel comprising of academic experts to provide ‘expert academic judgements about providers’ approaches to blended learning’ (OfS, 2022). Their review involved a desk-based methodology based on only six HE providers in England, covering a diverse range of disciplines (16 in total). The output included a report (Orr et al, 2022) which highlighted a number of concerns about the implementation of blended

learning. This included a lack of information for students, less timely and lower quality feedback, being overloaded with work, and isolation as a result of studying online during lockdowns. The report highlights that many students valued being on campus although they did recognise some benefits of blended learning. The impact of the pandemic on student engagement is still being understood and a QAA report which focused on educators' perceptions of student engagement during the pandemic highlighted the polarisation with almost equal numbers thinking student engagement had increased as those who thought it had lowered (QAA, 2022a).

In their response to the Orr et al. (2022) report the OfS indicated an expectation that universities would use the report to evaluate compliance with OfS regulatory requirements. These regulatory requirements apply to HE in England only, in contrast to the enhancement led approach adopted in Scotland (QAA, nd), and has been included to demonstrate the concerns that still exist with non-traditional teaching approaches such as blended learning. This adds to the narrative about online learning being less than in-person despite evidence to the contrary (Bayne et al, 2020; Fawns et al, 2020). Government and media framing of online, blended and hybrid teaching include messaging that students should expect to return to campus post-pandemic (Department for Education, 2022a; Department for Education, 2022b; Williams, 2022).

Blended learning comprises of a variety of models (Siemens et al, 2015; QAA, 2020). The term is often used interchangeably with hybrid teaching although blended is a more common term in the UK (QAA, 2020). A seminal position paper about blended learning (Garrison & Kanuka, 2004) discussed the potential of blended learning in the HE context almost 20 years ago. They highlight the potential of digital learning based on relevant literature and present an argument for the transformative potential on the learning environment involving a blend of digital and face-to-face learning. They suggest it is misleading to focus on the amount of blend and that a better test of blended learning is the effective integration of what they term face-to-face and Internet technology which could now be described as in-person and digital or virtual learning. The quality and quantity of the interaction and engagement in a

community of inquiry are considered essential. They present the Community of Inquiry Framework where social, cognitive and teaching presences contribute to educational experience. Although this model has been critiqued (Castellanos-Reyes, 2020), it is influential and is used to design online, blended and hybrid learning and has been used as the basis for definitions and models of blended learning (Orr et al, 2022; QAA, 2022b).

Garrison & Kanuka (2004) argue that blended learning is about rethinking and redesigning the teaching and learning relationship (2004, p. 99) and assert that questioning the dominance of the lecture in favour of active learning can lead to more effective learning. They highlight the challenges that adopting this model have on institutional leadership and question if academic leaders have the vision and courage to enable necessary strategic changes that need to take place for blended learning to be enacted. They conclude that the adoption of a blended learning approach by campus-based HEIs is inevitable. Prior to the pandemic it could be argued this has happened although the extent to which blended learning approaches have been adopted is variable (Siemens et al, 2015; Orr et al, 2022).

Hybrid learning as a pedagogy existed prior to the pandemic although it has been adopted widely in response to the pandemic (Orr et al, 2022). Hybrid learning has been used by some HEIs to provide students with autonomy and choice about how they engage with their learning (QAA, 2020) and Hack (2022) distinguish hybrid which they identify as an educator choice, from hyflex which they identify as a student choice.

Stommel (2018) describes hybrid at its most basic level as learning that happens in classrooms and other physical space and learning that happens online. He acknowledges the overlap with blended although goes on to distinguish the two terms. In Stommel's view blended describes processes and practices whereas hybrid is a methodological approach used to define a series of varied processes and practices. He suggests hybrid pedagogy moves thinking beyond the place of learning, and instead prompts a fundamental rethink of conceptions of place to enable a 'more engaged and dynamic

conversation' to happen between learning that occurs in physical and virtual places. For Stommel hybrid pedagogy is about the intersection between various forms of hybridities that impact our lives including physical and virtual learning spaces, and he highlights the existence of multiple hybridities such analogue and digital pedagogy, as well as what he terms on-ground classrooms and online classrooms.

Hyflex emerged as a type of hybrid learning and Beatty (2019) provides some context and history for the term which was intended to bridge traditional blended/hybrid forms of learning approaches to include students participating online. What was initially perceived as a bridge between classroom (in-person) and online students was identified as a new approach to programme design (Beatty, 2019, p. 20). This was termed hyflex to reflect the mix of hybrid and flexible components of this approach. This includes synchronous or asynchronous elements, and Beatty makes a distinction between traditional hybrid approaches and hyflex where the latter provides students with a choice of attendance modes - online or in-class (Beatty, 2019, p. 41) by offering an online alternative to in-class instruction which enable students to achieve equivalent learning outcomes. This distinction aligns with that identified by Hack (2022).

Blended and hybrid pedagogical approaches are often used interchangeably and some distinctions are starting to emerge from the literature although these distinctions are often nuanced and disputed. Different blends of hybrid are being identified such as hyflex which focuses on providing students with a choice of where they participate. Time as well as place was identified as a source of transformation in blended/hybrid learning contexts (Garrison & Kanuka, 2004, p. 96). Time has subsequently been identified as an important aspect of online approaches (Gourlay & Oliver, 2018; Sheail, 2018). The distinction between live hybrid teaching and other forms of hybrid teaching is not always apparent leading to confusion between the various mixes of blended/hybrid approaches. This distinction is considered important in this research and this review has included literature about both hybrid teaching and

live hybrid teaching in the following section which considers hybrid teaching during the pandemic.

2.2.3 Hybrid teaching during Covid-19

The following section provides a brief overview of some of the emerging Covid-19 higher education teaching literature. This has been done from a holistic perspective and literature focusing on individual programmes and modules has been excluded, as have studies which have attempted to compare modalities (online versus in-person). There is a focus on studies which have attempted to capture a national or international perspective, including studies that have attempted to provide a synthesis of the landscape from the emergency pivot and beyond, and this includes perspectives of institutional leaders and decision makers. The holistic perspective was considered important to help contextualise the findings from this research (which is focused on one institution) with emerging literature from other institutions and the wider HE sector.

Hodges et al. (2020) highlight the carefully defined terminology that has been developed in the field of educational technology including blended, online and mobile learning and propose the term Emergency Remote Teaching (ERT) to distinguish the teaching in response to an emergency from these other digital approaches. This article published during the early stages of the pandemic (March 2020) cautioned against the comparison of online learning with ‘face-to-face’ learning. Even at this point in the pandemic the authors were concerned this was already happening adding to the perception of many that online learning was of lower quality than in-person (or face-to-face) learning despite contradictory evidence. They considered ERT to be a temporary response to the Covid-19 emergency and did not envisage the impact the pandemic would have on education. This is an opinion piece authored by experienced educators and it has been widely cited in the emerging Covid-19 educational literature and so it has been included here.

The need to distinguish the adoption of digital teaching approaches in response to the pandemic and the continued emergency and uncertainty over a prolonged period is often not communicated. The messaging from politicians, funders and the press with a call to ‘return to normal’ and to ‘face to face’ teaching exemplifies the lack of engagement with the existing body of literature about online learning and the emerging literature about teaching during emergencies. This messaging is often dismissive of the scale of the changes that educators have adopted from March 2020 onwards and the importance that should be placed on learning from this emergency to reduce the impact of future disruptions.

The term remote teaching has been critiqued as being limited to a teacher centric knowledge transition model (Lee et al, 2021) with a replication of online teaching without designing for the online environment resulting in limited opportunities for student interaction. The evolving and nuanced language which has emerged adds an additional layer of complexity. This complexity is often not grasped or considered when talking generically (often dismissively) about online learning leading to a perception that it is of lesser quality than traditional practices in undergraduate teaching and learning.

Rapanta et al. (2020) highlight educators lack of pedagogical knowledge of online teaching as a significant challenge of the rapid move to teaching online. This aligns with the literature that those new to teaching online need to adapt to distinct online pedagogies (Baran et al, 2011). Rapanta and colleagues explored the pedagogical knowledge that those new to teaching online need and collated viewpoints of online experts who highlighted the importance of effective design of online learning.

Watermayer et al. (2021) reported on the trauma experienced by academics as they faced the challenges and disruption brought to their professional roles and practices. This included increased workload challenges to long established roles and identities. The majority of respondents of a survey of 1148 academics viewed the initial transition in negative terms although there were a few were more positive responses. Watermayer et al. (2021) voice concerns that the

rushed online context would not result in digital pedagogies being afforded a fair trial. In particular, that any longer-term benefits of what they term a 'digital renaissance' will not materialise due to the continued financial challenges of the pandemic and a likely reduction of public funds with a return to the type of austerity experienced following the 2008 global crash. A prediction that aligns with the economic turmoil being experienced at the time of writing during the spring of 2023.

As the pandemic continued, recognition of longer-term disruption to education, and research into the experience of teaching during the pandemic began to emerge. Institutional leaders' perspectives offer insights into the strategic position of the university at the point of the online pivot and beyond. The DELT Report (Gaebel et al, 2021) provides insights into the development of digitally enhanced learning and teaching (DELT) and the findings are based on a survey of institutional leaders representing 48 countries across Europe. The data was gathered between April and June 2020 and captures the response at the time of the online pivot to ERT. The results are compared to research conducted during 2014 in order to map the development of digitally enhanced learning and teaching. The strategic importance of digital teaching was reflected in institutional strategies and these helped with the online pivot at the start of the Covid-19 crisis. The benefits to learning and teaching were acknowledged, and the revision of teaching methods plus the flexibility of learning and teaching were considered to be the main benefits. The report highlights that the rapid online pivot to blended and hybrid provision involved a massive upscaling of digital capacities and resources. Staff and students struggled with technologies and digital pedagogies, in conjunction with social isolation and increased workloads. The crucial role that people and the social environment have in the teaching and learning process is emphasised and although the technology enabled remote learning, the report suggests this is not always desirable.

Varga-Atkins et al. (2021) captured the experience of educational leaders during the initial response to the pandemic and beyond (between March-December 2020). They highlighted the need for rapid decision making in what they described as 'a dynamic and prolonged emergency', where there was

uncertainty about how to ensure sustained engagement with students missing real-time interactions. Whilst there was recognition that pedagogical decisions focused on student needs, there was acknowledgement that tensions existed between what was practically possible with the reality of students connecting from multiple time zones. They highlight the need to problem solve at technological, temporal and pedagogical levels (2021, p. 10). This provides some insight into the complexities that had to be navigated by educational leaders and the agile decision making that impacted both the staff and student experience. Varga-Atkins et al. (2021) call for continued research into online learning in order to embed in it a sustainable way.

The data from the DELT report (Gaebel et al, 2021) and Varga-Atkins et al. (2021) were gathered during the early stages of the pandemic, and it is important to capture the knowledge and learning gained beyond this stage of the pandemic. Both publications consider future implications and the DELT report acknowledges the choices made were as a result of a crisis and that there will be a strong push to return to ‘normality’ and on campus provision. There is also a suggestion that more sophisticated approaches to blended and hybrid learning should be explored to overcome the fixation with campus face-to-face learning and take advantage of a variety of learning opportunities and modes (Gaebel, 2021, p. 52). Varga-Atkins. et al. (2021) also challenge the view of on campus/in-person teaching being better than other approaches. They highlight that feedback from students pointed to barriers they faced with traditional forms of teaching and that there were benefits to digital forms of learning.

2.2.3.1 Live hybrid teaching

Live hybrid teaching was identified as an area of emerging research by Raes et al. (2020) in a systematic review of synchronous hybrid learning. They made a distinction between remote classrooms and hybrid virtual classrooms where students engage in a location of their choice simultaneously with those who are participating in-person or virtually. They highlight the limited research addressing the different outcomes for online and in-person attendance,

although they do point to research indicating flexible delivery of courses has little impact on student learning. They identified a number of benefits for the organisation and for students and highlight pedagogical challenges including the need for a radical shift for teachers as they are required to make changes which impact pedagogy and learning design. There is some overlap here with hyflex learning (Beatty, 2019) although hyflex may also involve asynchronous activities. There is interest in exploring the potential of live hybrid teaching beyond the changes adopted as a result of the pandemic (Coyle et al, 2022; Goria et al, 2022).

This brief review of emerging literature about teaching during the Covid-19 global health pandemic highlights the rapid response and the changes that were required as the implications of the emergency began to be understood. It is important to be aware of this to help contextualise findings about the hybrid teaching experience at this time (RQ1), and to be aware of the wider educational landscape when identifying common characteristics of teaching (RQ2).

2.2.4 Changing digital approaches

The following section considers emerging literature about changing digital approaches which will help situate RQ1b (focusing on the perceptions and role of digital technologies), and this will also help contextualise the findings which address RQ3 – how the experience of hybrid teaching is likely to inform future teaching practices.

In their editorial to a special section of the British Journal of Educational Technology which focused on online higher education post-Covid, O'Dea & Stern (2022) highlight a unique opportunity to engage with innovative technology (acknowledging the disruption and technical and pedagogical challenges). They fail to find evidence of significant pedagogical or policy changes from the empirical research included in the special edition other than the move online and argue there is little evidence for rapid transformation of education that has been evident in previous emergencies.

O'Dea & Stern's editorial is based on a collection of research papers captured at a point in time and acknowledge the longer-term implications are not yet clear however the paper does collate and synthesise findings to date. These include a preference from both educators and students for hybrid learning over in-person (face-to-face) which involves redesigning learning with technology playing a crucial role alongside appropriate pedagogical approaches.

The apparent lack of innovation during the pandemic should be put in context with the subjective nature of judging digital innovation coupled with the short time frame of teaching during the pandemic (three years at the time of writing). The lack of historical perspective about digital technology is explored by Weller (2020) in his 25 year review of the edtech industry. He highlights how higher education is perceived as slow to change and adapt to digital technologies and he questions this narrative. Weller uses a 25 year timeline to showcase and explore the innovation that has taken place during this period. He uses this to demonstrate perceived new discoveries are in fact well explored and researched concepts. He uses MOOCs as an example of a perceived innovation about online learning which did not consider the rich history that already existed in this field. Weller acknowledges his subjectivity but it does highlight the dangers of exploring innovation without considering existing history and understandings. Weller's review highlights the importance of taking previous research about online and digital learning into consideration when exploring the changes that have occurred since the start of the pandemic which forced educators to adopt new teaching approaches (to them).

There is evidence of polarised views of teaching during the pandemic (QAA, 2022a; Didymus & Killen, 2022). Lundberg & Stigmar (2022) compared pre-pandemic HE educators views of future learning environments with those teaching during the pandemic and demonstrate polarised views of their subjective experiences. They conclude educators view digital teaching more positively whilst their sceptical views about technology use for on campus learning remained. This is of concern and is being referred to by some as the snapback (Bryant, 2022) highlighting messaging about returning to campus and returning to normal. Lundberg & Stigmar's research included a small-scale

study based in one HEI in Sweden however their findings align with polarised and diverse views emerging from recent reports into HE educators' teaching experiences during the pandemic (QAA, 2022a; Didymus & Killen, 2022).

Capturing a more nuanced understanding of the experiences of teaching during the pandemic would help identify changes that have occurred. It is important to consider the perspective of those who were less familiar and comfortable with digital pedagogies as well as the perspective of experienced digital educators who are likely to be more comfortable exploring the potential of the changing digital environment. It is important to capture the less visible changes as well as the innovations. The complex and messy reality of teaching with technology is explored in an emerging body of postdigital literature which is briefly outlined in the next section.

2.3 Postdigital and sociomaterial perspectives

I previously highlighted concerns about a lack of agreement regarding the terminology used to describe digital approaches to teaching and learning (Hack, 2022). There is also contradictory messaging about the role of technology with some advocating for a focus on the pedagogy (Orr et al, 2022), a pedagogy first approach where technology is assigned a neutral role. This is an attempt to offset a more deterministic approach to technology where technology offers a solution and drives change (Oliver, 2011). The neutral role of technology continues to be questioned, and the influence that big tech investors could have on key education decision makers to ensure a return on investment is a concern (Williamson and Kimljenovic, 2022). Concern has also been voiced about the incorporation of the word 'digital' in language such as 'digital education' and 'digital first' which downplays the important role of the teacher (Biesta, 2020). The language used in digital education has been critiqued (Selwyn, 2010; Bayne, 2015) and Fawns offers a historical perspective on the evolving language (Fawns, 2019). The interplay between technology and pedagogy is complex and has been described as entangled (Fawns, 2022) in recognition that technology is just one aspect of the elements that encompass the educational process.

A postdigital perspective offers educators and scholars an opportunity to explore the complex space technology has in the education process. Posdigital education is an emerging area and there are different understandings about it. In an editorial which they describe as an incomplete literature overview Jandrić et al. (2018) acknowledge postdigital is hard to define and is messy (2018, p. 895). They assert a contemporary use of the term to 'describe human relationships to technologies' (2018, p. 896). Knox (2019) suggests two interpretations for the term in relation to education; the first is concerned with perceptions of the stage of technology use, the second involves a critical appraisal about understandings of how digital is embedded in education. The need for criticality in our understandings of digital education has been voiced by others (Selwyn, 2010; Bennett & Oliver, 2011; Bayne, 2015) and a postdigital lens offers an opportunity to make visible and critically explore the intersection of digital technology with other aspects of education.

Digital technologies are integrated with teaching practices and both online and traditional (face-to-face) learning involve technology and embodied social experiences (Fawns, 2019, p. 141). A postdigital lens offers an opportunity to surface the less visible material dimensions of the digital which contrasts with the dominant understanding of digital being 'virtual' (Knox, 2019). This is pertinent to understandings and experiences of digital pedagogies and practices including online and hybrid approaches. Gourlay (2021) revisits the concept of ‘virtual’ learning and contends this is a flawed perception. She points to an assumed binary between digital and analogue and asserts that digital engagement always involves material and embodied practices drawing on a sociomaterial perspective to provide evidence. She uses university experiences of lockdown to demonstrate that moving to a digital environment did not free participants from a focus on material and embodied elements where 'the salience of physical artefacts, spaces and the body were in fact brought into sharp relief' (2021, p. 62). She concludes by calling into question the term 'virtual learning' and associated terms and argues that it is always 'in person'.

Exploring experiences of hybrid teaching during the pandemic offers a unique opportunity to explore the intersection of the digital, material and social aspects of teaching and learning. This recognition that there is no clear boundary between the social and material is a central component of sociomateriality, and this theoretical framework has been adopted to situate my research because it is more extensive and well established. I do recognise the influence of the postdigital lens during my research and the influence sociomateriality has on this emerging theory as demonstrated by the embedding of sociomateriality in the postdigital literature (Jandrić et al, 2018; Knox, 2019; Fawns et al, 2019; Gourlay, 2021). The adoption of sociomateriality as theoretical lens in this research is explored further in Chapter 3.

2.4 Conclusion

Situating this research in pertinent literature has highlighted the existence of a rich body of work about online, blended and hybrid learning prior to the Covid-19 global health pandemic. It has also provided an insight into the emerging literature about teaching during the Covid-19 pandemic and focused on aspects of the literature which captured international, sectoral, strategic and leadership perspectives in order to identify a holistic perspective and help situate my findings. My research will contribute to this growing knowledge by providing insights into the experience of hybrid teaching by HE educators during the first academic year of the pandemic (2020-21) and will be contextualised through insights from research literature about digital pedagogy which has briefly been explored here. My integrated findings and discussion chapters build on this chapter which has situated the literature, and this will be contextualised further as I explore my findings. This offers an opportunity to consider emerging teaching approaches and practices and how they might align with existing understandings and emerging understandings of postdigital education, and what this might look like.

Chapter 3: Methodology

This chapter provides an overview of the research design and questions. The rationale for the phenomenographic informed approach to this research is explored and detail is provided about the design, data collection and analysis. The research paradigm and positionality of the researcher are explored, and the significance of the research is discussed.

3.1 An overview of the research design

This research project was designed to gain an understanding of how hybrid teaching was experienced by academics who teach undergraduates at one research-intensive UK university during academic year 2020-21 when responses to the Covid-19 global health pandemic resulted in significant changes to working and teaching practices on a large scale.

The research has been designed to address three research questions:

1. How is the hybrid teaching experience perceived by educators teaching undergraduate courses in a research-intensive university during the Covid-19 health crisis? (RQ1).
    a. What role does the material have on the perceived experience of hybrid teaching? (RQ1a).
    b. How are digital technologies perceived and what role to they have in shaping hybrid teaching practices? (RQ1b).
2. What are the common characteristics of hybrid teaching identified by these educators? (RQ2).
3. How do educators perceive the impact of hybrid teaching beyond the Covid-19 health crisis? (RQ3).

The following table provides an overview of the research design and rationale. This is explored in more detail during this chapter.

Research Design	Rationale	Data collection process	Data analysis & interpretation
Questionnaire (51 responses submitted between February – May 2021).	Originally intended to address RQ1 (including sub-questions). This changed as interviews resulted in a rich data set which addressed all 3 RQs.	Data gathered using an online survey tool (Jisc Online Survey).	Used to inform selection of interview participants and to triangulate findings.
Semi-structured interviews (16 in total conducted between April – August 2021).	Questions designed to gather data to gain insights into the experience of hybrid teaching.	Conducted using MS Teams, recorded and transcribed. Transcriptions uploaded to NVivo to help manage a large data set.	Phenomenographic informed analysis of transcripts. Findings interpreted using a sociomaterial theoretical framework.
Photo elicitation (40 images provided by 14 interview participants).	Interview participants invited to send up to 3 images that represented their experience of hybrid teaching. This offered an opportunity for participant-generated visual representation of hybrid teaching and aligned to the theoretical framework adopted (sociomateriality).	Images shared included screen grabs of virtual teaching and learning spaces. Photos were also shared of physical teaching and learning spaces. Most images were emailed prior to the interview and some were shared during the interview.	Images shared and discussed during semi-structured interviews. Transcribed and contributed to interview data which was analysed using a phenomenographic informed approach. Some images were used to illustrate findings.

Table 3.1 Summary of the research design.

3.2 The methodological approach

Phenomenography is used in this research as a methodological approach which informed decisions about the collection and analysis of data with the intention of identifying qualitatively different ways of understanding educator perceptions of the phenomenon of hybrid teaching. During the analysis stage, adaptations were made to the phenomenographic approach of identifying an outcome space and the thinking behind this decision is outlined in section 3.4.3.

Phenomenography has been a widely used research tool when investigating learning and teaching in higher education (Entwistle, 1997; Tight, 2016). It emerged from the writings of The Gothenburg research group based in Sweden in the 1970s which identified the concept of deep and surface approaches to learning, although it was used as far back as the 1950s (Tight, 2016). Marton describes phenomenography as ‘a research approach designed to answer certain questions about thinking and learning’ (Marton,1986, p. 28). It is concerned with people's conceptions of the world and has been described as a second order perspective as it is concerned with how things appear to individuals rather than how things are. Marton highlights that that the basic idea of phenomenography has been confirmed many times (Marton, 1986, p. 37).

Historically phenomenography was not developed on the basis of phenomenological philosophy (Svensson, 1997, p.164) although they have common philosophical roots (Richardson, 1999; Cousin, 2009). Whilst recognising there are similarities between them; that they both study human experience, Marton & Booth (1997) highlight some distinctions between phenomenography and phenomenology including how the research is conducted. Undertaking a phenomenological approach involves the researcher focusing on a single method to investigate a phenomenon whilst in a phenomenographic study the researcher investigates how others experience the phenomenon and identify variations in that experience rather than establishing a single understanding of the phenomenon. Phenomenology makes a distinction between prereflective experience and conception, whilst for phenomenographers understanding a phenomenon includes both the

prereflective experience and conceptual thought (Marten & Booth, 1997, pp. 116-7). Larsson & Holmström (2007) highlight that when studying a phenomenon, in phenomenological research the phenomenon itself is investigated whilst during a phenomenographic approach the focus is on how a group of people understand a phenomenon.

Phenomenography is underpinned by constructivism (Cousins, 2009) where meaning is constructed through social and personal influences and is shaped by experiences and contexts (second order reality) and this aligns with my own positionality which is outlined in more detail later in this chapter (Section 3.6).

A phenomenographic informed methodological approach was identified as appropriate for this research given the focus is capturing educators' experiences of hybrid teaching (RQ1) and this will be their perceptions of this experience (the second order perspective). The research is designed to identify common characteristics and phenomenography has successfully been used to identify variations in understandings and this in turn will help to identify common characteristics (RQ2). Analysing and answering these questions will in turn help address RQ3.

3.3 The data collection

The questionnaire (Appendix One) was used to gather both quantitative and qualitative data and collecting both data types provides a more complete understanding of the research (Cresswell, 2017, p. 4). The quantitative data was used to inform decision making about interview participants (see Section 3.3.1 for further details). Both the quantitative and qualitative data was used to triangulate findings which emerged from the phenomenographic informed approach to data analysis (see Section 3.4 for details about the data analysis stage of this research).

Semi-structured interviews (Appendix Two) were used to gather data which informed all 3 RQs and the interviews also incorporated data from photo elicitation where interview participants were asked to comment on the photos they had been asked to provide.

3.3.1 The questionnaire design

The development of the questionnaire was informed by a previous research project (McLaughlin, 2019) which investigated the development opportunities available from an academic development unit for educators who teach online at a research-intensive university. Although the focus of the research differed, the questionnaire was designed to capture the experience of teaching in an online environment to help address a gap in research about the experience of online teachers (Bair & Bair, 2011; Preston, 2018; Aitken & Loads, 2019). These questions were adapted and expanded to accommodate the research questions for this study. The previous questionnaire was considered a sufficient pilot for the adapted questionnaire as participants were educators from the same university and by not conducting a pilot I was able to gather data during semester 2 of the AY being investigated. Capturing the experience during AY 2020-21 would provide data that reflected the perceived experience of educators during a specific time period and prior to further changes which could have been implemented. This was an important consideration in the research design given the pace of change experienced during the period of research as a result of the Covid-19 pandemic.

The questionnaire included both open and closed questions. The questionnaire was designed to capture data about participants perceived experiences of hybrid teaching and their perceptions of the teaching approaches they adopted during AY 2020-21. Questions were also included about their prior teaching experience, pedagogical knowledge and confidence levels. The open questions were initially intended to address RQ1 (including the sub-questions) and a detailed analysis of the questionnaire data has not been conducted as the research design changed during the data analysis stage of the project. There is potential to revisit and analyse this data to capture insights and produce a research paper to be considered for future publication.

The closed questions were designed to gather demographic information which was used to help inform the selection of the interview participants. Participants were asked to provide their contact email if they were willing to participate in a

semi-structured interview about their experience of hybrid teaching. The *About You* section captured data about participants gender (an open question enabling non-binary data to be captured), their role which included an opportunity to provide a description of their role (both open questions), and where they were based in the university structure (College and School captured using drop down boxes). These were used as part of the interview selection criteria and the following tables indicate the diversity of the selected sample by gender (Table 3.2) and College (Table 3.2).

Gender	Total number of interview participants
Female	9
Male	7

Table 3.2 Interview participants by gender

College	Total number of interview participants
Arts & Social Sciences	8
Science & Engineering	4
Medicine	4

Table 3.3 Interview participants by organisational structure (College)

The data about the sample selection has been presented in a disaggregated format to help protect the identity of interview participants and details about the School has not been included for the same reason. An overview of this data can be found in Table 3.4.

Data instrument	Total number of Schools represented
Questionnaire	17 from a possible 21.
Interview	10 Schools in total. Some overlap with 4 from the same large School and one participant taught in 2 schools. 2 Schools were represented by more than one participant.

Table 3.4 Research participants by School

The interview sample selection was also informed by role and interview participant roles included Tutors, Teaching Fellows, Clinical Fellows, Lecturers, Senior Lecturers and Readers. The role title as well as description information was used to help ensure a range of experiences was captured in the interview sample selection which included junior academics through to senior academics. Four of the interview sample (total n=16) included those with a leadership role within their School or College which provided data about holistic decision-making.

Teaching experience was also used to inform the interview sample selection and data was reviewed to ensure a representation of experienced and inexperienced digital educators. The *Your teaching experience* section also captured data about traditional (in-person) teaching experience, blended, and fully online teaching (summarised in table 3.5). Having information about teaching experience was used to triangulate the research findings.

Fully Online			
Less than 2 years	2-5 years	6-10 years	10 + years
8	2	-	-
Blended			
Less than 2 years	2-5 years	6-10 years	10 + years
5	1	6	2
In-person (face-to-face)			
Less than 2 years	2-5 years	6-10 years	10 + years
-	2	6	9

Table 3.5 Teaching experience by mode

The mode of hybrid teaching during AY 2020-21 was also considered during interview sample selection which is summarised in Table 3.6. Participants were asked to agree or disagree with a number of statements to indicate their experience of a selection of modes of hybrid teaching ranging from digital only to various in-person teaching options. These included some in-person teaching, a mixture of in-person and digital at different times and/or at the same time. This was used to include participants who had experienced different hybrid teaching modes in the selection process.

Hybrid teaching mode	Total number of interview participants
Digital Only	10
Some aspect of in-person teaching	6

Table 3.6 Participants' hybrid teaching mode during AY 2020-21

Finally, interview participants were asked to self-rate their confidence levels as a digital educator, and this was also used to include a diversity of experience in the sample selection.

Self-rated digital educator confidence level	Number of interview participants
Less confident	4
Moderately confident	8
Confident	4

Table 3.7 Participants' self-rating of confidence as a digital educator

These questions were used to identify as diverse a range of educator experiences as possible in the participants selected for interview.

3.3.2 The interview design

The purpose of the interview was to gain further insights into the participants experiences of hybrid teaching during the pandemic with a focus on academic year 2020-21. A phenomenographic approach (Marton,1986) was adopted which aims to identify different experiences and understandings of a phenomenon (Cousins, 2009), that of hybrid teaching.

Interview questions were devised (Appendix Two) and these were used as prompts where I encouraged participants to explore aspects of their teaching experience using them to guide the interview in a fluid manner. The interview questions were designed to be open and were intended to capture participants' perceptions of their understanding of hybrid teaching, as well as their experience of teaching during the academic year being researched. They were asked to provide examples of their teaching experience to explore what worked and what didn't. This was intended to build on the data provided in interview question with participants being offered the opportunity to expand on the data provided in the *Your experience of hybrid teaching* section of the questionnaire. Participants were also offered an opportunity to discuss any aspects of hybrid teaching that had not been covered. Interview participants were asked to provide photos or screen shots that represented their experience of hybrid teaching and these were used to prompt further insights.

3.3.3 Photo elicitation

Many data sources can reveal understandings or conceptions of a phenomenon including interviews and drawings (Orgill, 2012). A visual methodology was adopted to gain insights into the possible multiple modes that could be incorporated into hybrid teaching practices. A multimodal approach offers opportunities for more comprehensive and inclusive research and analysis (Literat et al, 2018, p. 569). Participants were asked to provide up to three visual representations of their hybrid teaching environment which could be a physical and/or digital teaching space. In an overview of the background to photo elicitation Richard and Lahman (2014, p. 5) point to a growing body of literature about the benefits of participant-generated photographs which can be used to gain insights and empower participants. The visual representations provided by participants were explored during the interview to gain insights into how they experienced hybrid teaching and to better understand their context. They helped participants reflect on the complexities of the hybrid teaching environment and offered insights into the multiple modalities of hybrid teaching and how it is enacted to include different groups of students who might be on campus or online.

3.3.4 The data collection period

The data collection took place during the second semester of AY 2020-21. The intention was to capture data about the experience of hybrid teaching during AY 2020-21 prior to the end of the AY to ensure the data was about the year being researched. The evolving nature of the Covid-19 health pandemic and the associated adaptations required resulted in changes being made at pace and at scale and this impacted perceptions of the experience of teaching during this time. It was important to capture data as close as possible to the period being researched to ensure it was about the period of the research and I was keen to ensure the data was collected before the start of the following AY. Towards the later stages of data collection, planning was already underway for the following AY and this was evident in the interview data of a small number of participants.

One participant did have difficulty remembering about the AY being researched due to a focus on planning for the following AY.

3.3.5 Ethics

Ethical approval was received from the Educational Research Department of Lancaster University prior to data being collected. The application process included a description of the recruitment and data collection processes. Questionnaire participants were asked to review a Participant Information Sheet (PIS - Appendix Three) and confirm they consented to participating in the research before they were able to continue and complete the questionnaire. Questionnaire participants were invited to participate in a follow up semi-structured interview and to provide their contact email if they were willing to participate. Interview participants invites were sent via the institutional work email of the researcher (Appendix Four) and participants were asked to complete a consent form (Appendix Five).

The PIS and consent form each outlined the ways participants could withdraw their consent and the time limitations for doing this were made clear. Questionnaire participants could only withdraw up to one week after submitting and only if identifying information (their email) was provided. Interview participants had a two-week period following the interview to withdraw and the phenomenographic research approach of treating the data as one data set (Sin, 2010) was made clear in the PIS as the rationale for the limited withdrawal period.

3.3.6 The questionnaire data

The questionnaire (Appendix One) was gathered using an institutionally licensed version of the Jisc Online Survey tool. An overview of the research was provided plus a link to the PIS. Participants were asked for consent before being able to progress with the questionnaire. This part of the research was conducted during Semester 2 of AY 2020-21 (February – May 2021) when academics were under pressure from the ongoing impact of the pandemic which had implications for their professional and personal lives. This included

substantial increases in workloads, home-schooling and other care responsibilities infringing on their time, accompanied by a general anxiety about the pandemic and the experience of multiple lockdowns. Although the completion rate for the questionnaire did reach the target number of participants, less people than hoped volunteered to participate for the interview stage of the research although there was a reasonable range of disciplinary areas with representation from all three Colleges.

Email invites were sent to four teaching and learning focused institutional mail lists asking academics to participate in the research (with permission from list owners). The lists had a total of 987 members at the time of the first mailing, and response rates were low so a further three mailings were sent via a monthly newsletter to subscribers (mainly academics who teach). A separate email was sent to individual academics who had participated in online teaching Continuing Professional Development (CPD) during March-December 2020. Not all recipients were likely to be involved in teaching undergraduates during the period being researched and both the mail list and individual email invites highlighted this aspect of the research at the beginning of the email. The aim was to gather responses from no less than 50 participants in recognition that a sample size of 30 is considered a minimum number whilst recognising this is dependent on the purpose of the research and the population being surveyed (Cohen & Manion, 1994, p. 89). The mail lists that were used to invite participation in this research are likely to represent those who have an interest in teaching and learning given members have opted to sign up to these mail lists. This may not be fully representative of those who teach in the institution however the data provides a good representation of the institutional structure with 17 of the 21 Schools represented (Table 3.4) and all 3 College represented (Table 3.3).

3.3.7 The semi-structured interview & photo elicitation data

As well as gathering data about the experience of hybrid teaching, the questionnaire also offered the opportunity to invite respondents to participate in follow up research comprising of a semi-structured interview. The demographic data gathered through the questionnaire helped to identify a suitable sample to invite to interview which has been explored in more detail in section 3.3.1. The purpose of the interview was to gain insights into participants' perceptions of their experience of hybrid teaching during the pandemic with a focus on academic year 2020-21.

A decision was taken to conduct the interviews online in recognition that this research was undertaken during the Covid-19 pandemic which resulted in restrictions being imposed on travel and a requirement to socially distance (Scottish Government, 2020 & 2021). A digital approach to interviewing recognised that access to campus spaces was likely to be restricted and unpredictable during the period of interviewing. Microsoft Teams was chosen as the interview environment in recognition that this tool was adopted at the institutional level as both a meeting and teaching tool which resulted in research participants having a familiarity with the tool and they were likely to be comfortable using this environment during the interview.

A total of 16 semi-structured interviews were conducted between April and August of 2021. Tight (2016) highlights there are a limited number of ways of perceiving or understanding a phenomenon, usually 4 or 5 based on a small number of interviews, and that 20 or fewer are typical. The number of interviews conducted during this research fits within Tight's suggested number and the decision to stop at 16 was partly influenced by the timeline of the interviews. The final interview took place during August 2021 when planning for the new AY was underway and this was reflected in the participants recollections of teaching the previous AY with some confusion between the year being researched and planning for the new AY. I made a decision to stop interviewing at this stage as I had already gathered a healthy data set based on transcription and the initial stages of analysis which I had already began at this point in the research.

Participants were invited to interview by email and were reminded of the project and a PIS was attached. Most interviews lasted around an hour – the shortest was around 40 minutes and the longest 90 minutes. The interviews were transcribed by me and a copy of the transcript was sent to each participant to give them the option to check and make corrections. Participants were given two weeks to do this and beyond this point they were unable to withdraw from the study as outlined in the consent form which they were asked to read and complete prior to the interview. Only one participant asked for minor changes to be made to the transcript which did not alter the nature of the data.

I transcribed each interview within 1-2 weeks of the interview being conducted to try to ensure the interview was relatively fresh in my memory. The autogenerated transcript provided by Microsoft Teams was briefly considered as a starting point and was discarded because the format produced was very fragmented and therefore too clunky to work with. The dictate feature of Microsoft Word was used to capture an initial transcription of the interview and substantial changes to this initial transcript were made when I listened to the recording. Although video and audio recordings were available, the transcription was based for the most part on the audio recording. The video aspect of the recording was used when the images were being discussed to ensure the correct image was included in the transcript as I had screenshared during the interview when we were discussing each of the images. Each transcription was reviewed a second time by me to check for accuracy prior to it being emailed to participants.

A total of 40 images were provided by participants, with most participants providing 3 images, whilst 2 participants did not provide any images. In addition to providing images, two participants also provided videos which were watched in advance of the interviews (and again during one of the interviews). I screen shared the images during the interview having asked the participants which order they wanted to review the images. The images were used as prompts to describe their experience of hybrid teaching and this provided a rich source of data. Several of the images were also used to illustrate some findings and have been included in the findings chapters.

The majority of interview participants were comfortable discussing their experience of hybrid teaching and the conversation flowed with very little need for me to prompt further except to clarify and to ask follow up questions. The majority of interviews felt like a conversation rather than a series of questions. Several participants commented on the process being cathartic, since it provided them with an opportunity to reflect on their teaching which prompted them to consider how much had changed and the professional learning they had undertaken both formally and informally. Several of the participants used this as an opportunity to express concerns about aspects of hybrid teaching and this was done in a professional and constructive manner. Humour was used by a few participants as a way to vent their frustrations and concerns. Several participants asked me questions about hybrid teaching, and one asked about my understanding of hybrid teaching and commented on the interview process being an opportunity to co-construct research. Conducting the semi-structured interviews was a positive process for me as a researcher and this is perhaps a reflection of the fact that many of the participants are experienced researchers themselves, although they were from a range of disciplines so not all would have had expertise in social science research, many would have been aware of the interview as a data collection instrument.

3.4 The data analysis

The main focus of the data analysis stage of this research was on the data gathered from the semi-structured interviews. This included an analysis of the data gathered through photo elicitation as these were explored during the interviews and discussion was embedded in the interview transcripts. The analysis of the interview data is explored in more depth in this section. Descriptive analysis was used for the questionnaire data and the findings were used to inform the selection of the interview sample, as well as providing triangulation for some findings identified from the semi-structured interview data. Further analysis of the questionnaire data was not conducted as analysis of the semi-structured interviews provided findings to address the research questions.

The semi-structured interviews were analysed to address all three research questions. A phenomenographic informed approach to the analysis was adopted which was an iterative process and took place in several stages between September 2021 and March 2022 (the transcription of the interviews was ongoing during data collection which took place between May and August 2021). A total of 4 iterations of analysis of the interview data was conducted when categories of description were identified and refined. These were used to attempt to develop an outcome space which was revisited and refined with the majority of this work taking place between March and August 2022 with some smaller refinements continuing until December 2022. The data analysis process took over a year which is a reflection of the volume of data generated and the phenomenographic informed approach adopted.

3.4.1 A Phenomenographic informed approach

The reasoning for the adoption of this approach has previously been explored in Section 3.2 and a detailed overview of how I used this approach to analyse the data is provided below.

3.4.2 Categories of description

Akerlind (2012) provides a review of phenomenographic research approaches and usefully collates existing descriptions of phenomenographic analysis. The paper has been helpful for the analysis stage of my research particularly given I'm inexperienced in this methodological approach. The ways of experiencing the phenomenon are organised into categories of description described by Orgill (2012, n.p.) as "a map of the collective mind of the group being examined".

NVivo was used to help manage a very large data set. The individual interview transcripts were imported to the software and each interview transcript was analysed to identify quotes that I considered were of relevance to understandings of the phenomenon being researched (perceptions of the experience of hybrid teaching). These were identified in the software as codes and contributed to a pool of data. This pool of data was captured by reading

and re-reading individual transcripts and their relevance was considered in relation to the research questions. This was an iterative process and each transcript was read several times, at least twice in full and some parts of the interviews were read again to help consider the significance of a particular aspect of the transcript and how to capture and code it in the data pool and the emerging pool of meanings.

The pool of meanings was used to identify categories of description which emerged from the data. These were captured using the codebook feature of NVivo and they were reviewed and updated throughout the analysis stage. I kept a reflective journal about each category of description which captured my thinking, ideas and reflections about the emerging categories of descriptions. These were collated as memos in NVivo and were reviewed regularly throughout the analysis stage of this project. Memos were also kept about the analysis of the interview transcripts, and the subsequent analysis of the emerging categories of descriptions. These were described as analysis stages and 4 complete stages were completed in total.

The emerging categories of descriptions were analysed and at least two iterations of each category were completed. This phase focused on the collective experience where the experience of hybrid teaching was analysed as a collective whole and the interviews were treated as one data set. Akerlind highlights the lack of agreement between phenomenographic researchers about how much focus there should be on the individual interviews which identify context or on the decontextualised pool of meanings where the collective data pool is treated as a whole (2012, p. 120-1). I initially focused on the individual interview transcripts and read each transcript several times to ensure I was happy with the identified quotes which contributed to the pool of meanings and the emerging categories of description. I then focused on treating the data as a whole and completed at least two iterations of analysis on each of the emerging categories of description. The NVivo software enabled me to quickly identify any quotes in the context of the individual interview if I thought this was important in my decision making and I occasionally dipped into individual interviews when refining the categories of description. The majority of

my focus at this stage of analysis was on treating the data as a collective whole rather than part of an individual interview transcript.

The research questions were considered during the analysis of the emerging categories of description. This research focused on the different ways hybrid teaching was experienced (RQ1) and on the common characteristics of hybrid teaching (RQ2). Considerations about the perceived impact of hybrid teaching beyond the Covid-19 crisis (RQ3) was also a focus during analysis. The similarities and differences between categories were considered when refining the categories, as were the meanings of the categories. How the phenomenon of hybrid teaching was perceived was also considered during analysis of the emerging categories of description. These have all been identified as foci when reviewing categories of description (Akerlind, 2012, p. 122). The codebook (Figure 3.1) with descriptions of each of the categories was updated, with some categories merged and others removed. I had kept detailed memos in NVivo (advised by Jackson & Bazeley, 2019) capturing my reflections about each of the categories in the code book and I reviewed these when making decisions about updating categories. This helped address concerns raised about the reliability and validity of phenomenography with a reflexive approach during data analysis being identified as a way to address such concerns (this is explored further in Section 3.4.5).

Name	Description
Assessment	Changes to assessments, processes and practices. Discussion and reflections about assessment.
Cameras	The role of cameras during the teaching and learning experience. Use of cameras to create content. Interaction and use during live sessions. Visibility and surveillance. Use of cameras to capture innovative teaching approaches. Would MEDIA be a better code?
Changes to practices	Comments or reflections about changes to teaching practices.
Community	Sense of community. University community. Programme. Staff. Cohort. Sense of belonging. Relationship building. Some overlap with interaction. Community lacking (isolation).
Contact Time	Discussion of contact time. Reflections about contact time.
Course Structure	Reflections or discussion about the content of a course. Course design decisions
Covid	Impact of Covid-19 on teaching and learning context. Restrictions having direct impact on T&L (e.g. social distancing, use of PPE etc).
CPD	Continuing Professional Development opportunity with a focus on changing teaching practices in a hybrid context.

Figure 3.1 Codebook example capturing some emerging categories of description and their meaning.

This refinement continued until a stable set of categories was identified and I had intended to use these to inform the development of the outcome space. I spent some time reviewing and refining the categories of description and attempted to use these to develop the outcome space. My attempts at developing the outcome space are documented below.

3.4.3 Identifying an outcome space

Tight (2016) highlights there are a limited number of ways of perceiving or understanding a phenomenon, usually 4 or 5 based on a small number of interviews. The outcome space is one of the least understood aspects of phenomenography (Akerlind, 2012). The outcome space depicts the categories of description and provides a holistic representation of the phenomenon being researched. I wanted to complete my phenomenographic analysis of the data and started to work on the development of the outcome space using PowerPoint. This was chosen because it was available and I was familiar with it. I briefly considered using mind mapping or concept mapping software and decided to stick with PowerPoint as it did what I needed. Each iteration of my attempts at developing an outcome space was captured in a new slide enabling me to reflect on and review the development.

Initially I started to develop a hierarchical outcome space structure although I struggled to identify a logic to the hierarchy. Figure 3.2 demonstrates some components which contributed to this hierarchy and each of these were based on review and refinement of the categories of description. Figure 3.3 provides

an example of the categories of description that contributed to the Teaching Experiences component of the outcome space.

Figure 3.2 A hierarchical iteration of the outcome space development.

Figure 3.3 The categories of description which contributed to the Teaching Experiences component of the outcome space.

Each potential element of the outcome spaces was subsequently reviewed as my work on developing an outcome space continued. I was conscious of my positionality during this process and continued to use the notes section of NVivo to reflect and capture my thinking. I had also been keeping a research journal throughout this research project and began a digital journal during the data analysis and subsequent stages of this research to capture my thinking and I continue to update this journal during the writing of this thesis. I've reviewed this journal regularly and have found it a valuable reference point to

remind me of my thinking at various stages of the research and ensured I referred to this when making decisions about refining the outcome space.

The outcome space at this stage of the development had been captured as a cyclical structure rather than a hierarchical one to represent the importance of each of the components of the outcome space. No one component took precedence over the other and a hierarchical outcome space was not an accurate representation of the analysis. The structure of the outcome space should emerge from the data and it should also reflect the professional judgement of the researcher (Akerlind, 2012, p. 123). Akerlind also states that the structure does not need to be represented as a linear hierarchy of inclusive relationships. This reinforced my thinking that my data should not be depicted in a hierarchical way. Although each category I had identified was distinct, it made more sense for me to define the relationship between each category in a cyclical way.

I presented a version of the cyclical outcome space to a colleague who is an experienced educational researcher (a communication validity check advocated by Akerlind, 2012) and got feedback that the Hybrid Teaching Continuum was a confusing aspect of the outcome space as the name implied an expectation of a linear continuum. This was a useful discussion and it reinforced my own thinking that the hybrid teaching component needed further development and I had already started to develop a linear representation of this component.

Figure 3.4 shows aspects of the development of the linear structure of the Hybrid Teaching Continuum based on relevant categories of description including organisational approaches and understandings, and perceptions and approaches to hybrid teaching which were used to identify common types of hybrid teaching. These were refined to encompass, Digital First (asynchronous and mixed modes), and Hybrid (parallel, mixed mode and live).

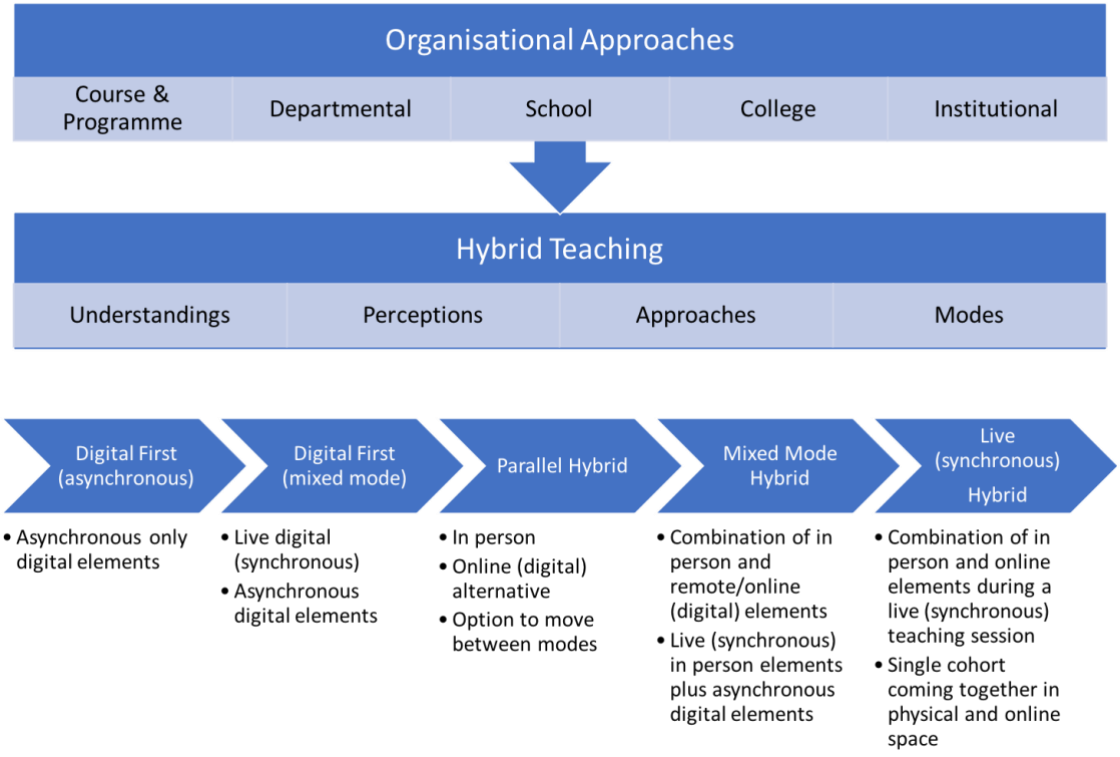

Figure 3.4 Development of the Hybrid Teaching Continuum.

As I further refined the Hybrid Teaching Continuum, (Figure 3.6) I realised that trying to incorporate this into an outcome space did not add any value to my research. The Hybrid Teaching Continuum was an important aspect of the findings of my research and addressed one of my research questions by identifying common characteristics of hybrid teaching (RQ2). I decided not to attempt to incorporate this into my outcome space and did complete some further refinement as this is a useful representation of my findings for RQ2.

I then revisited the cyclical diagram I had produced from the categories of description identified during my analysis of the data to consider what additional benefit further development of these categories into an outcome space would add to my findings. I decided against further development as the categories identified provided a valuable output from the research and attempting to define the relationship between them in order to produce an outcome space would not add anything of value to the findings. I am happy with the cyclical depiction of these categories which are described as *Aspects of Hybrid Teaching* (Figure 3.5). These aspects are useful themes which have enabled me to explore,

contextualise and make sense of the findings (Chapter 4 which focuses on RQ1, 1a, and 1b).

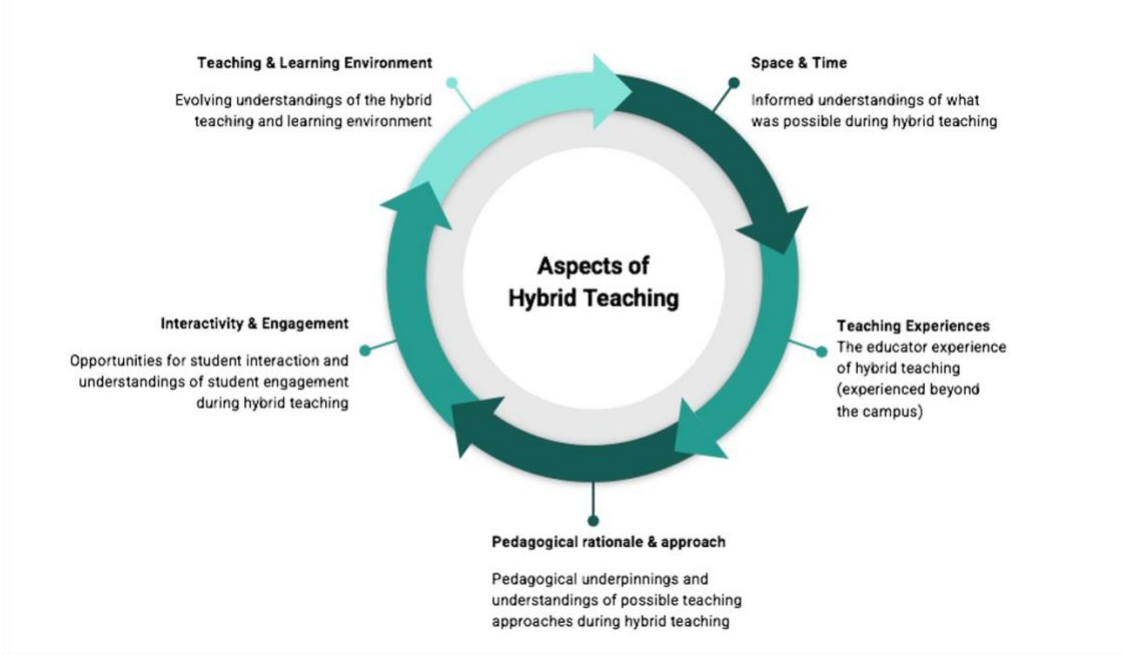

Figure 3.5 The hybrid teaching experience (Aspects of Hybrid Teaching).

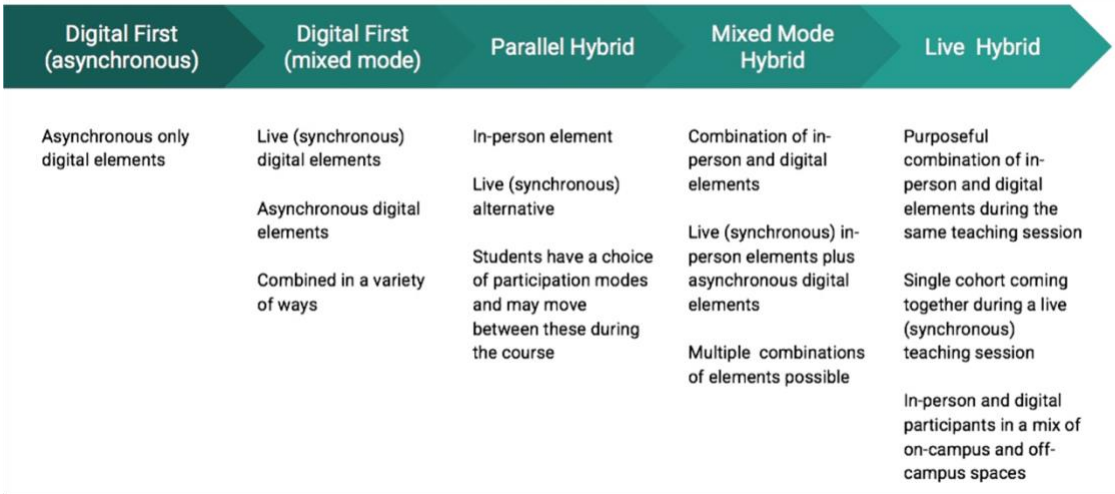

Figure 3.6 The Hybrid Teaching Continuum.

A phenomenographic methodological approach has been adopted to design and analyse the data however the final stage of phenomenographic analysis (the development of an outcome space) has not been conducted. My research has been informed by phenomenography and stops short of adopting all the data analysis stages. This is an example of a low fidelity framework; one where

adopting the framework proves valuable despite all the concepts of the framework not being utilised. I believe I adopted an appropriate methodological approach as it enabled me to identify a number of qualitatively different ways educators perceived the experience of hybrid teaching. The methodological approach generated a valuable data set which allowed me to address all three of my research questions and the findings of each of these is explored in the following chapters.

Chapter 4 explores the findings in relation to RQ1 (including the sub-questions) where *Aspects of Hybrid Teaching* (Figure 3.5) identify the perceived experience of hybrid teaching (note these aspects could also be considered as categories or themes).

Chapter 5 explores the findings in relation to RQ2 where the common characteristics are depicted as a Hybrid Teaching Continuum (Figure 3.6).

Chapter 6 explores the findings in relation to RQ3 which addresses the perceived impact of hybrid teaching beyond the Covid-19 health crisis.

3.4.4 Inclusion and presentation of data

Data has been included in various formats in the findings and discussion chapters (4, 5 & 6). Qualitative data has been included from interviews as quotes and pseudonyms were used to help with participant anonymity by removing information that may have been identifiable. Personal pronouns have not been used and I have opted to describe my research participants using they instead of he or she. I have kept a record of pseudonyms and can match these with participants and decided not to include this as an appendix as it contains identifiable participant information. Where appropriate, images generated through photo elicitation have also been included to evidence and explore the findings. A small selection of quantitative data gathered through the questionnaire has also been included to evidence sampling decisions and also to provide evidence of triangulation of findings where this was conducted.

3.4.5 The validity and reliability of data

Phenomenographic research has been questioned by many research traditions including positivistic and quantitative research, as well as ethnographic, hermeneutic and phenonmenological research traditions (Svensson, 1997, p. 164). The importance of making the researcher's positionality visible helps address the concerns raised about this research approach (Cousin, 2009). A research journal was used to address concerns about the interpretivist nature of the methodology through researcher reflexivity and the need for the researcher to make her positionality visible and I've provided an overview of my positionality in section 3.6.

Akerlind advocates for a need to reframe notions of validity and reliability within the context of ontological and epistemological assumptions of the research approach (2012, p. 123). I have attempted to provide a detailed overview of the analysis stage of this project to address the reliability aspects of this research. The reflective and detailed notes taken at each stage should help address concerns about the reliability of this project.

Akerlind proposes using communicative and pragmatic validity checks to ensure the research is investigating what it aims to. Communicative validity checks focus on the researcher's ability to defend the interpretation they have proposed and a common way of doing this is through seminars, conference presentations and peer-reviewed journals. I have undertaken some communicative validity checks and have presented my findings at an International Conference (McLaughlin, 2023). I also intend to write and submit journal papers based on my findings although I have not done this to date due to time constraints. I have also presented my findings to my colleagues and peers who represent part of the intended audience for the findings (an aspect of communicative validity checking according to Akerlind, 2012, p. 124). I have had several conversations with peers about my findings and have revised my thinking about developing an outcome space following discussion with peers. Pragmatic validity is concerned with the extent to which the outcomes of the research are seen as useful and meaningful to their intended audience

(Akerlind, 2012, p. 124). This has been considered as part of the research design and RQ3 specifically addresses this aspect of validity by capturing insights that are likely to be useful in informing future teaching practices.

3.5 The Theoretical framework

The multimodal approach was adopted partly to align with the sociomaterial theoretical framework used which offers educational researchers the opportunity to gain a fine-grained understanding of their research topic (Fenwick et al, 2011), and to explore the messiness in pedagogical process to help understand hybrid assemblages of material and explore the human and non-human elements (Fenwick and Landri, 2012). It also reflects the importance of the postdigital lens adopted by the researcher which recognises that the digital aspect of education is one of several elements which includes a mixture of material, social and digital components (Jandrić et al, 2018; Fawns, 2019).

In their paper exploring sociomaterial assemblages in education, Fenwick and Landri (2012) highlight the potential of this framework to explore the messiness in pedagogical processes; that it can be used to help understand hybrid assemblages of materials, and to explore the human and non-human elements. It offers opportunities to make visible the micro and everyday aspects of education, and it treats pedagogy as a collective responsibility rather than the exclusive concern of teachers. Although this might seem counter-productive to research focusing on the teacher, I do recognise that the teacher is one element in the wider educational process. The hybridity aspect of this framework appears to fit with the complexities of hybrid pedagogy and the many potential aspects that could be adopted.

Fenwick et al. (2011) assert that sociomaterial approaches provide us with ways for in depth engagement with the complexity and messiness of education in order to better understand the implications for change (2011, p. 166). They offer ways to challenge binaries and boundaries and argue that sociomaterial arenas accept the fundamental uncertainty of practices and activity, such as

those involved in educational processes' (2011, p. 167). They also highlight the work of Sorenson (2009) who argues that the social as well as physical processes can be understood as material. This aligns with a postdigial lens which considers the entangled nature of the social and the material, as well as the digital. The digital component is central to this research given the context where much of the teaching took place outside traditional campus spaces and digital technologies were an important aspect of new hybrid teaching and learning spaces which contributed to the hybrid teaching experience. Sociomateriality provides an accepted theoretical framework to adopt during this research, however the emerging and less recognised postdigital lens should not be discounted and will inform discussion about insights gained through this research.

Other theoretical perspectives have been considered during this research, including the Technology Acceptance Model (Davies, 1989). This model considers the reasons why information technology is accepted or rejected and proposes that usefulness and ease of use are important determinants of this. This model places too much emphasis on the technological components of hybrid teaching and offers less scope to consider other aspects that might impact the experience of hybrid teaching and has been rejected as a potential theory for this project.

Diffusions of innovations theory was also considered. This is where the diffusion of a new idea (innovation) is communicated over time by participants in a social system (Rogers, 2003). The innovation is perceived of as uncertain and the uncertainty diminishes over time as the innovation moves beyond the early adopters and subsequent phases of adoption. The internet is cited as an example of an innovation that spread rapidly and is changing the process of the adoption. This theory offers potential and may have provided useful insights to this research project. I decided against adopting this theory and opted to use a sociomaterial framework as it offered better alignment with different aspects of my research, including the data gathered through photo elicitation. The framework also aligned with my own perspective on the complex nature of the digital technology adoption where the digital is entangled with social and

material elements which are recognised though a postdigital lens. This seems a better fit for the complexity of hybrid teaching and offers more potential to consider and understand the variations in how this is experienced.

3.6 The research paradigm and positionality

There is a need for researchers to identify their philosophical assumptions as these inform the choice of theories and guide research (Creswell, 2017, p. 19). Creswell points out that philosophical assumptions have been articulated in various ways over the years and they have also been referred to as epistemologies and ontologies and are applied through the use of research paradigms and theories (or interpretive frameworks). He identifies a number of interpretive frameworks, paradigms or beliefs which guide the research including postpositivism and social constructivism (also described as interpretivism by Creswell, 2017, p. 25). Acknowledging the broad, overlapping and contested nature of research paradigms, Grix places the key research paradigms on a continuum ranging from explanation to understanding with the positivist paradigm positioned towards the explanation point of the continuum, postpositivist positioned somewhere in the middle, and the interpretivist paradigm positioned at the understanding point of the continuum (Grix, 2018, p. 72).

My position on this continuum sits towards the interpretivist end. This is in recognition of my view that understanding a phenomenon in social research is complex and messy. There are variables that can’t be observed, and these will influence the research being conducted. The agency of participants and the context where the research takes place are aspects that I believe should be considered when designing and conducting research. I recognise my constructivist ontological perspective and constructionist epistemology influence my research as I place importance on the social elements of knowledge construction by individuals. My research paradigm has influenced the design of this project.

3.6.1 Positionality

I've previously outlined my position towards the interpretivist end of the research paradigm continuum (Grix, 2018). The social and cultural context play an important role in the teaching and learning process and this view reflects my constructionist epistemology and influences my theoretical lens and the importance I place on the postdigital perspective. I'm an advocate of online learning and I place importance on criticality when adopted digital approaches to teaching and learning.

I recognise that these beliefs have influenced this research in a number of ways. My worldview will have influenced the data gathering process through the construction of my questionnaire, and the questions I asked during interviews. Whilst acknowledging that this is one of the criticisms of the phenomenographic approach, I have adopted a reflexive approach by keeping a research journal to help surface how my worldview influences my research and have kept detailed reflections during the analysis of this research to prompt me to regularly consider my views to attempt to remove my bias from the data analysis.

My experience and knowledge of digital teaching practices will have influenced the research undertaken and reflecting regularly has focused my awareness of this. Regular reflections have also helped me chart my progress as I became more confident with my interviewing approach which was important as I am not an experienced researcher and phenomenography is a new approach for me. Keeping a research journal has also helped me surface any potential for bias and capture any ethical issues which might arise.

I also need to consider my role as an insider and an outsider during this research. I am employed by the institution which is the focus of my research and am therefore an insider for aspects of this research. It was important to recognise that being an insider is likely to have had numerous implications and I've reflected on some of these here. My experience of insider research aligns with literature highlighting that it is not static but rather fluid, complex and multidimensional (Toy-Cronin, 2019). I am a PhD researcher however I am not

an unknown PhD researcher in the institution where the research is focused, and I do have pre-existing relationships with some of my research participants. My role also means I am likely to be known to many others as a result of my professional remit in a central university department supporting colleagues in the development of their teaching. I have recognised this by reflecting on conversations with research participants that my pre-existing relationship or visible role within the institution did factor into their decision to engage in my research. My institutional role as a digital education specialist has been beneficial as I believe this has encouraged academics to engage in my research and take time out of their busy roles to participate during a period when they had to adjust to rapid and evolving change in response to the Covid-19 pandemic. Several participants commented during interview that they had participated in workshops or courses that I teach. I did address this possibility when applying for ethical approval and have made a conscious effort to ensure I did not include any current students on accredited course I teach thus ensuring I was not marking assignments submitted by research participants.

The insider nature of my research also means that I am in a privileged position in that I have 'insider knowledge' of strategic and operational decisions which have influenced the implementation of hybrid teaching and I'm aware of the sensitive nature of the topic. The nuanced decisions about the implementation of hybrid teaching have been taken at a local level and I am an 'outsider' in the context of the academic structure where these localised discussions and decisions have taken place. Although institutional guidance has been provided, the Colleges and Schools have implemented hybrid teaching autonomously and have taken different approaches resulting in variations in guidance and implementation. As an 'insider' I'm aware of some of the different approaches, however as an 'outsider' I'm not aware of the reasoning behind these decisions and the impact this has had on the lived experience of academic staff as they adopt their 'version' of hybrid teaching. This is a good example of the fluid and multidimensional aspect of insider research.

The outsider nature of this research has helped me during the analysis stage of the project. I was not involved in the decision making processes described by

research participants and this allowed me to analyse these aspects of hybrid teaching from a non-biased perspective as I was distanced from the difficult decisions that had to be made. The outsider nature of the research also resulted in me being unfamiliar with many aspects of the teaching context enabling me to consider the findings with as neutral a lens as possible as I was removed from the political and organisational aspects of the decision making and how these decisions were enacted.

The insider nature of my research has required discussions with senior colleagues regarding the communication of my research and the mechanisms by which I would invite colleagues to participate. Although I was able to proceed with my plans to invite participants through several internal mail lists, the wording of invitations was revised to ensure this research was clearly identified as PhD research in an effort to distinguish it from any institutional evaluations of hybrid teaching which are also likely to be conducted during the time frame of my research project. I was also asked to consult with colleagues beyond my department to ensure they were aware of my research which is an indication of the sensitivity involved in this research. I was happy to do this and could see the value in doing this to help maintain good working relationships with colleagues who are involved in supporting the development and implementation of hybrid teaching. The insider nature of my research required small changes to my initial plans to invite colleagues to participate in my research.

I also needed to consider confidentiality and to make every attempt to minimise the possibility of individuals who participated in my research being identified. Given the research is taking place in one research intensive university in Scotland, and that there are only 4 institutions in this grouping then the institution is likely to be identifiable even if it was anonymised in any research outputs. Care was taken to de-identify participants and this was communicated clearly during data gathering highlighting that data will be disaggregated to de-identify participants. I also conducted dialogue about the logistics of interviews via institutional email which carries a risk to the confidentiality of participants as employers have the right to access email accounts. This risk is fairly low and

the research was taking place in an environment where the majority of participants are researchers and are familiar with the risks involved.

I have provided this detailed reflection about my positionality to make my influences and biases visible in order to address some of the criticisms levelled against phenomenography as a research approach. This reflexive approach continued throughout the analysis and findings stages of the research and has been documented where appropriate throughout this methodology chapter.

Chapter 4: The hybrid teaching experience

This chapter will explore the findings in relation to RQ1 which set out to understand how educators perceived hybrid teaching, how the material elements of hybrid teaching were perceived (RQ1a) and the role of digital technologies in hybrid teaching practices (RQ1b). Six categories were identified described here as *Aspects of Hybrid Teaching* (Figure 3.5) which capture a number of qualitatively different ways educators perceived the experience of hybrid teaching. These are explored in this chapter in the following headings:

- Space & time (Section 4.1).
- Teaching experiences (Section 4.2).
- The pedagogical rationale and approach (Section 4.3).
- Interactivity and engagement (Section 4.4).
- The teaching and learning environment (Section 4.5).

Each of these headings are explored in more depth where the findings are considered by situating them within pertinent literature; some of which was briefly explored during Chapter 2 and is contextualised further here to offer insights and to help make sense of the data. Sociomateriality is used to help with this sense making and I also draw on some of the postdigital literature which is emerging.

4.1 Space and time: exploring binaries and modalities

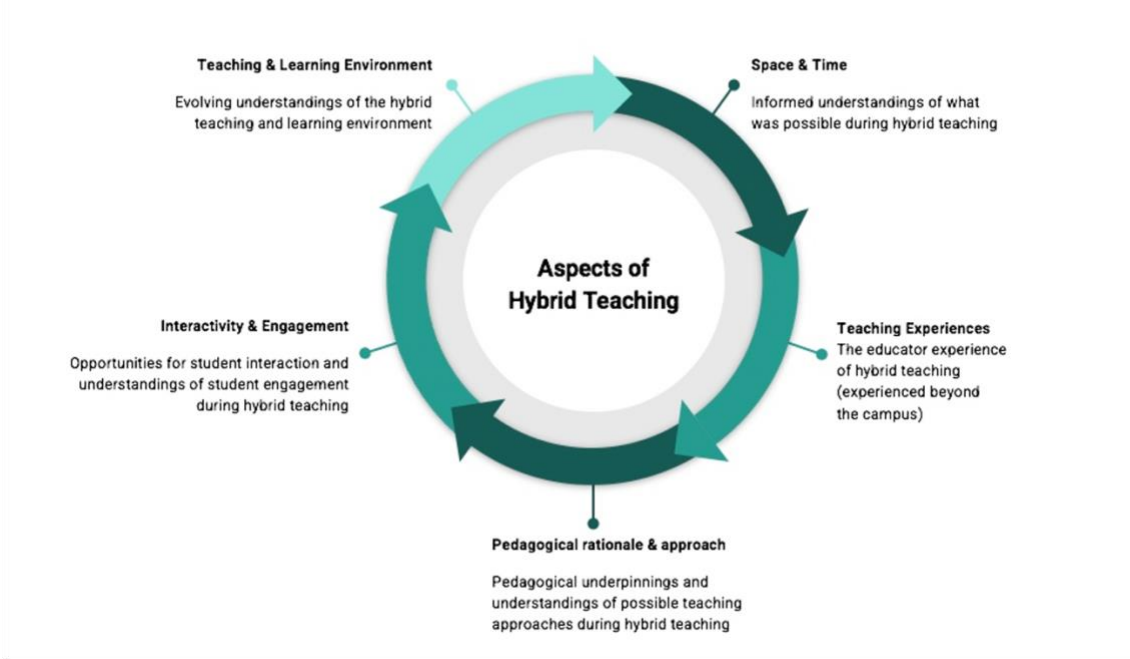

Figure 3.5 The hybrid teaching experience (Aspects of Hybrid Teaching).

When describing their experience of hybrid teaching, research participants focused on the location of the teaching space and this was often described in binary terms between in-person (sometimes referred to as face-to-face teaching) or online (occasionally described as remote teaching). The use of certain terms reflects the guidance given by the institution about language use when describing hybrid teaching. In-person was defined as teaching that would take place in a physical setting (classroom, lab or workshop) whilst on campus was used to describe teaching conducted in a university building. Digital teaching was suggested as a term to use when referring to teaching that takes place through a digital platform that can be accessed globally, and guidance suggested the use the term online should be avoided when referring to hybrid teaching in order to distinguish it from existing online programmes that had been designed to be online and had not been adapted as a result of the pandemic.

Remote teaching was a term used by the university to describe teaching during what has been referred to as the emergency pivot or emergency remote teaching (Hodges et al, 2020; Nordmann et al, 2020) and this was a term used

by a number of research participants when discussing their hybrid teaching experience.

> *I guess in the broadest sense, I think the term hybrid teaching is any form of teaching where there is a combination of in-person activities, where the students and the lecturer have to be in the same place at the same time, and then the other part of that is any activities where there are I guess either or both of the lecturer, or the students, or some of the students are in a remote location.*
>
> Chris

As well as the in-person and online binary, a further binary that was evident; that of live (synchronous) and asynchronous modalities demonstrating that time was an important element of hybrid teaching.

> *I think hybrid teaching is a combination of synchronous and asynchronous teaching that can also involve in-person and remote delivery. So I think there are, I mean in-person is necessarily always synchronous, but the online teaching can be synchronous or asynchronous…*
>
> Adam

Space and time were used by participants to make sense of hybrid teaching and this sensemaking impacted a number of other categories identified as aspects of hybrid teaching. Hybrid teaching was new and educators were exploring this unfamiliar approach to teaching during a time of great uncertainty where they had to adopt new teaching and learning approaches and practices, as well as incorporate both new and familiar technologies. Teaching during the Covid-19 pandemic necessitated a focus on digital technologies and this resulted in educators conceptualising space in new ways (Lamb et al, 2022). This exploration of space often involved the use of networked technologies and platforms requiring educators and students to participate in teaching and learning in non-campus spaces that were often not designed for this purpose.

Taking a sociomaterial perspective, Gourlay & Oliver (2018) highlight that technology is entangled with space and time in complex ways and that engagement with digital technologies is embodied; that the human body is present, and this presence takes place in a particular space. They theorise that space should not be seen as rigid but rather fluid and relational, and that space both shapes and is shaped by practice (2018, p. 103). In the Manifesto for Teaching online, Bayne et al. (2020) advocate that "Place is differently, no less, important online" and they explore place in the context of online and distance learning when students are not physically on campus. They explore the absence and presence of the material campus and highlight the privilege of the bounded space of the built campus which conveys its authority. They highlight the deficit language of distance education which frames those students as outside the institution. They also highlight the increased mobility of on campus students and argue for a more nuanced understandings of the university environment which they consider to be no longer bounded and stable. The 'bounded and stable' space of the university campus was challenged during the pandemic as the assumptions and norms surrounding the physical campus that had previously been assumed and unquestioned became much more visible to the wider university community. These assumptions are explored in more detail in the next section which focuses on teaching from beyond the campus.

The complexities of these unbounded spaces collide with traditional or familiar spaces. Boys (2016), drawing on Latour's concept of delegation discussed the move towards active, blended or flipped learning as being the new 'normality' for a university in the 21st century, and where these new approaches are contested, they collide with and become entangled in existing learning practices such as the seminar, or the lab, or the studio. The everydayness of the existing practices allows them to go unnoticed and to be unremarkable in their role as non-human assemblages. This impacts what is considered 'normal' and who has the power to decide this. The movement at scale to unfamiliar forms of learning and away from the familiar made the unfamiliar more visible, and educators began to question the previously uncontested practices of the seminar, or the lab, or the studio. This is explored further in the pedagogical

rationale and teaching approach section of the findings where participants explored unfamiliar approaches such as flipped learning.

Gourlay & Oliver challenge the assumption by some educational researchers that time is neutral (2018, p. 107) and this is evident in this research where educators have had to grapple with their students being globally dispersed across multiple time zones. This impacted both organisational and pedagogical decisions about hybrid teaching and these are explored in more detail in Chapter 5. Drawing on the concept of critical time (Sharma, 2013), Sheail introduces the term transtemporal where different times coexist - this includes making connections across time zones, as well as experiential, political and cultural times. She uses this in conjunction with translocal, as 'being simultaneously situated in more than one place' (Sheail, 2018, p. 1). She points to 'the times we live in' when digital education practices 'engage students and staff in multiple locations, while bringing them together in digital environments' (p.6). The concepts of translocal and transtemporal are relevant for the period of this research where participants are living through a global pandemic, one where the wider university community have grappled with different aspects of time and space, which has in turn shaped their practices as teachers (and students) and this has had implications for their teaching and learning environments. These multiple locations and times, how they shape and re-shape the teaching and learning environment are explored later in this chapter in Section 4.5.

The use of space and time as holders and containers that prior to the pandemic were considered to be broadly understood and stable became fluid (Gourlay & Oliver, 2018), unbounded (Bayne et al, 2020) and porous (Johnston et al, 2018). Teaching during the period of this research resulted in familiar teaching and learning practices becoming no longer possible and previous assumptions about the university campus were challenged. The variations in how this was enacted through hybrid teaching are captured as aspects of hybrid teaching (Figure 3.5) which itself is presented as in a non-hierarchical and circular manner where the elements flow and influence each other. Space and time are

aspects that influence the other categories identified, and each of these is explored further as the findings of this research is presented and discussed.

4.2 Teaching experiences: teaching from beyond the campus

Teaching during the period of this research took place outside the campus space for the majority of the research participants. Teaching often took place from participants homes, and this was the case for all participants during periods of lockdowns. Participants reported very different experiences of teaching from beyond campus spaces, and the experience was often influenced by their personal context such as their non-campus work environment, often their home environment, and the suitability of this was dependent on factors such as who they were sharing their workspace with. This is explored further in the evolving work environments section (4.2.1).

The teaching experience was also impacted by the stage of the pandemic, during lockdowns when schools were closed for example, those participants with childcare responsibilities reported the additional pressure this put on them which did impact their work and their teaching experience.

> *…we were home schooling as well … thankfully the kids were in school when I was doing my, a lot of my initial work last year because the majority of my, well all of the undergraduate teaching that I've alluded to in terms of [name of two courses being taught] were in the first semester, so the kids were thankfully in school, but from January onwards roughly we then had, you know, the lockdown and the kids are at home, and then all this stuff is everywhere, and then it becomes very difficult so my undergrads had my children popping in and out every now and again but I think that was just, you know, what we have now is a sign of the times.*
>
> Anna

The teaching experience was directly impacted by who was sharing the space and this could change over time. Lockdowns and home schooling had implications for teaching spaces as well as time available to dedicate to

teaching. Anna highlights how their experience would have been very different had more of their teaching been scheduled for the second semester when their children needed to be home schooled because of lockdown restrictions.

The size of the home, having more than one public room, and needing to share spaces with other household members impacted work and teaching and Charlie experienced this as quite a contrast with their office environment.

> *I had the luxury of a single person office that had a nice big corner desk, and a meeting table, lots of shelves for all my books and papers and everything, a whiteboard, you know, a great office space, so this [a picture the participant has shared of their home work space] is basically a desk that we work at either end of, so we're not even using it as it's intended to be, so I sit at one end, and my partner sits at the other, he sits on his yoga ball, I did get myself a new chair because I started getting really bad back pain, but that, I've got literally is that even a metre, it's probably I think it's about 80 centimetres space that is what I sit at, and so I've got no space to have anything even on either side, and that's all, we've got no shelves, we've got nothing, and we're in basically, we had to change the whole structure of the house, well not the structure but the kind of room allocation in the house…*
>
> Charlie

Charlie goes on to highlight the need to 'book' teaching space with other members of the household to ensure there were no interruptions when they were teaching.

> *…it's really difficult because yeah, because I would have to sort of book out that time basically, say I'm booking the room, this is teaching time and you can't come in, so then he has to find somewhere else to work…… it was just chaos, so trying to work out that, the relationships, and sharing space, all in one space is very difficult I think.*
>
> Charlie

The need to share space resulted in replication of campus protocols, of timetabling and booking space for teaching activities. There is recognition that teaching activities that take place in the digital space are also embodied (Gourlay & Oliver, 2018; Fawns, 2019; Gourlay, 2021), they involve people who are based in physical as well as digital environments simultaneously – this aligns with Sheail's (2018) concept of translocal – where people are situated in more than one space at the same time. There is also recognition that teaching requires dedicated space – that the teacher needs space to conduct the activity to help ensure that it is not interrupted by other activities. This is something that needs to be considered more widely when timetabling teaching if hybrid teaching continues to be explored beyond the pandemic when educators are more likely to be teaching from university campuses. They will need dedicated teaching space to do this even if their teaching is taking place in the digital environment – they still need a dedicated physical place to do this and shared or open plan campus spaces are less than ideal teaching environments. This is likely to depend on the type of teaching activity, asynchronous teaching could potentially be done from a shared environment, however synchronous teaching in whatever form that takes place does need dedicated teaching space.

There was also a sense of needing to try to re-create the physical campus space of an ancient university where there was an awareness that students had opted to study partly based on the physical location and history of the campus. It was important to project a sense of the physical campus in order to differentiate it from the similar virtual environments as those offered by other universities who were now teaching in online spaces.

> *I was just on campus yesterday and remembering how big these buildings are and how you know, so grandiose it is to be here, and then I have to shrink [name of university] into this space, suddenly this computer, my Diet Coke, my keyboard, that's [name of university], in this tiny little space. And for students it's also, you know they're in their bedrooms, are there in wherever they are doing this, and this big massive mysterious thing has to shrink down to such a small space. And so you know, for me this picture [showing their home working set up]*

> *really symbolises the struggle with making this small space still big…. this computer is no different than any other university in the world, or college or any place really, and so how do we make this space as engaging and as motivating, and inspiring as being on campus, and that that to me was a really tough challenge this year.*
>
> Drew

This perception that campus is an integral element of the university experience and that teaching and learning that takes place from beyond the campus results in a lesser experience aligns with the concerns Bayne et al. (2020) identified about the deficit language and understanding of online and distance education where the 'big massive mysterious thing [the university] has to shrink down to such a small [digital] space'. Does the expertise of the educator diminish when teaching from beyond the campus? Is the reputation of the university so closely aligned with the physical campus that removing the physical element diminishes this reputation? Hybrid teaching often involves moving between the physical campus space and the digital environment – of embodying both those spaces at different times, and sometimes at the same time – Sheail's translocal and tanstemporal concepts of time and space. Perceptions and understanding of the 'bounded' campus space will need to evolve as more people experience the possibilities of the digital university. The changing perceptions of space in the digital university is explored by Johnston et al. (2018), who frame this as a porous space. The changing boundaries and porosity of the university campus is not new, rather it became more visible to a larger audience during the pandemic as a result of the mass adoption of digital teaching practices and the need to teach beyond campus boundaries.

The need to navigate different spaces, paying attention to the physicality of the teaching space, the materiality of what this teaching space encompasses; whether it's a shared space which needs to be negotiated or timetabled in order to enable it's use for teaching, or whether it's a digital space which needs to align with expectations of teaching and learning in the physical campus, the materialities of space are complex and contextual. There is a need to recognise

the important role of the digital in hybrid teaching; and this is integrated with the physical, and that each will influence how hybrid teaching is experienced by the educator within their hybrid teaching (and working) environment. The hybrid work environment is explored in the next section.

4.2.1 Evolving work environments

Working from home for an extended period resulted in participants making adjustments and changes to their home/work environments where possible. Some were conscious of eroding boundaries between work and personal time and created routines and ways to differentiate these aspects of their life despite the fact that they often took place in the same space. This was difficult at first, however people did adjust and indicated a preference for hybrid working routines where they could work from home for part of their week.

> *…so I found that quite difficult although I found with time you know, you really create your routine, you really tried to put your boundaries in place, and I think if we were allowed in the future to have let's say 2 or 3 days at work and then 2 or 3 days from home, I would want to take that because there's been some big advantages as well of working from home.*
>
> Tom

This sense of trying to maintain boundaries was important, that there was some shift in perceptions of personal space and time, where work was more visible in the home environment and that the demarcation of work and personal time was becoming more difficult to maintain. There was a sense of an invasion of privacy expressed by participants although some were more comfortable sharing their private home environment with their students than others.

> *…when your whole office has become your home, it's too much of an invasion. And I'm someone who's quite boundaried, and I work to live, I don't live to work, and I find it kind of, just a bit disconcerting, and yeah*

> *that my privacy is kind of invaded and taken over by all this university stuff…*
>
> Jan

> *…it's like it's your home, and I don't really blur the background, I've got a huge dresser with all sorts of things on it at the back on the other wall that students probably saw, but I just thought it's fine…*
>
> Anna

When possible, participants made changes to their physical spaces during the academic year, sometimes this was changing the room they used during working hours or buying 'office' equipment and furniture to make the work aspect of their home environment more comfortable and manageable. This evolution is captured by Ed who shared the evolution of their work/home environment and connected this with their changing understanding of what was possible in the digital learning environment.

Ed discussing image 1 (Figure 4.1):

> *So apologies for that insight into my home, but I think this is kind of like for me also what this year has, so this is the evolution of my work from home experience basically, and my digital learning experience as well, which basically has also showed me that numerous things, but also how like how privileged we are that we can do this with just one device basically, under any circumstances, because what you see here first is my first work from home workspace, which was me sitting on my bed, and having the laptop propped up here on the chair, because my partner was working in the living room, and that was the only other space we had, where we could do that.*

Figure 4.1 Evolving non-campus teaching spaces.

Ed discussing image 2 (figure 4.1):

> *And then the second image is the living room, where I then moved to when my partner moved back into his office. So that was a success for me already...*

Ed discussing image 3 (Figure 4.1):

> *And then finally I cracked and bought a work from home desk which is the final image, so this is kind of the evolution of the digital learning experience as well, because as you can see it start from humble beginnings, not knowing [how] to do videos, and not knowing what to do in the virtual classroom, really. Kind of also being very exposed and vulnerable because I'm teaching literally from my bed, in my bedroom. It is not my choice. It is not the way I want to present myself to students as well, and it is also not the way I want to present content to students, because we were all fumbling very much in the beginning, and not knowing what we were doing, and then kind of solidifying ourselves, our knowledge, and our outward basically appearance, giving it a bit of a more polished and sophisticated look if you know what I mean, like online but also in virtual reality, talking to each other online and so on...*

This experience captures both the positives of teaching in hybrid ways and in hybrid spaces, recognising that the ability to do this at all from one device was a ‘privilege’, and that over time they had become more knowledgeable about what was possible when teaching in this hybrid way. The more difficult aspects

included a sense of uncertainty, of ‘fumbling’ and ‘not knowing what we were doing’ which was a challenge to their professionalism and identity as a teacher, in conjunction with the ‘vulnerability’ of sharing a private space, the very personal space of their bedroom with their students who they did not know, and who they had not met in person, and there was an understanding and expectation that they did not have a choice about this.

Teaching from home, from previously private spaces that were often used to create a boundary between work and home life was a concern voiced by research participants. During the academic year when this research took place many adapted how they used their home/work spaces; they made physical adjustments such as purchasing desks and office chairs, and also tried to create boundaries often using time to demarcate work and home life. This might involve making a conscious decision to remove themselves from ‘work’ spaces both digitally and physically when the working day came to an end. There was concern voiced about invasion of private space and a vulnerability about being visible in what was previously a private home space, and whether or not to use web cams magnified concerns about privacy and surveillance.

4.2.2 Privacy and surveillance

In *The Manifesto for Teaching Online*, the authors argue that ‘teaching with technology requires us to attend to issues of surveillance, visibility, ethics, and trust.’ (Bayne et al, 2020, p. 167).

Surveillance was something educators were aware of in this research and participants highlighted concerns about privacy, both their own and on behalf of their students, with some sharing concerns that they were required or felt pressure to make themselves visible by switching their cameras on.

> *…students obviously told they don't need to switch their videos on, while we didn't have the choice, we had to have our videos on… I couldn't quite understand what the university was on about because surely these kinds of you know, the kind of privacy kind of aspect, that goes both ways, that’s not just for the students, that's for whoever is at the other*

> *end as well, and I found that quite yeah disheartening, I didn't like that aspect at all, it was difficult.*
>
> Nic

This pressure felt by some educators to switch their cameras on may have resulted from elements of peer pressure, perhaps this message was communicated via colleagues, or perhaps they considered being visible was an important element of online teaching – that human element and a sense of teacher presence (Garrison et al, 1999; Garrison & Kanuka, 2004), that a visible human presence enabled them to connect their students to the digital teaching and learning experience. This resulted in some participants indicating they had a 'duty' and a lack a choice about switching their cameras on even if they understood the university did not require them to switch their cameras on.

> *I mean we didn't have much choice, like it's not that the university required us to have the cameras on, but I think it was vital for students to at least see us online, at least see us in a virtual setting. Not seeing us I think would have been most odd, and you need to have some sort of visual to connect to somebody. And as I said it was more than ever our duty as well, to establish some sort of connection and to make students feel like there is somebody there, at the other end of the line you know, and to have a face to attach to, it sounds very soppy, but you know that was what we wanted students to have this year as well, especially, so there wasn't really a choice, like and I didn't really have a choice.*
>
> Ed

It was important for participants to have some control over their privacy and how much of their home environment they were willing to make visible. One way they were able to do this was to use filters and blur their background although this wasn't an option in all university supported tools at the earlier stages of the pandemic.

> *…so I'm a big person for having the old screen, the backgrounds changed, so I kind of do blur out my background, put a picture so that people kind of don't maybe know where I am. And to kind of have that sense of privacy that people don't need to see into my living room…*
>
> Jan

Student behaviours around camera use which were influenced by privacy and visibility concerns are explored later in this chapter (Section 4.4) and this is also explored in the context of the pedagogical rationale and teaching approach. Given that teaching during this period involved teaching beyond the campus for most participants, this did influence the pedagogical rationale and teaching approaches adopted by both institutional leaders and individual educators. This is explored in more detail in the next section.

4.3 The Pedagogic rationale and teaching approach

In preparation for academic year 2020-21 the rapid speed of changes required to teaching practices (Hodges et al, 2020; Nordmann et al, 2020) resulted in little time to consider pedagogic approaches or the rationale for the design decisions that were adopted during the period of this research. The rapid move to remote and then hybrid teaching resulted in courses being re-designed and adapted at pace with some of the re-design taking place during the summer of 2020 before the first full academic year of hybrid teaching. There was little time for participants to understand the different pedagogical approaches required for teaching in digital and online spaces although some participants did reflect on the importance of CPD opportunities which helped them adapt their teaching.

Some participants referred to aspects of frameworks or models which are used to design online teaching and learning such as ‘teacher presence’, which forms part of the Community of Inquiry framework (Garrison et al, 1999). According to Badia et al. (2017) teaching presence includes developing content, activities and timelines for learning as well as managing collaborative elements. Focusing on establishing teaching presence helped inform the re-design of their

teaching for some participants and justified their decisions about the course structure and what they hoped to achieve from the activities they planned.

> *…the structure for each topic was each one would start with this video of me speaking, and that was very deliberate, partly to introduce it, I mean you could do that by text, you could write that in this topic you'll be looking at blah blah blah blah, but I deliberately did them as a video because I wanted them to be able to see the person that was behind this, and to have some sort of visual actual real person that was there, because I did think this year in particular, but actually even going beyond this if we're going to keep up with this approach which we are, I think it's still important that they have a sense of the people…*
>
> Charlie

The importance of being visible in the digital space is evident here as is the need for the educator be a 'real person' in this digital environment – to be seen as a human being. This aligns with Gourlay's assertion that there is no such thing as virtual learning and instead learning [and teaching] in digital spaces involve embodied practices (Gourlay, 2021). Gourlay draws on sociomateriality to highlight the deficit language surrounding teaching in digital spaces such as the use of in-person to refer to the physical environment of the campus space contributing the perception that the digital realm is disembodied. The perception of the digital being disembodied or less important is challenged throughout the findings of this research where the digital and material elements are identified as important components of the hybrid teaching and learning experience.

Learning design methodologies such as the ABC approach (Young & Perović, 2015) were adopted and this also helped inform the pedagogical rationale and as Chris indicates, this has resulted in a rethinking of teaching approaches and aspirations to continue with aspects of this approach beyond the restrictions imposed by the pandemic.

> *I think the situation helped me to really appreciate certain aspects of teaching which I will keep after Covid, in particular the ABC element, the flipped classroom which is fantastic.*
>
> Chris

These frameworks and methodologies were incorporated into institutional CPD offered during the summer of 2020 highlighting the importance and influence of these opportunities. These were adopted and implemented by individuals who had participated in CPD activities, however they also influenced School level support and decision making which resulted in pedagogical approaches being adopted without individual educators necessarily knowing about the rationale for such decision making.

Although some participants did discuss aspects of their teaching approach or pedagogic rationale, not all participants did this. Some reflected that their understanding of hybrid (or online) teaching evolved during the academic year and as they gained experience and confidence as they made adjustments to their teaching approach. Others including experienced teachers were very aware that they lacked pedagogical knowledge about online teaching and highlighted they did not have time to undertake CPD before the academic year began. One participant shared an image of a maze to depict their experience of hybrid teaching during this period which they captioned ‘a wee mannequin in a maze’ (the image has not been included here as there are copyright restrictions associated with it). The 'mannequin' and 'maze' metaphors reinforce the importance of the material and embodied elements in hybrid teaching, and how these intersect with the digital. This was an experienced teacher who prior to the pandemic opted to allocate the online components of the course they lead to tutors, indicating a reluctance to change their teaching approach when technology is involved (Englund et al., 2016). The participant was very conscious of their lack of knowledge about online teaching and all the possibilities it offered, and time was perceived as a barrier to exploring these possibilities.

> *...what does this look like, what are the differences between what I do face to face and what do I do online, how do I build actually a course that makes sense to students online? So this is the maze because there are so many interesting options, and solutions, but I also didn't have the time to actually really go into that one, actually have a look and see this fits, and that doesn't, and you know.*
>
> Nic

This experienced educator's awareness of their lack of knowledge about teaching in the online environment aligns with literature about novice and expert educators, where expert educators are less likely to change their approach when using technology, and if they do then they need to do this gradually over time (Englund et al., 2016).

4.3.1 Evolving understandings of Flipped Learning

The most common pedagogical approach described by interview participants was that of flipped learning, a 'flip' from the didactic approach used for lecture or tutorial-based instruction (QAA, 2020, p. 13). Flipped learning was referred to specifically by some interview participants, whilst others described what could be considered a flipped approach highlighting the fluid nature of digital terminology and understandings (QAA, 2020). Several participants shared terms they used which described a flipped learning approach such as 'a pyramid approach' and 'cycle of learning'.

> *…the entire course was going to be done online, so what I did was for the [name of VLE] site, I did a thing called a cycle of learning, I just called it that, so rather than a weekly session, it was a cycle of learning, so the students knew, so the cycle of learning would start maybe in the middle of one week, and they would have pre seminar tasks to do, so whether it was readings, or watching a lecture, or whatever, and then they [the students] would be told as well, in that same cycle what they're going to be doing in the live seminar, and then they would have a post seminar task to do. So it was wasn't quite a flipped approach, but it was*

> *almost a flipped approach, with a lot, there's a lot of preparation on their own, then we would consolidate in the seminar, and then they would further consolidate and do some group work for their event in the post seminar work, and they knew that they had an end date for that, and at that point we started cycle learning 2, so they knew there was a fortnight to complete each cycle of learning, with the middle of the fortnight being the live seminar.*
>
> Jack

This cycle of learning is described as “an almost flipped approach”. Educators were adapting their understandings of pedagogical approaches to fit the context of the teaching and learning environment and when the existing terminology such as ‘flipped learning’ didn’t quite fit the context they were describing, they adapted their approach and described it in terms that made sense to them. This is an example of changing perceptions and understandings, of pushing boundaries and challenging existing pedagogies and approaches to teaching in new, unfamiliar and evolving hybrid spaces.

The following description from Drew highlights another example of an innovative and evolving pedagogical approach was referred to as a “pyramid approach” which also has many aspects that are recognisable as flipped learning.

> *So I kind of created this pyramid type approach which is absolutely the fundamental of what you need, is in the readings, secondary that we have the narrated PowerPoints and the videos to build upon those readings, and then we have a discussion group that is a chance for students to interact with each other, again all based on that foundational information that's already at the bottom, and then what I did so that I could get around all of that, is to say OK so we kind of all agree that everything you need to meet the learning outcomes of this course can be drawn from these you know repository type resources, the discussion groups are just a way again to facilitate deeper critical thinking, but what*

> *I will also add is I won't do online lectures, because work [communications at an organisational level resulted in a decision that] we can't do that however, I said I want you to think of this as like, if you were to watch your favourite influencer on Instagram and they do a live stream, and you can ask any questions you want of them, I'm going to do weekly live streams, and I will record them so if you can't access them or it's the wrong time zone for you, you can always watch them back later so there's no need, but it's just an additional way for you to think about the course material, so it's not a lecture, it's not necessary to meet the learning objectives it's just a way to ask questions. And I offered that every week, and it was nearly fully attended every week, so 170 students on the course on average, you know well over 100 people watching the live streams…*
>
> Drew

This approach builds on a foundation of asynchronous activities with additional peer elements. There are then optional live streamed online lectures, although Drew was careful in the language used and referred to them as ‘live streams’, which were recorded for those unable to attend. This offered an opportunity for students to ask questions and have a dialogue, and although this was not a required component of the course, it was very well attended and suggests that the students valued the opportunity to interact and engage with the educator.

The decision making and guidance within the part of the organisation where Drew was based was for asynchronous only activities, and there was a strong steer not to offer live teaching, and there was some rationale for this decision. This was in part to offer an equitable experience for students who were geographically distributed in numerous time zones, and who may not have had the technical infrastructure and bandwidth to participate in live sessions. Drew challenged this approach and offered an alternative, an additional live component that was optional and not required for students to achieve the course learning outcomes; it was an opportunity to engage in discussions and interact with the educator and their peers and was popular and well attended.

This is a good example of the social as well as the material elements of hybrid teaching which intersect with the digital (the postdigital). The educator provides an option of live teaching through the live stream, and they considered this important for engagement and dialogue with their students. This educator cites the number of students who participated (or 'attended') the live stream as evidence that this was the correct approach despite having to find a work around to the guidance provided by the part of the organisation where they were based.

Live teaching did take place across different parts of the organisation and the cautious approach highlighted here by institutional decision makers demonstrates the uncertainty and unknowns at this particular point during the pandemic. For many, live teaching did work although there were adjustments required and there is evidence of the inequalities faced by many students during the course of the pandemic (British Academy, 2022). These inequalities were not new, they existed prior to the pandemic, they became more visible to a wider body of educators and institutional decision makers as digital teaching and learning practices were implemented at scale and were central to teaching approaches.

Participants highlighted advantages and disadvantages to the flipped learning approach. Chunking content through recorded lectures provided an opportunity to add depth in comparison to traditional lectures although this did require more preparation time. There was also less pressure on contact time as students could engage with resources asynchronously both before and after live teaching sessions. The changing understandings of contact time is explored in Chapter 6 which explores teaching beyond the health crisis.

4.3.1.1 Student engagement in flipped learning

Deeper levels of engagement were highlighted by participants and evidenced by formative assessment performance, student feedback, and dialogue between course tutors.

> *I sensed a lot better engagement, and a lot stronger response from students. So even though they were quiet, I think I probably had a lot more supporting material around it than I would have previously in the past. Things like self assessment quizzes, you know, quite a strong narration, that the videos were able to be replayed, and a lot of the things that previously, students weren't able to do, they were able to do now. So I think there's a lot more opportunity for them to really review material to gain the understanding. And they did. I was very, very impressed and proud with how they did, performed. And so in the examiners meeting, when I was defending my high average, I said, you know, genuinely I believe they have done extraordinarily well. The exam was challenging, and it was meant to be challenging, and they rose to the challenge.*
>
> Sam

> *…and to me there was more evidence both in what the tutors were saying from the tutorials, but also in those free text comments about the impact it had [changes to the course] on them [the students], and their thinking, which I hadn't really seen as much before. So I think that opportunity to work through these small chunks of tasks and set up in this way, that it was really clear what, each topic was really clear what it was, that has really helped their learning, I think it has really enhanced it, and then by making it easier in some ways for them to learn, they then have I think dived a bit deeper into it, or got more from it, thought more about it, which is really all that I was about, is just getting them to think a little bit more, and a little bit of a shift sometimes in the way they think about the world, so that's quite a big thing to try and do…*
>
> Charlie

The provision of chunks of learning to prepare students and enable them to engage with the material and review it multiple times if needed resulted in them gaining a deeper understanding of the topic. This did result in improved or

better than anticipated submissions for the summative assignments which several participants commented on. Sam highlights a need to defend the marks awarded during the exam board which demonstrates some of the wider implications of this teaching approach. Ed reflects on the additional formative feedback opportunities which led to improved submissions and marks.

> *Which also I think resulted in them submitting better pieces, like we had a little bit, not a grade inflation, but students developed much more over the year, like you could really see how they kind of got better from submission to submission, and I think that's due to the fact that we had this more extensive feedback process which they really benefited from…*
>
> Ed

The changes to the teaching approach coupled with a move away from traditional assessments such as closed book to open book exams and providing more opportunities for formative feedback did have a number of benefits for students (Bovill & McLaughlin, 2021, p. 8). This is reflected in the marks awarded although this has been framed in a less than positive way by some who question the 'grade inflation' in higher education (QAA, 2022c) and this is fuelled by a call for a 'return to normal' and pressure to return to in-person teaching (Department for Education, 2022a; Department for Education, 2022b; Williams, 2022). The findings from this research highlights a more nuanced picture, that the changes to teaching and learning practices that were required during the pandemic did have a positive impact on student learning which is reflected in the grades awarded. These concerns are discussed further during Chapter 6 which considers the implications of this hybrid teaching approach beyond the pandemic.

The main disadvantages highlighted by participants was the workload implications of teaching online and the lack of resource and support to adapt to this unfamiliar teaching approach. This is also explored further in Chapter 6. The unfamiliarity of this teaching approaches is demonstrated in the move from

what is perceived as the traditional lectures, to make this available as pre-recorded video content and this is explored in more detail in the next section.

4.3.2 The adoption of videos for teaching

Pre-recorded videos were often used instead of the traditional lecture and this approach aligns well with understandings of flipped learning where video/digital media are provided prior to timetabled classes (Al-Samarraie et al, 2020). Participants indicated they were given guidance that they should pre-record their teaching as part of the hybrid teaching approach and that these recordings should be kept fairly short (Brame, 2016). There was some understanding of the reasoning behind this; that the traditional lecture was not the best format for active learning (Revell & Wainwright, 2009; Freeman et al, 2014).

Video was recorded and chunked into segments that worked with the topic being explored and not all of the video used was recorded by the educator – some made use of media content available on the internet.

> *…typically two or three videos a week, between 5 and 15 or 20 minutes. Some of them were explanations of concepts, some of them were not even my own videos, I took them from YouTube and just linked to YouTube because I found a 5 minute video explaining exactly what I could not have done better in five minutes and then I thought why should I record it myself.*
>
> Chris

This worked well for some educators and although often enjoyable and rewarding it did take time to find appropriate content.

> *…so it was quite time consuming to find [appropriate resources], but actually brilliant as well … spending like whole days, going down these rabbit holes of you know, links into different things, was good, but that was one of the challenges is to find things that already exist, that will do the job, within the time restrictions that I have, and that are interesting*

> *and varied, and when you find a really good thing, it's just, it's brilliant because you know that that's going to work incredibly well…*
>
> Charlie

This was also an opportunity for some educators to explore the placement of different components when designing and recording teaching content. This highlights the educators' awareness of spatial configurations in the digital sphere and the need to have elements visible for their teaching approach. The following quote from Chris refers to Figure 4.2.

> *I opened one image file on the left, and I positioned it in such a way that it was always visible, because I thought it was important for students to know at all times what the actual problem statement was. So the left third or so in the picture did not change at all, in the 2/3rds on the right, this is where I included my document camera video, so in the video you see me talking, and I'm writing while I'm speaking, and I basically, I talked the students through the solution.*
>
> Chris

Figure 4.2 Spatial considerations in the design of digital content.

Some educators began to consider the spatial components of the virtual environment and how the placement of cameras or other equipment influenced the teaching and learning environment. Where they placed the camera was important for the activity being recorded. The development and recording of digital video content involved embodied physical components, and how this appears in the virtual space took some thought. It included a mixture of digital,

physical, and dialogic components where the educator used their voice and talked the students through the solution. This example demonstrates the importance of embodied elements within the digital environment (Gourlay, 2021). This example could also be viewed through the lens of the Community of Inquiry framework (Garrison et al, 1999) where the teaching presence is captured through the visibility of the hand and the explanation of the solution being captured through a recording of the educator's voice.

Aspects of the Community of Inquiry framework are also evident when Joe highlights how multiple cameras were used to capture angles and surfaces which were important for the concept being taught during a live teaching session.

> *…so we're doing this all online [measuring the surface of an object] through kind of video conferencing which was fun times, with multiple cameras, so I could kind of like zoom in, with a manual zoom by moving the camera in and out, and also basically run quick surveys where we basically, because we all have the same shape, and the shape has four sides, we can like switch it round, so we can say well if you put the green surface on the bottom, and align the long edge north-south, what is the red surface, what is the blue surface. And then we get the students to kind of like fill in a quick online quiz to compile everyone's measurements, so they're still kind of like having some kind of collective activity where they're bringing data together, and then we can show up some data and histograms, stuff like that to have that kind of group effort, which was quite good. I mean did it work as well as doing it in the field? No absolutely not. Was it better than not doing it? Yes, but it was a lot of work…*
>
> Joe

The overall learning experience is impacted by the design of the activity which involves guidance from the educator about the activity (enacting teaching presence) to encourage understanding (cognitive presence) which builds in

opportunities for dialogue through feedback about the data collated as a group (social presence). This example is one that was difficult to replicate in the digital environment and offers an example of what have been identified as Community of Inquiry paradoxes (Bair & Bair, 2011).

Despite the difficulties identified in this example teaching in the digital environment was possible. Through creative use of multiple cameras Joe was able to replicate important aspects of the physical environment. Here we see an aspect of hybridity being demonstrated where the digital and physical components of the teaching environment are combined in a way that enables the concept to be taught, providing an opportunity for the students to participate and engage in the concept. This is an example of the enactment of hybrid teaching which resulted in creative and responsive teaching during a difficult and uncertain period, when the educator did not know when students would be able to participate in on campus activities.

For those educators who were comfortable with the use of video, it was an opportunity for them to explore new teaching innovations, to integrate these, and consider how they aligned to their pedagogical approach. These educators were confident of their capabilities and willing to explore and learn during this period.

There were some concerns shared about the barriers faced when pre-recording teaching concepts and topics. These included the need to understand how to do this, both from a technical and pedagogic perspective, and these technical and pedagogical aspects were difficult to separate and overlapped. The practical aspects of recording longer videos influenced decisions to chunk up video into smaller sections which was helpful for student learning. There was some concern about making a mistake during the recording and needing to start again and creating smaller chunks could help with the practicalities of re-recording sections. Student feedback indicated that they were happy with watching shorter videos as it gave them time to think and process before moving on to the next learning point (Brame, 2016).

> *I did a 20 minute lecture and nobody watched that, so surprise. So I learned from that experience that shorter formats are much more accessible, and also students take them in much more, and do really engage with this and then take the information out of it, so it's on me to condense what I want to say, without dumbing it down, that's the big kind of like complication. But then also as I said the logistical side of things, how do I use [a media management software tool], how can I manage to have a presentation, and me talking, and a video of me, and how do I do that. And then that was not as intuitive as I hoped it would be, but we kind of figure it out in the end. So my videos are still not perfect, I think other teachers are much better at editing, I'm not very good at editing…*
>
> Ed

Educators also needed to consider how they would engage their students, and this influenced both the length and style of this pre-recorded content as there was a recognition that students may not be physically sitting and focusing on a screen, that there may be other things competing for their attention.

> *I could imagine how my students would be receiving this, basically, this slide show with a voice over basically, and I had to imagine how to keep them engaged with it. Uh, although I wouldn't really know, I wouldn't know whether it's somebody, I don't know, doing their dishes and kind of watch these on an iPad stuck on their kitchen cupboard. Are they watching it in bed? Are they watching it on their sofa? Are they watching it with their friends?*
>
> Caitlin

There was an awareness that video could help with student motivation and engagement however it needs to be structured and designed well. This aligns with literature about the benefits of video content for student learning however this content needs to be integrated with other components of the course (Scagnoli et al, 2019).

Time pressures about designing and recording media were exacerbated in some areas of the organisation because an expectation was communicated that these recordings should be in place before the beginning of the academic year. This was unrealistic from a workload perspective and from a pedagogical one. There was concern that this requirement was undermining educators' professional judgement and that there may be a need to make adjustments to their teaching as their courses evolved in response to the context and their students' knowledge, understanding and interests in different aspects of the topics being explored, and this was not taken into consideration.

There was also concern that decision makers were lacking in pedagogical understandings and were saying no to requests without fully understanding the pedagogic reasoning behind the request. Jan highlights some difficulties faced when requesting a room to record a role play video with a colleague.

> *So we need a space that allows us to record each other while socially distant. Like it literally was looking for a room with two chairs and a camera, OK, that could be socially distanced. I don't think that was a big ask. We were actually going to provide our own camera, you know our own phone. I went and bought a tripod on Amazon, you know, I wasn't asking for resources, I wasn't asking him to edit the videos, and I just every time, I just got no, like some excuse, or why can't you do it this way, why can't you do it that way. And actually I was really offended by it because I'm like, I'm sorry here is an administrator, who has no educational qualification, dictating to me how I should pedagogically deliver something… So what happened is that my colleague ended up coming to my flat to record them, and I actually don't think that's good enough in 2020-2021, and actually I found it a bit of an invasion of my privacy that like, having students who can see into my flat which is my personal space, and I just felt it was just so much of an invasion, I think. But there was no other option, and I was not, not going to do the videos because they were essential to the teaching. And it was great, you know students said they were able to go back in, and you look at them again,*

> *and you know, one video might actually been used to demonstrate three or four different learning points, so they were a really valuable resource.*
>
> Jan

Strict implementation of the social distancing guidance resulted in the video being recorded in a home environment and the participant was uncomfortable sharing their home space with their students. This touches on surveillance and privacy concerns which have previously been explored in this chapter.

The pedagogical value of media needs to be balanced with the time it takes to pre-record educational content; the planning, the design, the learning of new software and techniques, and this was a frustration for some. Some of the frustrations voiced was related to learning about digital media production, frustrations with university tools and software, and the time it takes to upload content to university systems as a result of low bandwidth issues, and these all had implications for recording media. There was concern voiced by participants that there was a lack of support and lack of recognition of the time involved in media production for teaching.

The examples provided here about the adoption of digital media demonstrate the impact digital technologies are having on pedagogical approaches and these are reflected in the exploration and adoption of digital pedagogies such as flipped learning. The role of the material in the adoption of such pedagogies is evident, for example the way the 'human' teacher is captured in the digital environment through the incorporation of the hand in the digital recording. The importance of the material is also evident in the planning of digital recordings, when educators need to consider where the students will physically be when they watch the recordings (washing the dishes, watching it from their sofas, or from their bed, or with their friends). The complexities of adopting the digital and how this intersects with the material demonstrate the importance of digital approaches and how these are woven into the hybrid teaching experience.

4.3.2.1 Legislative compliance: captioning of video resources

The biggest frustration voiced by educators about the role of digital media in hybrid teaching was around the requirement to caption content and include accurate subtitles. As part of the Public Sector Bodies Accessibility Regulations there is a legislative requirement for public sector bodies to reach the Web Content Accessibility Guidelines 2.1, with a deadline of October 2020 coming into force during the first full academic year of teaching during the pandemic (Mote, 2020; Kelly & Mote, 2021). This resulted in a legislative requirement to provide accurate captioning and complying with this legislation might add significant time and cost to video production (McNaught & Wilkinson, 2021).

There was recognition of the benefits of doing this for some but not by all participants. The auto captioning requirement caused particular concerns; the guidance from the organisation was that there was no expectation to correct auto captioning however this was not an acceptable option for some educators who highlighted instances where this caused harm, particularly for students whose first language was not English as this led to critical misunderstandings and confusion of concepts.

> *…international student asked us not to do this anymore [include auto transcription] because it was not, we were told just use this automated system, you don't need to correct it, whatever it says … international student said could you please not do this because actually it's too inaccurate, and it's coming up with something completely different, we don't understand what they're saying or compared to what you're saying…*
>
> Nic

For some the auto captioning mistakes were less concerning and they would tweet about these and share them with their social media networks. For others, there were cultural and professional concerns about the auto captioning.

The workload involved in providing captioning for video content varied and voice recognition replicated bias and existing inequalities resulting in additional barriers experienced by some educators (Williams et al, 2018; Rowe, 2019;

Markl, 2022). The inequalities experienced by staff has been identified across the HE sector and those with accents or speech impairments were disproportionately impacted which was recognised as a workload concern with more time needed to rectify auto captioning errors (Disabled Students' Commission, 2022).

The experience of captioning shared by Stevie contrasts with the frustrations shared by Jan who had a very different experience and needed to invest much more time and energy.

> *Actually I found generally that it was very, very good. I used before live captioning with Google Slides to different effect, and I think it really comes down to the quality of the microphone.....colleagues reported back that it [captioning of videos] was taking absolutely ages, whether it's because of my mic, or whether it's because it works better with certain accents than others, a 20 minute video would take 20 minutes to check the transcript on and make corrections, I would say.*
>
> Stevie

> *…so being told well you're gonna have to subtitle your recordings and if the machine doesn't do it correctly well you're going to have to go in and edit them, and that's very difficult when you're Irish and you can't say your THs. So you know, you have to do that or else sort of thing, when they themselves [decision makers] weren't doing it, I think there was a lot of people who had these very great highfalutin ideas, and gave out these big diktats, but actually weren't the ones doing the work themselves.*
>
> Jan

Despite the organisational guidance that correction of captioning wasn't required, this may have been miscommunicated and some educators thought they needed to do this, others recognised the quality of auto captioning was not of a standard that they were happy with and took on the burden of correcting.

Some refused to do this and pushed back highlighting this was not something they could take on.

> *…so the transcription, so we were at some point told all the lectures need to have the transcription bit because for equal access, that sort of thing, and I said that's fine, who's doing it? You! No, it's not me because actually, I'm just here, and have my lectures for this week, and I need to think about my lectures for next week. I don't have time to sit there and actually transcribe, sorry.*
>
> Nic

This highlights a concern about roles and responsibilities, and whether already overworked educators should take on the role. There needs to be some understanding of the discipline required to make appropriate corrections and changes. This is yet another time burden associated with use of media in teaching and the barriers may well outweigh the benefits for some time poor educators. The unanticipated consequences of changes to teaching will be explored further in Chapter 6 which explores teaching beyond the pandemic.

The pedagogic approach will have implications for designing opportunities for interactivity, dialogue and the level of student engagement in a course and these are explored in the context of hybrid teaching in the next section.

4.4 Interactivity and engagement

Providing ways for students to interact and engage in their learning when adopting a hybrid teaching approach during a global health pandemic was difficult for a number of participants. They were finding it difficult to provide opportunities for students to interact with both their peers and with their tutors. Experiences varied and some participants expressed concern about a lack of feedback and interaction both for asynchronous and synchronous hybrid teaching approaches. Some concerns were shared about being unable to replicate pre-Covid teaching approaches such as one to one conversations with students during seminars. Others spoke about the challenges of encouraging

participation without picking on individual students. One participant reflected that it was easier for students to hide in the hybrid classroom and there was a concern that those students who really needed help did not ask for support.

There was recognition that non-participation during live teaching did not mean students were not engaging and that they might review the recording at a later date, however it was difficult for educators to gauge participation levels. Social distancing had an impact on opportunities for interaction and dialogue during in-person elements of hybrid teaching. There were also challenges during live hybrid teaching where the balance of in-person and online participants had implications, particularly when there were less people in the campus-based teaching spaces. This made activities that were designed to encourage dialogue between in-person and online students more difficult.

There were activities that were considered to work well and encouraged interaction and student participation during hybrid teaching. The use of various tools during live (synchronous) hybrid teaching such as chat boxes and quizzes worked well to encourage student participation. Coursework was used as a mechanism to gauge student understanding. One participant highlighted the use of formative coursework with weekly feedback as an approach that worked well however there was a high tutor workload involved. Break out groups were also used to encourage student dialogue however several participants commented that discussion stopped when the tutor joined the breakout groups. It was considered easier to listen without interrupting during in-person sessions in comparison to virtual groups. The material aspects of the physical teaching space with the ability to move around this space and 'listen-in' to groups during in-person teaching (without the social distancing restrictions) was difficult to replicate in the digital breakout group space.

> *I think when they are split up in groups, and you can only be in one of them, because in the classroom, even when they are split up in groups, you somehow managed to be at both of them at the same time without even if you are kind of hovering above one table, you are sort of listening to the other table as well, and this aspect of learning from the students, I*

think I, I did not receive it as much this year as other years during the live sessions…

Caitlin

There were concerns about opportunities for social interaction and informal conversations were lacking in the digital environment. This was recognised as a particular challenge and there were different approaches to building this into the teaching and learning environment. Group work was one mechanism used by a number of participants to encourage peer interaction and to build community. This way of working was considered to have a positive influence of the quality of student work.

…interaction between peers took place more in the kind of asynchronous weeks, when they were working in their assigned working groups, and working on tasks doing group work, which we did a lot of this year as well, much more than we usually do. This had some other effects as well, we did that for a reason, we decided on mostly group work because feedback has been extensive this year, we have never given so much feedback. I mean usually in the classroom when we do face to face teaching, I give feedback on one or two pieces on the go, which is good but not as extensive, but when I look at stuff on the screen and they had submission deadlines and so on, so I looked at group work and I used to comment much more broadly and much more extensively on grammar points, and on autography and so on, and it was just the generally more feedback.

Ed

I think working in an online environment made it slightly easier, both for them to organise themselves [to work in groups], but also just sharing the cases, and it worked really, really well, I think that it's quite demanding task for the first year class to do, but these are super smart students, and they produced phenomenally good examples, and just showed that they were really thinking about it. I think that application of

> *knowledge is the core for me, for what they're doing in the small group work, that's really what we're trying to get them to do.*
>
> Charlie

The changes to teaching approaches adopted during the pandemic resulted in some positive outcomes for students. When designed well, the hybrid approach did offer opportunities for student engagement and interaction, this did not happen immediately and took time and effort. There was a need to manage expectations for students and for them to gain confidence in new ways of learning, to adapt and understand how to engage in this unfamiliar hybrid environment. Although this project didn't include student participants, the educators who contributed did comment on the student experience and how this influenced their own understanding and experience of hybrid teaching.

Adjusting to teaching and learning in the hybrid environment did take time and understandings evolved for both educators and students. This was a period of adjustment and boundary-crossing where expectations and norms were challenged. Engagement and interaction did take place in this hybrid space however it was different than the types of engagement and interaction that took place in traditional teaching and learning environments aligning with research indicating online teaching is distinctive from traditional teaching (Baran et al, 2011). Sometimes it was better, other times it didn't work quite as well. This depended on the context, and on the experience and expectations of the educators and students. Although there are different ways of designing opportunities for interactivity and encouraging engagement, these are very contextualised and are not necessarily 'better' in the traditional teaching and learning environment as feedback from students during the pandemic indicates the traditional learning environment was not always optimal for student learning (Varga-Atkins et al, 2021). Student engagement as a concept lacks consensus (Buckley, 2014). Hybrid teaching offers opportunities to revisit student engagement and to re-design teaching and learning environments to offer multiple and flexible opportunities for interactivity and engagement.

4.4.1 Cameras as a proxy for engagement

The lack of camera use where the majority of students were reluctant to switch on their web cams was an aspect of the digital teaching experience that participants found difficult during the period of this research. Novice online educators were trying to replicate their traditional teaching practices and being able to read a room was an important way for them to do this. This highlights the importance of material elements and how these intersect with expectations about social interactions in traditional teaching and learning spaces. These social cues were lacking in the digital teaching and learning environment. Being unable to "see" students' reactions and pick on non-verbal cues was difficult and they were unable to judge whether students had understood the concept or topic being taught.

> *…you can't read at the reactions of students, you can't you know, all those kinds of markers we normally use in order to understand you know, have an idea of whether they get what you were on about or not, where you need to pick something up or whatever it is, they're not there, you're really in an empty space."*
>
> Nic

This "empty space" was also likened to "talking to this little box" or "talking into a void" or "talking to a screen with a lot of black squares" or a faceless screen with "these bubbles with initials". This was disheartening for educators who were unable to get to know their students and make a connection with them.

> *I really felt it was hard to get to know them, because all you would see is either, at worst just a name, and you would have nothing to hang, you know whether they're male, female, short, tall, you know, anything about them, other than the username, and they're typing in a chat. So from my perspective that was quite unnerving, sometimes I would get an avatar, so I'd see a cat, you know, and occasionally you would get a photograph of the person, on their picture, but they almost never put their cameras*

> *on, or occasionally they put the camera on, once in a blue moon, and then all of a sudden, you have this more of a connection.*
>
> Sam

Educators adapted their teaching to this faceless audience of students by adopting strategies to make themselves tangible and visible.

> *When I'm speaking to the camera on my laptop, it doesn't react in that same way [as a live in-person lecture]. It's pretty obvious, it doesn't, but I have to actually visualise a group of students in order to be able to get any kind of, sense of, this is not just me speaking to camera, I'm actually speaking to some group of students, and that's what will help me explain things. But I don't get any of the feedback.*
>
> Sam

Despite such strategies the lack of immediate feedback from students was perceived to be problematic. How did educators know their students understood and were engaged with the teaching? This can be difficult to gauge in a traditional in-person teaching environment however the lack of cameras made things much more difficult for educators.

> *…seminars that happened online, where you know, you try to basically imitate what happens in the classroom. So there's a class discussion, there may be presentations, there may be set questions, there may be some sort of task or something, but you know, you find your way of engaging the students. And that is I think, can be challenging at the best of times because there are, there will be students that do not really engage, but if you have them in front of you, you know, you can sort of keep your eye on them, and that I think became really difficult with so many cameras off.*
>
> Adam

There was generally acceptance that educators could not ‘demand’ that students switch their cameras on and it was understood that there might be genuine reasons for students not switching their cameras on. Often bandwidth was highlighted as one reason for this, another might be students following the lead of others – that cameras being off was an acceptable behaviour in this strange, unfamiliar and unsettling digital classroom space.

> *So I think that that was really quite difficult for some students, that you know, if you're not entirely sure of yourself at the best of times, and you see others with the camera off then you do that as well. Sometimes it's because students have to preserve bandwidth, or the lecturer needs to preserve bandwidth. So you know it's a bit like being in the classroom, but not really, and you know, I suppose the difference between everyone sitting around the table being I don't know quite happy at a birthday party, compared to sitting around at a wake almost you know, it’s that different. I mean the, you know, visually I suppose the same as group of people talking to each other but the atmosphere is very different.*
>
> Adam

The concern about lack of cameras and ‘seeing students’ was often framed from the educators’ perspective and how that impacted them as teachers, however there was also some recognition that the student experience was impacted by the lack of cameras. Being able to ‘see faces’ was an important element that helped to build a learning community among students, and also an important aspect of building a relationship both with the educator and with student peers. The human and social element was missing in faceless digital classroom space and this could result in isolation during a period of upheaval and uncertainty when tight restrictions about mixing with others were in place resulting in less social contact. There was recognition that some students would benefit from having their cameras on “ …there were people who were really thirsty for these social contact and they would have loved to have their cameras on.” (Caitlin).

Sam highlights a concern about how their personal tutees were coping with this new learning environment; there was a sense of isolation and concern and this isolation is being shared through conversations with students who the personal tutor had managed to build a rapport with.

> *I did feel this sense of, in some cases, isolation, you know, that they all kind of felt well, I'm connected to this digitally, I don't know anybody, and isolation has been the thing that I've noticed a lot, my tutees are coming back with lots of problems with, just feeling isolated, not having friends around, and just, and they're the ones that got the cameras on speaking to me, and I know what they look like, and we've got a bit of a rapport.*
>
> Sam

This concern is justified given reports of poor mental health in HE, particularly during the pandemic (Frampton & Smithies, 2021).

Student behaviour when using cameras did change over time – perhaps this is partly a result of educators communicating the benefits or perhaps the teaching context has a role to play. Cameras were more likely to be switched on during informal conversations (at the beginning or end of class), when there was a discussion or conversations taking place such as a question being asked, or during break out groups.

It seems some students did begin to understand the benefits of turning on their cameras in certain contexts such as field trips.

> *And interestingly the feedback we got on the virtual field trip on the second time we ran it, there's probably a third of the students who said you should make students turn on their camera, make it compulsory because it will make it more engaging, and you know it just like that, the students say that I thought that was very interesting.*
>
> Tom

Educators also highlighted there were benefits for some students when their cameras switched off and this helped students contribute to conversations. This may have been because they were less self-conscious contributing if they were not perceived to be visible, or it may have helped from a technical perspective depending on the spec of their equipment and bandwidth capacity. Jack understood that there were situations when it was appropriate for students not to switch their camera on, however there were times such as in break out groups when it was important for students to be visible and switch their camera on. This is likely to be influenced by the belief that being visible would help students build relationships with each other which would contribute to their learning experience.

> *To start with we made more, you know we tried to encourage them "put your camera on, put your camera on", but actually as the year went by, and we got to know all the students a lot better, it became less important to do that, and as I say sometimes it was easier if they were feeding back, that they just didn't have their camera on, but I think, in the breakout rooms I think it is important that they did put the cameras on with each other*
>
> Jack

Participants did acknowledge that some students were more comfortable making anonymous contributions during digital teaching sessions. Tom highlights various reasons why this might be the case.

> *Sometimes we also had like group discussions where we would read a text in the classroom then talk about it …. they were less inhibited because I think for privacy reasons, or broadband reasons, most of them kept their camera off, which was weird for me yeah because you feel like you're teaching into an abyss, and sometimes voices come out of it, but I think for them it was a good experience in the sense that they could talk more freely, they didn't feel like they had to impress their peers in a classroom situation with I don't know, body language and appearing a*

> *certain way, so I think that puts a lot of strain on them as well, and that all kind of fell away, and I think made it easier for them to talk to me.*
>
> Tom

Some participants did discuss the importance of the social elements of the learning experience which aligns to the social constructivist approach where importance is placed on discussion and dialogue. This perspective should be balanced with understandings that not all students have equipment with webcams and that there may be occasions when switching on their cameras will not be appropriate (in shared spaces for example) or they may have concerns about privacy or surveillance. Despite this understanding there was a belief by some participants that having cameras off could also help with the learning experience.

> *I think the anonymity, most of them do not have their cameras on for various reasons, but not seeing them kind of I think has helped them talk to me, and talk to their classmates more freely, and be less shy and less inhibited about that, so there was a real change…*
>
> Tom

This is a complex area with students and educators having justifiable concerns about switching on their cameras during teaching and learning. There may be a number of benefits for having cameras switched on however the reasoning and justifications are contextual and nuanced. Many students feel more comfortable having their camera switched off although they may change their behaviour over time when they feel more comfortable and know their peers better. Educators have struggled with student preferences to have their cameras switched off and highlight how difficult it is to get to know their students, whilst others recognise that being less visible can enable some students to contribute to discussions in digital environments and some of these students may not have contributed in an on campus teaching space. Understandings and boundaries are continuing to evolve and educators as well as students continue to explore the implications of hybrid teaching on interactivity and engagement.

4.5 Structuring the course and designing the teaching and learning environment

The uncertainty about what restrictions would be in place and how these would impact teaching during the academic year resulted in some participants spending time during the summer and beyond thinking about their teaching and what changes they needed to make to their course. They began re-thinking aspects of their teaching and their course structure to algin it with the hybrid teaching approach they were adopting.

Some were aware that teaching online required considerable time and effort and were conscious of communicating this message to colleagues. There was concern about the lack of support available to do this, and where there was support available it was often limited as Jan outlines.

> *It's really time consuming trying to communicate that to colleagues, that online learning, it's not just a case of you know, sticking it up online, it's, a lot of thought has to go into it, and breaking things down into, almost little kind of micro-elements, and producing that material, and you know, making sure that material is accessible. Yeah requires a lot of thought, and energy, and some of the negatives I think was just a lack of support in general, in certain areas. I think at School level it was quite good. The person in learning technology, two people were great, they did drop in sessions every Thursday. The negatives of that is that there's only two of them, and to run a whole school is just ridiculous…*
>
> Jan

Participants had mixed views about the support available, some considered it to be good and appropriate, others considered it to be poor or not available when required. Much of the support during the academic year was self-serve, and some felt this was not the type of help they needed, instead there was a need for contextualised support of the type offered by learning technologists when they were available. Others took advantage of the CPD that was offered across

the organisation and benefited from this, some participants were aware of this support but were unable to find the time to participate.

4.5.1 The Virtual Learning Environment (VLE)

The institutional Virtual Learning Environment (VLE) was used by participants as a tangible way to enact and understand changes they were making as they adopted hybrid teaching. This helped with decision making about what content to include, which was a focus for some participants in the initial stages of implementing hybrid teaching, whilst others were focusing on what students were expected to do within this learning environment. This was an opportunity to think through and structure what they expected of their students. The virtual learning environment was a tool they could use to help guide their students through the course. Some choose to structure their course into weekly formats, others choose topics or tasks.

The following image (Figure 4.3) illustrates how the VLE was used to help conceptualise a flipped classroom approach which was described as a “cycle of learning”.

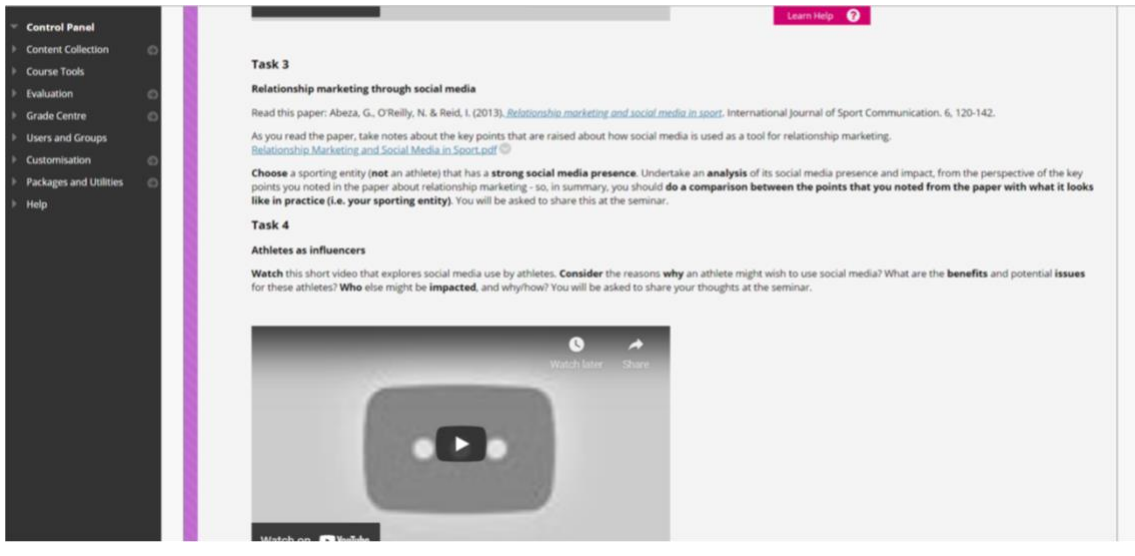

Figure 4.3 A flipped learning ‘cycle of learning’ course design.

> *So that was a [name of programme] year 2 [name of] course, and just really talked about this idea of the cycle of learning, so you had the pre-*

> *tasks, because it's a screengrab you're not seeing everything, but it was clearly labelled for each cycle of learning what they had to do beforehand, what they were going to do during the live seminar, and what they had to do after the live seminar, and it was very consistent for the 10 sessions, 11 sessions. What we tried to do as we move through the course, I was trying to get a balance between having the academic literature, and professional type literature, because it was about, a lot to do with marketing, I took the opportunity to look at different types of markets, the less traditional types of marketing, and a lot of that is done through websites and on social media, so I'm trying to direct students to that, so yeah that's what that was about.*
>
> Jack

The VLE was used to help structure hybrid teaching and to provide some consistency during a time of rapid change and uncertainty. The 'cycle of learning' example uses a topics structure and other participants opted for a weekly structure which for some reflected frustrations about the VLE described as "just shockingly awful" by Joe.

> *So we rearranged that to be more sequential in terms of, here is a folder for week one, week two, week three, so the students could more clearly kind of navigate through the whole course in a kind of week by week basis. I'm not sure whether that worked particularly well or not, it's quite a hard thing to judge because it's always hard for students to navigate and find things on our virtual learning environment because it's just shockingly awful…*
>
> Joe

The weekly topic structure was used in the following example (Figure 4.4), and as Stevie highlights they had taken a decision to provide guidance for the students at the top of the screen. The students have a deadline and information about what is expected of them during this section of the course.

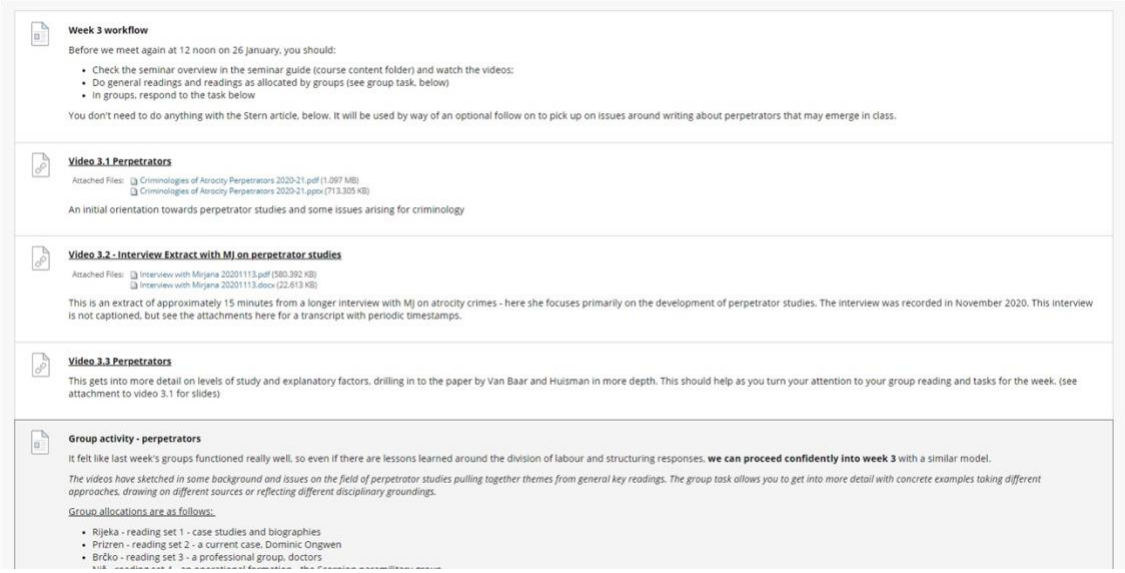

Figure 4.4 A weekly topic course structure.

Stevie provides further details about the structure, as well as some insight into the context of the topic, the activities students were expected to participate in and how dialogue with the educator was included.

When asked to talk about the image Stevie provides some insight into their decision making.

> *It starts with the workflow setting out the work for the week; there are a series of videos – 2 mini lectures (slides also provided to students with first link), and a video interview with a PhD student researching the topic. The lectures are captioned, but the interview has a transcript. There's then a group activity – if you could scroll down, you'd see more details on this, and then the working documents uploaded from each group, the side chat from the live seminar as a document, with a response from me to anything that wasn't covered in that session, and a final item on a controversial book on the topic …*
>
> Stevie

This example demonstrates how the educator used the VLE as tool to structure the components of the course which comprised of content, as well as student and tutor interaction and dialogue. There is also some insight into the different

aspects of hybrid teaching Stevie had to consider such as providing captioning for lectures and providing transcripts for other course components. This demonstrates the multiple considerations that had to be incorporated into re-designing a course for hybrid teaching which included the structure, the types of activities and how this would encourage dialogue and engagement, as well as providing inclusive and accessible course content. This was time consuming and a massive change from previous more traditional approaches to teaching.

In this next example of course structure within the VLE (Figure 4.5) Chris chose a numerical rather than weekly format to organise the course. Chris indicated that this screenshot was a sub-set of the course and they shared it because they found it interesting. It contained a mix of activities which highlights the enactment of the ABC course design methodology (Young & Perović, 2015) which Chris adopted. They provided detailed guidance for students about what they should do and how long it would take as Chris highlights.

> *I specified very explicitly what to read, typically up to 5 pages or something like that in a single go, and I said please go to this book and read section, I don't know 3.2, it should take you about half an hour or something like that.*
>
> Chris

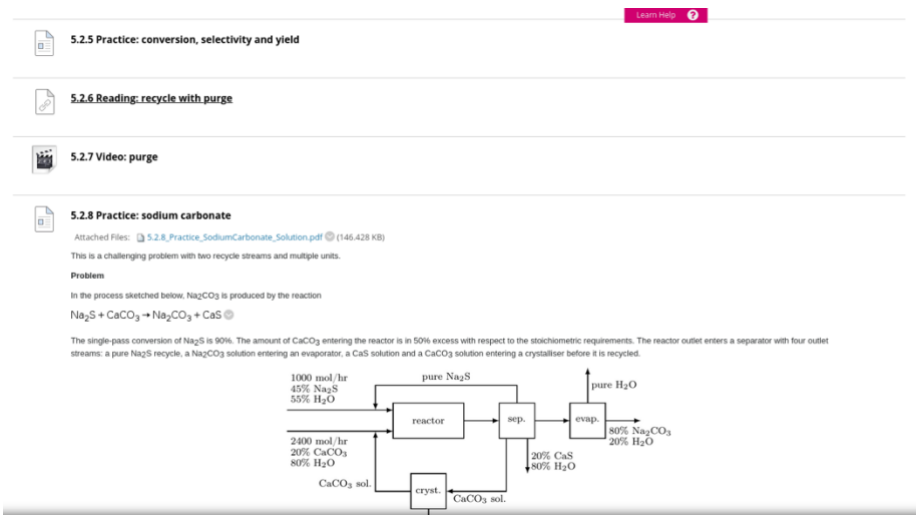

Figure 4.5 A numerical course structure.

Chris reflected that there were aspects that they plan to change in the future, for example they plan to make the solution available at a later date to encourage students to ‘attend’ live digital seminars and participate in dialogue with the educator and peers.

The VLE was used as a way to structure student activities and workload. Some decision making about student workload was based on institutional guidance about the number of hours contact time students should have although this varied across Schools. Some Schools gave guidance about providing online alternatives to in-person teaching activities. For others the initial focus was on providing content with some Schools requesting that the content for semester 1 should be available on the VLE prior to the start of the semester. The different enactments of hybrid teaching across the organisation are explored in Chapter 5.

4.5.2 Student workload and time on task

There was recognition that students needed guidance about how much time to spend on activities although some were more conscious of doing this than others.

Providing a clear structure and realistic timings to support students' learning

Weekly Overview: Understanding Health and Illness

Enabled: Statistics Tracking

Day	Activity	Detail	Time (approx.)
Monday	Lecture	Introduction to Social and Ethical Aspect of Medicine (SEAM) Introduction to Unit 1: Understanding experiences of illness	17 mins 10 mins
Tuesday	Introduction Reflection Lecture	Outline of the topic 1.1 First thoughts: what do we mean by.... 1.2 Understanding health and illness	5 mins 20 mins 20 mins
Wednesday	Lecture Case application	1.3 What influences lay perspectives? 1.4 Apply your learning to the case and post on the discussion forum	30 mins 30 mins
Thursday	Lecture Patient presentation	1.5 The importance of understanding lay perspectives. 1.6 Watch the recordings by Anya Dhongh	15 mins 20 mins
Friday	Topic review Reflection Next Steps Going Further	Check key learning points Note some reflections Read information on what's coming up next week Explore the going further resources for this topic	30 mins

Figure 4.6 Weekly student timetable identifying activities and suggested time allocations (time on task).

This example (Figure 4.6) provides very clear guidance for students throughout the week which allowed some flexibility about when the tasks needed to be completed by.

> *I always said to them that the Monday, Tuesday, Wednesday, it was flexible for them to work at whatever pace they wanted, and in whatever way they wanted, it was just there as a guide that they could do this on the Monday, Tuesday, Wednesday, but things had to be done by the Thursday…*
>
> Charlie

As well as keeping the students on track with their progression though the course, it also acted as a trigger to seek help if they were taking longer than suggested.

> *I think for them a little bit of a guide so that if there's a lecture that's a 10 minute lecture, and we put in 20 minutes, or 30 minutes, depending on what it is, and it's taken them an hour, then it's maybe for them to think about their own study skills as well, this is all taking me a bit too long, what's going on here, can I go and speak to somebody about this, so we've kind of said that to them as well.*
>
> Charlie

The example is taken from a course on the undergraduate medical curriculum which is a demanding programme with a full timetable. Students are expected to allocate 35 hours per week to their learning which is the equivalent of a full-time job. Charlie reflects that students are likely to have gone over the hours required to complete all activities during the hybrid course. They were very mindful of the nominal hours allocated to their part of the curriculum although there was awareness that not everyone did this.

> *So for semester, for year one, our allocation [of student time to work on course tasks] I think is either at 8 or 8.5 hours per week…so that's any*

> *contact time, any live contact time, any sort of group activity you get them to do outside that, any reading, looking at lectures, all of learning activities, everything has to add up to that. So I stuck to that, well I was very mindful of that, and really thought about trying to stick to it as close as possible, and trying to be as realistic as possible, and I'm not sure other parts of the course did, in fact I know other parts of the course didn't, some parts did and other parts didn't.*
>
> Charlie

Although this required preparation and thought, there was positive student feedback and the perception that this time was useful and will be helpful for teaching and course design going forward.

The time on task approach was also adopted in other curriculum areas. Chris highlights how this approach forced them to remove content and to leave essential content, and student feedback confirmed that this estimate was fairly accurate.

> *I think I aimed for 8ish, 8 hours a week. So I broke everything down and I forced myself to remove content if I was clearly above 8 hours and which was good because of the high quality content remained, and students told me that the 8 hour estimate was quite good. I mean some students said well I needed longer than 8 hours but I know that I'm a slow learner so I was not surprised so your estimate was good, I took longer but it was because I'm more at the tail, the longer tail. There was no student who said well this was completely unrealistic.*
>
> Chris

Student perceptions of workload were impacted by the hybrid teaching approach which was unfamiliar to them and felt like additional work although this perception changed during the academic year.

> *The students felt, I think, that that shifted quite quickly, it was almost like they had more work to do, which they didn't, but I think they felt they had more work to do on their own, you know, instead of having us there all the time, because they benefit so much from having such a small group, a year group, that they normally get pretty much 1:4, 1:5 teaching ratio, so they probably would have felt that was quite a change. They've come full circle and actually they, you know, simple things like financially they're better off, they're not travelling into the hospital, they have more time to study. I think they're learning, you know, what suits them and how they learn, and that actually probably didactic teaching for 90% of them probably wasn't that beneficial.*
>
> Luke

As the academic year progressed those educators who had spent less time thinking through the workload implications of their course design recognised that students were overwhelmed and made an effort to rectify this.

> *I think to start with we're all quite excited about online learning, and everything, and we're getting by, and we're doing all this stuff, and particularly in the 1st year course because that ran over 2 semesters, it was a 40 credit course, and I think it took until semester 2 for us to all, for us to know the students well enough for them to say we're really struggling here, and for us to accept that we can't keep throwing things at these students and expect them to keep up, and then you begin to talk to other colleagues, and other courses, and to hear anecdotally that you know students are really beginning to suffer, and then of course I think it was during semester two that there became a bigger, I suppose, a bigger emphasis on their mental well-being, and I think at that point we're then let's try to pare things back, where possible, on these 40 credit courses, let's just try to balance it out a bit, but it is difficult, it is*

> *difficult to get the balance between the learning and the actually the health of everybody.*
>
> Jack

The VLE was used as a digital placeholder which educators could use to structure and design the building blocks of hybrid teaching. It was more than a repository of material, and instead evolved into an extension of the course; a place that could help guide students through their learning and a tangible (digital) space where educators could explore and make visible aspects of hybrid teaching. The VLE was just one space that was used in this way, it was the place educators were directed to by institutional guidance and support, however as educators explored what was possible within the confines of the dedicated university digital environment, they began to look for other spaces that could help them and their students explore alternative hybrid environments and activities.

4.5.3 Other digital teaching spaces (teaching beyond the virtual campus space)

In addition to the VLE, a number of other digital tools were used to design and enact hybrid teaching. These were a mixture of university supported and non-supported tools and so these tools could be considered to sit outside the 'walled garden' of the university virtual campus. Padlet (a tool not supported by the university) was identified by a number of participants as a tool they used during hybrid teaching.

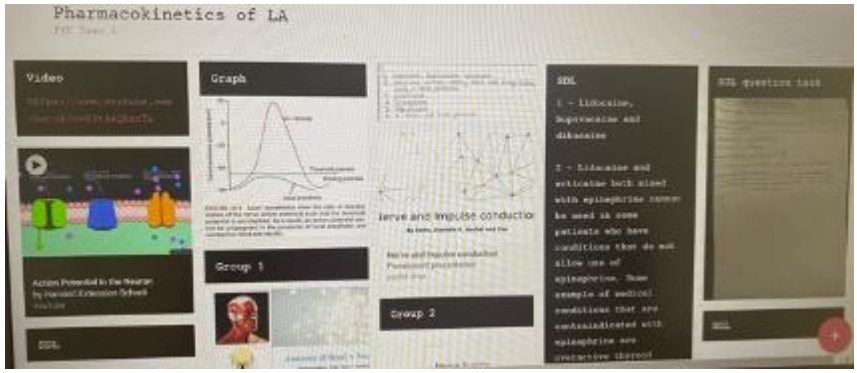

Figure 4.7 A collaborative digital space co-created by students (a flipped classroom approach using the Padlet tool).

This example (Figure 4.7) was used during Mixed Mode Hybrid teaching for a clinical course (the types of hybrid teaching are explored further in Chapter 5). Students were asked to share their learning from the self-directed learning they were asked to complete prior to a live digital teaching session which is referred to by Luke as a lecture. Both Luke and the students shared resources via the Padlet with the students could then revisit.

> *And this is all about, this lecture is all about how local anaesthetic works, and what components are in local anaesthetic, it's pretty difficult, you know, it's anatomy, chemistry, some pretty big safety elements. And it's normally a big lecture, so it was nice to condense it, and then I could embed this into [the VLE] so that they had one big resource that they could look at, you know, after the lecture and refer back to. We found that they found this quite beneficial, so they had done work before, they had a face to face session, they had a task essentially that they had to build this, and then they had a revision point that they could go back to. So we felt, this was one of the ones I felt we almost went fully circle…*
>
> Luke

Luke goes on to reflect about the different ways the tool could be used.

> *…you can use it in all different ways, you can use it for feedback because people can post anonymously, they [the students] can also build their own, and embed it into discussion boards for each other to*

> *use, and we did encourage them to use it to build, you know, quite big revision sources. And I think it gave them some re-assurance that they were all doing the same thing. It was quite nice to see, I think they will feel that it was quite nice to see what one of their colleagues were posting and looking at, and they were on the same lines as them.*
>
> Luke

So Padlet was used to support flipped learning, student discussion and peer learning, and for revision purposes. It was the most commonly non-institutional supported tool referred to during this research.

Figure 4.8 is an example of how a Padlet was embedded in a website rather than institutional VLE. This is used as part of a group activity which is embedded within the course structure to help students consolidate their learning.

> *So each team had to make a challenge for the other teams to try out, and then we had to come up with scoring systems, and then they had to come up with match reports and all sorts of things, but essentially everything had to be uploaded and posted onto these Padlets, and our seminars for these 4 weeks really revolved around looking at the Padlet, and they usually had one reading to do as well just to help them consolidate their understanding of this sport education which is a Models-based Practice, but really it was a really nice way to finish that, and each of the 4 groups had their own Padlets on there, so that worked really well.*
>
> Jack

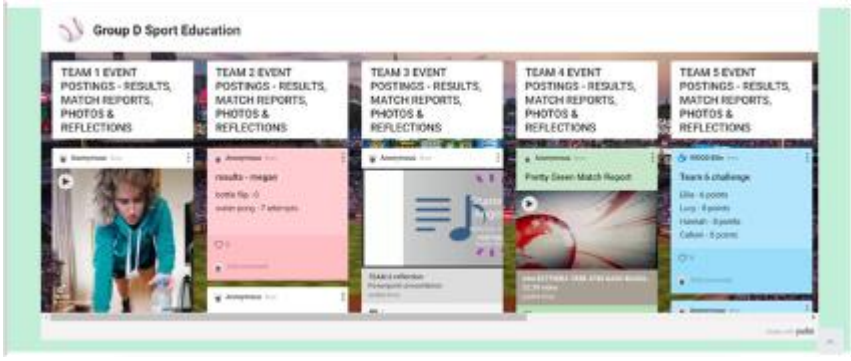

Figure 4.8 An asynchronous group activity using Padlet.

In this further example Jan is an enthusiastic user of Padlet for lots of different types of learning activities, including anonymous feedback.

> *And I think Padlet is such a nifty, simple tool, that students really like. And one of the things I really like about it, it's just it's so flexible, like you know, there's so many different formats. The one I usually use is just the simple pin board, because then people can move them around, they can move them around in live time, they can group their things together. It's generally anonymous, so I have used it really successfully I think, in lots of things I've done, used it as a pre course reflection, so getting them to post their, you know post a photo of what mental health means to them, and a little blurb, and that really got engagement in that, because they knew it was anonymous, so they weren't afraid to say, I mean, they weren't afraid to express their true opinions and views and stuff. And then using that throughout the semester then, to go back and get them to reflect on how their knowledge has changed, and their learnings changed, from week one, before they started the course, that's been really, really powerful, and really visual. And I absolutely love it [the Padlet tool], and I've got my colleagues using it, and we've all seen the advantage of it.*
>
> Jan

Jan has also encouraged colleagues to use Padlet and highlights how it has helped them overcome some issues they have with the VLE to enable sharing

of teaching and learning content across different courses and different parts of the university structure.

Participants used many different tools and technologies to help them with hybrid teaching including MS Teams (an institutionally supported tool) Google Classroom and Google docs (non-supported tools), social media tools (Instagram and TikTok), and voting tools such as mentimeter. These tools were used by educators to design opportunities for students to participate and interact during hybrid teaching.

Some participants highlighted that hybrid teaching resulted in them moving away from proprietary software. Tom highlights a move from industry standard software to open software which allowed students to download the software to their personal devices and work outside university computer labs.

> *ArcGIS was the first one that came in, like it's what we call the industry standard, lot of employers use people who have skills in this software and we've been teaching in ArcGIS for a long time. The problem with ArcGIS is that its software that's proprietary, like you have to pay for a licence and it's very expensive. QGIS came later then try to produce something similar, and it's really good, actually and it's free, for a lot of time in the School there was some discussion about why don't we teach QGIS. I mean I was not so keen on teaching it because that meant I had to learn QGIS [laughing] but I was familiar with ArcGIS, but they were just like it would make sense to try to move into QGIS now, yeah but the industry still use ArcGIS, and then Covid happens, and then suddenly all the students on their laptop and you can download QGIS on their laptop and do work there, so I taught myself to QGIS, lot of time watching videos online and trying, lot of trial and error, and I managed to learn QGIS to a level where I could teach it, and … the students had the software on their laptop, and we could do the work at home, rather than having to go to computer lab on the university campus to be able to access the software and all that, so that means that, I think that's been really good because now the students now know, they know how to use*

> *the software, but they have it as well, which means that for their project, and this is something in geography, in geology, people use that more and more, so for their dissertation for example, we could do that on their own, and so and so I think that's been a plus.*
>
> Tom

Tom had to learn to use the software and highlights the advantages for students of moving away from the industry standard software. Prior to the pandemic there had been discussion about why they didn't use the open source software and teaching in a hybrid mode when students were no longer able to access campus computer labs resulted in an urgent need to change software.

Educators explored a range of tools and technologies as they considered how they would adapt their teaching for a hybrid teaching approach. The institutional VLE was used as a tangible and visible tool to help participants conceptualise changes to their teaching and enact pedagogical changes as they adapted their teaching to a changing and uncertain context. This offered some stability as it was a familiar tool for many although not always a popular tool as highlighted by the 'shockingly awful' description offered by Joe. Perhaps the frustrations and limitations of the tool might partly explain the adoption of a number of tools not supported by the university such as Padlet, and the Google suite of educational tools. Microsoft Office 365 was supported by the university so this decision might be a result of familiarity, preference, or perhaps a willingness to encourage student autonomy and choice over their preferred digital technology.

The choice of digital tools used to support educational goals and pedagogical approaches is a complex decision with lots of competing considerations. The context is crucial, as is the educators' knowledge of digital pedagogy to help them understand what is possible. They also need to have enough understanding about a range of digital technologies or know who can help them gain this understanding to enable them to make appropriate decisions. This highlights the complexity of the enactment of digital approaches to teaching and learning and the entanglement of pedagogy and technology.

4.6 Chapter Summary

The categories identified as aspects of hybrid teaching (Figure 3.5) have been used to explore in detail the variations in ways that hybrid teaching was perceived to be experienced by educators during one academic year (2020-21) of the Covid-19 global health pandemic.

Space and time were used as mechanisms to understand hybrid teaching, enabling educators to explore their understandings of binaries and modalities and how these might be refined through the possibilities offered by adopting hybrid teaching approaches.

The teaching experiences of educators during this stage of the pandemic was varied and depended on their context, and this is captured by identifying aspects of teaching from beyond the campus where educators needed to rethink their work environment both physically and digitally. This had implications for teaching from the home environment which made visible concerns about privacy and surveillance.

The pedagogic rationale and teaching approaches adopted were influenced by the teaching context during this period. These approaches built on flipped learning approaches requiring students to engage in content prior to ‘contact time’. This often took the form of pre-recorded lectures and innovative use of video for teaching during this period was explored by some educators. Barriers were encountered as educators pushed the boundaries of traditional practices and these were often voiced as concerns about lack of interactivity and engagement where the students often refused to use their webcams, which was perceived by some educators as a lack of engagement.

Structuring and designing the teaching and learning environment became a tangible way for educators to explore hybridity. They used university digital tools such as the VLE as placeholders and ways they could enact and design what they understood to be hybrid teaching in their particular context. Educators began to explore digital environments beyond university supported digital tools to design hybrid activities that were not possible within the

institutional digital teaching and learning environment. The digital teaching and learning environment was an essential aspect of the hybrid experience and the design of the environment required an understanding of both pedagogy and how their teaching approach could be enacted through the digital tools and technologies available to them. This understanding had implications for the student experience and engagement.

The aspects of hybrid teaching (Figure 3.5) captures a number of qualitatively different ways educators experienced hybrid teaching which were explored through the following:

- Space and time.
- Teaching experiences (mostly experienced beyond the campus).
- The pedagogical rationale and approach.
- Interactivity and engagement.
- The teaching and learning environment.

These help us understand the phenomenon of hybrid teaching as it was perceived by educators in this study. The importance of material elements on the perceived experience of hybrid teaching were evident in each of the aspects of hybrid teaching. Examples include an attempt to replicate on campus protocols to 'timetable' teaching spaces when working from home in shared physical spaces, and the need to be 'seen' as an educator in the digital environment. The digital was equally important, and this was perceived in different ways by educators. Some educators expressed frustrations and experienced barriers, others had a much more positive experience and the requirement to use auto captioning during the creation of media for hybrid teaching highlights different perceptions and experiences of digital technologies. The importance of digital technologies in shaping hybrid teaching practices is demonstrated in the tangible way the Virtual Learning Environment was used to enact hybrid teaching (Section 4.5.1) and through the exploration of a range of other digital tools (Section 4.5.3) which enabled educators to develop and shape their hybrid teaching practices.

The common characteristics of hybrid teaching are captured through a Hybrid Teaching Continuum which is explored in more detail in Chapter 5.

Chapter 5: Hybrid teaching – organisational approaches and emerging practices

This chapter identifies common characteristics of hybrid teaching which emerged from this research (RQ2). These are presented in a Hybrid Teaching Continuum comprising of 5 types or approaches to hybrid teaching; the development of the continuum is outlined and then each of 5 hybrid teaching approaches is explored in more depth. Examples of hybrid teaching are captured and mapped to the continuum to demonstrate the complexity and contradictions educators were required to navigate as they explored hybrid teaching. The influence of the organisational structure on the enactment of hybrid teaching and the approach adopted is briefly explored. This chapter integrates discussion of the findings and incorporates relevant literature to explore and make sense of the findings.

5.1 A Hybrid Teaching Continuum

When reflecting on hybrid teaching, research participants described a number of approaches which were mapped to a Hybrid Teaching Continuum (Figure 3.6). Space and time were identified as ways research participants made sense of hybrid teaching and this was explored in detail in Chapter 4. Space (in-person, digital/online, combinations of each) and temporality (synchronous, asynchronous, combinations of each) were used to identify the different types of teaching approaches that were adopted during the period of this research (academic year 2020-21).

Table 5.1 captures questionnaire respondents' experiences of hybrid teaching as represented by space (digital and/or in-person) and time (asynchronous and/or synchronous). The responses to this question in combination with the analysis of semi-structured interviews informed the development of the Hybrid Teaching Continuum.

Question Number	Question	Agree	Disagree	Total Number of Responses
1	The majority of teaching that I have been involved with has taken place in the digital space with NO in-person teaching.	31	17	48
2	The majority of teaching that I have been involved with has taken place in the digital space with SOME in-person teaching.	19	29	48
3	I have been involved in a mixture of in-person and digital teaching at different times.	24	26	50
4	I have been involved in teaching in-person and digitally to my students at the same time.	6	42	48

Table 5.1 Hybrid teaching modes adopted during AY 2020-21.

Questionnaire responses received encompass the university academic structure with all 3 Colleges represented (Figure 5.1) with responses being indicative of the hybrid teaching approaches adopted across the institution at this point in time.

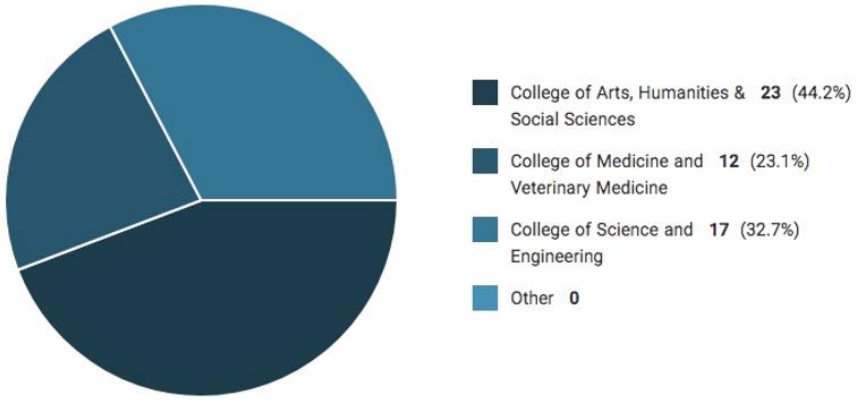

Figure 5.1 College representation of questionnaire respondents.

The questionnaire data was gathered between February and May of 2021 so towards the end of the academic year being researched and provides a good insight into the teaching modes and approaches adopted across the university. The responses to questions 1 & 2 in Table 5.1 indicate that teaching took place digitally with minimal or no in-person teaching for the majority of respondents (Digital First on the Hybrid Teaching Continuum). Just under half of questionnaire respondents (question 3 in Table 5.1) indicated they had been involved in a mixture of in-person and digital teaching at different times and this maps to Parallel or Mixed Mode Hybrid on the Hybrid Teaching Continuum. Only 6 from a total of 42 (14%) of questionnaire respondents indicated they had been involved in Live Hybrid teaching (question 4 in Table 5.1).

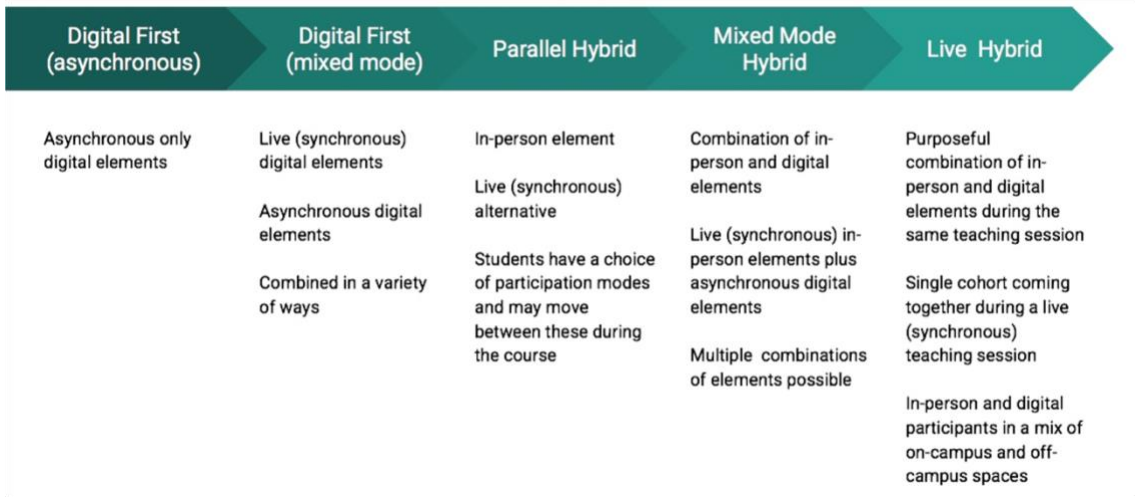

Figure 3.6 The Hybrid Teaching Continuum.

Building on the data gathered from the questionnaire and from analysis of the semi-structured interviews, 5 types of hybrid teaching approaches were identified, and these capture the common ways participants understood and experienced hybrid teaching (Figure 3.6). Time (synchronous, asynchronous, or a combination) and space (in-person, digital, or a combination) were used to identify the common characteristics of hybrid teaching which were categorised into the 5 approaches identified. Not all hybrid teaching approaches fit neatly into the hybrid teaching types identified; there is overlap and movement and this is captured by presenting the hybrid teaching types as a continuum. The type of hybrid teaching approach adopted was context dependent and there could be movement across the continuum with more than one hybrid approach adopted by some educators during the academic year being researched (2020-21). This continuum is an attempt to capture key elements which represent a complex approach to teaching during a time of uncertainty and rapid change.

5.1.1.1 The Digital First components of the continuum

Digital First refers to teaching that takes place in digital platforms only without any in-person or on campus elements. There were two types identified:

- Digital First (asynchronous)
- Digital First (mixed mode)

The uncertainty and not knowing what impact the pandemic-imposed restrictions would have for teaching influenced decisions about adopting a digital first approach. This negated the need to comply with social distancing requirements on campus although this approach would not be feasible for all discipline areas, and Humanities and Social Science disciplinary areas were more likely to adopt a digital first approach. Other disciplinary areas were more likely to adopt some in-personal elements when government restrictions allowed (see Chapter 1.3.1 for further context).

Teaching students in a live (synchronous) mode was not an option for some parts of the university as there were concerns that students would not receive an equitable and accessible experience given that many had travelled away from the university campus and were physically located in different time zones. This was a new consideration for many educators who had not previously had to consider the impact of teaching students who were dispersed across the globe and the asynchronous digital first mode negated the need to consider time zones.

In a Digital First (asynchronous) hybrid teaching approach all activities took place on digital platforms at a time and pace that was flexible (although there were expectations and guidance provided about time frames). This required students to work at their own pace in an autonomous way. The uncertainty around the pandemic coupled with what was for the majority of educators an unfamiliar approach to teaching resulted in some parts of the university adopting this approach. This approach offered a safer way of 'moving online' and by avoiding live online teaching concerns about privacy and 'zoom bombing' could be avoided.

Not all educators who were asked to adopt a Digital First (asynchronous) approach agreed that this was appropriate and there were concerns that the autonomy and expertise of the educator was not recognised.

> *I reserve the right to use my judgement as an educator to how I should present material. I reserve the right to choose methodologies and methods that I think are appropriate based on my experience, and I was not comfortable with a lack of interaction, I was not comfortable with the idea that we wouldn't be having a real time conversation somewhere.*
>
> Drew

Drew identifies some frustrations with this approach such as a lack of autonomy as an educator to contextualise their teaching using their professional judgement and experience. There is also a concern identified that asynchronous teaching approaches would lead to a lack of interaction with

students. This educator was confident with digital technologies and willing to explore and innovate with digital approaches. This is not always the case for experienced educators as they begin to explore digital teaching approaches. Literature suggests that less experienced online educators could be considered novice online teachers and were less likely to change their approach to teaching when using technology (Englund et al., 2016). Drew is perhaps less familiar with digital pedagogies and the possibilities of designing asynchronous activities to engage and have a dialogue with students. The online learning literature provides evidence that interaction and engagement is possible in asynchronous teaching and learning (Siemens et al, 2015) and it may be that Drew was concerned about an asynchronous only approach not providing opportunities for students to engage in their learning, or it may be that Drew knew their students and understood what would work better for them pedagogically and that live teaching would be better for them in their context. Whatever the reasoning behind Drew's rationale, this educator did use a mixture of asynchronous and optional synchronous (live) teaching and got good feedback from their students. Educators' understandings of interactivity and engagement during hybrid teaching are explored in more detail in Chapter 4.4.

The asynchronous component of a Digital First approach did have advantages which were framed by some educators as a reassuring element of hybrid teaching affording students the opportunity to review any asynchronous materials they didn't understand. Ed highlights how the asynchronous elements are supported despite taking place outside live teaching sessions. This contradicts some of the messaging about teaching outside campus teaching spaces (with a focus on the need for on campus teaching) being of less value or quality.

> *So hybrid teaching I think definitely has to do with a fully online approach, but incorporates different elements there, like live sessions but also as I said tasks that people do in their own time. And also very much focuses on this kind of independent learning experience as well, which is still structured and supervised but the onus to do the work is*

> *very much on you as well as a learner. So that's what I would say is hybrid teaching as I now I understand it at this moment in time.*
>
> Ed

Ed considers a fully online (digital first) approach to be hybrid teaching '…as they understand it at this moment in time', showing some awareness that understandings about hybrid teaching will evolve.

Some participants questioned whether the digital first approach could be considered hybrid teaching at all, and time is again used to contextualise understandings at a certain point or 'stage' [of the pandemic] *'…there was a stage where everything was online, so I mean is that hybrid? I'm not sure?*' (Anna*).*

Participants did reflect on their understanding of hybrid teaching and how their experience of teaching aligned with university language and guidance. Whilst questioning the use of the term hybrid teaching to describe their teaching approach, this participant makes a distinction between teaching that was online (referred to as Digital First in the Hybrid Teaching Continuum) and teaching that was 'face-to-face' (in-person to use the suggested university terminology) and there is acknowledgement that they are both important aspects of teaching and they 'support each other mutually'.

> *I think my understanding of hybrid teaching even though the university was using that language last year, doesn't really fit with what I did last year. I think what I did last year was online teaching, so my expectation of hybrid is that it would have both online and offline elements, so the offline stuff is the kind of face-to-face, on campus, in vivo terminology, and then the kind of online stuff in the, I want to say the background kind of is a support structure for what you do, I guess yeah, they both, the online and the offline support each other mutually would be my sense of it.*
>
> Nic

The language used by the university and across the education sector is important as it helps educators situate and contextualise their teaching approach. This helps them develop and understand how to incorporate and embed digital approaches in their teaching.

5.1.2 The Hybrid components of the continuum

The Digital First components of the Hybrid Teaching Continuum focused on the digital (or online) aspects of the teaching and learning environment. The physical and material elements were less visible in these approaches as they took place outside the university physical campus (these are explored further in Chapter 4.2). The binary between the digital (virtual) and the physical (analogue) is becoming increasingly blurred as all learning involves embodied elements (Gourlay, 2021) and this embodied aspect of hybrid teaching was evident during this research.

The elements of the continuum that have ‘hybrid’ in the title all offered options for educators and students to be physically present on campus spaces (in a university building) so there was more awareness of the physical teaching and learning spaces. These hybrid elements of the continuum also included digital (online) spaces and a mixture of synchronous and asynchronous modes. The three hybrid approaches identified are:

- Parallel Hybrid
- Mixed Mode Hybrid
- Live Hybrid

5.1.3 Parallel Hybrid

In this approach any in-person teaching components were expected to have a digital (or online) alternative in an attempt to offer an equitable experience for students. The uncertainty of what would be possible as a result of Covid-19 related restrictions and whether students would be able to travel across borders and physically be on campus influenced the thinking and development of this approach. Those who were physically in the city might be able to travel to

campus so they should be offered some in-person (on campus) teaching component.

In the Parallel Hybrid approach students would be offered in-person teaching for a set number of hours per course and an online alternative should also be developed and offered in parallel to this in-person contact. The in-person element of Parallel Hybrid was compromised because of the social distancing restrictions and those students who were able to travel to campus teaching and learning spaces were choosing not to do this.

> *I mean we did try and do some in-person teaching, but a combination of more strict kind of lockdown rules, but also just the experience that the students were having was that they were not comfortable, or they, not so much they weren't comfortable, it's just that they weren't getting the value out of coming in for the hybrid activities, because the hybrid activities were so compromised, for the in-person activities were so compromised by the social distancing rules, that you couldn't really have the same quality delivery of a practical class, or tutorial. So they were [the students] predominantly opting to do the online alternatives.*
>
> Joe

Even when offered in-person activities, students were opting to participate online (digitally). At this point in the pandemic, this decision was likely to be related to health concerns however it is a pattern of behaviour that has continued beyond this period as students continue to choose to take advantage of hybrid or blended learning if this is offered (O'Dea & Stern, 2022; Didymus & Killen, 2022).

5.1.4 Mixed Mode Hybrid

Mixed Mode Hybrid involves multiple combinations of in-person/digital elements and asynchronous/synchronous elements. The Mixed Mode Hybrid approach was more likely to be adopted by disciplines where in-person teaching was difficult to replicate in the digital environment such as clinical subjects. The

pandemic restrictions led to limitations on what could take place within campus teaching spaces resulting in some substantial adaptations being made to these teaching spaces. This included limitations on class sizes and layouts on campus, adaptations to the equipment being used to teach in these spaces, and a requirement for face masks to be worn by staff and students.

Perceptions about where courses and programmes are placed on the continuum is open to interpretation as the following examples demonstrate. Some courses which adopted a digital first approach could be considered as Mixed Mode Hybrid when viewed from a programme perspective as students would have experienced a mixture of digital and in-person elements across different aspects of the programme.

> *…for the course [the programme], we did have face to face for some of the students because clinical skills you can't teach online, you really have to have students there and the groups they were in bubbles, and all that sort of thing. So in that sense probably the programme had a little bit of hybrid in there, but my own teaching as I said was research, and that was purely online, there was nothing there, there was no face to face, which is what I normally do…*
>
> Nic

Nic recognises that their course is aligned to a digital first (online) approach, however the programme is from a clinical disciplinary area and some components such as teaching clinical skills are more appropriate for in-person teaching. This is recognised by Joe who views hybridity from a programme/departmental perspective where the pandemic-imposed limitations resulted in the necessity to prioritise which aspects of the programme should be in-person.

> *So as a kind of department how we did this was, we looked at, ok, where can we actually have face to face teaching, you know, that's socially distant, and that actually if they need is, what's kind of mandatory. So we kind of prioritised one thing in every year…*
>
> Joe

The different possible combinations of Mixed Mode Hybrid fit with some pre-Covid understandings of hybrid where learning occurs in physical and digital spaces and this focus on space fits with assertions that to explore hybridity we need to fundamentally rethink conceptions of space (Stommel, 2018), to conceptualise space in new ways (Lamb et al, 2022) and recognises the fluid nature of space (Gourlay & Oliver, 2018). The intersection between various forms of hybridity (Stommel, 2018) would include an exploration of asynchronous and synchronous forms of hybrid teaching and learning, and challenge assumptions that time is neutral (Gourlay & Oliver, 2018) and that it does impact the design and enactment of hybrid teaching and therefore needs to be considered and explored.

5.1.5 Live Hybrid

The Live Hybrid approach involves synchronous teaching sessions where those physically located on campus and in university teaching spaces would mix with those located off-campus and joining digitally. There were particular challenges identified when this approach was adopted, and these were both pedagogical and technological in nature.

During Live Hybrid teaching the educator had to consider how to overcome the division experienced by students physically on campus, and those who were joining digitally from another location. Sam highlights how challenging this was and used a bridge analogy to describe their role in bringing together students from these different spaces.

> *…so I made a particularly conscious effort to try to get as many answers, and many, as much discussion from those online as those in the room.*

> *And the aim was to try and make sure that those in the room were aware of what was happening online, and those online were aware of what was happening in the room. That was actually quite challenging with their technology, but by trying to at least bridge across that divide, you have a sense of presence of both, so they feel that actually participating in something larger than what they can see on their screen or see in the room.*
>
> Sam

Initially the technology was considered to be a barrier to Live Hybrid teaching however as a result of experimenting with different teaching approaches and technology set-ups and sharing these with colleagues, understandings evolved and workarounds were identified. The university was considered to be more prepared for Live Hybrid teaching towards the end of the academic year 2020-21 and there were aspirations to explore this further the following academic year.

The benefits and limitations of hybrid teaching have been explored during the pandemic although this is an area that has had limited research (Raes et al, 2020). Live hybrid teaching continues to be an aspect that educators are interested in exploring (Coyle et al, 2022; Goria et al, 2022) and it will be interesting to see how live hybrid teaching evolves as we move beyond the emergency and restrictions of Covid-19.

5.2 Examples of hybrid teaching activities and approaches

Some examples of hybrid teaching have been captured here to demonstrate different points on the continuum. These examples showcase the innovations that were taking place in hybrid teaching and learning spaces, they also highlight some of the barriers educators and students faced as a result of pandemic-imposed restrictions.

5.2.1 A Parallel Hybrid field trip

At the beginning of the academic year field trips were still possible although these had to be adapted as travelling abroad was restricted. Some field trips did take place at a local level where social distancing was required although not always maintained. In the following example, Joe commented on the difficulties of maintaining social distancing in outdoor spaces and shared the following image to highlight students working in close proximity.

Figure 5.2 A Parallel Hybrid field trip.

The field trip had to be re-arranged which was challenging and Joe comments that students were not maintaining the 2m social distancing that was required during this period of the pandemic. Some students were able to be physically in the space of the field trip and complete the required activities. For those who were unable to be there physically (they may have been isolating or unable to travel to the campus) a remote alternative was offered (a Parallel Hybrid approach). Short videos were recorded each day to ensure the students could work with their group and any measurements that were taken by those physically present were able to be analysed by all students. Depending on how these collaborative group activities took place, if the in-person and online cohorts mixed asynchronously for example, this aspect of the field trip could be considered a Mixed Mode Hybrid approach. Joe highlights the benefits of this type of hybrid approach.

> *I mean the way that students were able to work in a group, but with the students remotely, was much better than the group work that came out of the completely online activities that we were doing. Having some aspect of in-person stuff really did add that value to the to the whole exercise, it got the students a lot more invested in the project because they were more physically involved in it. So yeah, it works really well.*
>
> Joe

This example also demonstrates the fluidity aspect of the continuum, where the type of hybrid approach would depend on the context and the mixing of the in-person and digital student cohort for the group aspects of this example.

5.2.2 A Digital First field trip

There were points during the academic year when physical field trips were not possible and so alternatives were designed. The following is an example of a virtual field trip where a Google Earth image of the South of Spain is superimposed with a digitised geological map. The colours represent different rock types, and different exposures are also represented on the map by the circle on each of the days enabling students to look at them in context and interact with the map.

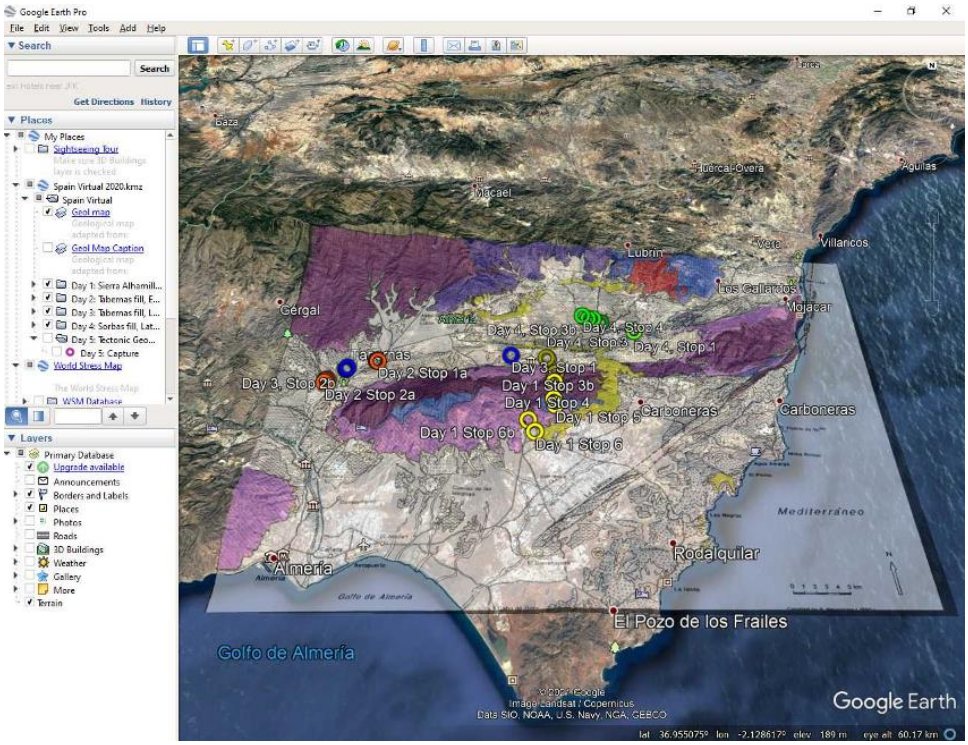

Figure 5.3 A Digital First field trip.

Although the physical components of field trips optimise the learning experience for the students, there are instances where it would be appropriate for virtual field trips to continue once students were able to travel to field-trip locations. It may not be appropriate or possible for students to travel to a remote or dangerous location for example, or a decision may have been taken to limit travel to field trips for sustainability reasons.

Tom considers the benefits of the innovation that has emerged from pandemic-imposed restrictions.

> *… like it's created this new format where you can actually take students and get them to really appreciate the geography, the geomorphology, without needing them to be, to actually be there, so I think that's really open new perspective I think and that was brilliant.*
>
> Tom

Tom is thinking about how virtual field trips might be incorporated into courses going forward to take advantage of some of the benefits associated with the

virtual field trip offering students the potential to study and understand the location without being physically at the location being studied. This negates the need to arrange foreign travel and all the associated resources, costs and the potential to help reduce the carbon footprint.

5.2.3 Mixed Mode Hybrid clinical teaching

For those teaching clinical disciplines, it was difficult to replicate the in-person components. Changes had to be made to the design of their courses to enable the students to meet both university and professional body accreditation. As a result of lockdown, the in-person components had to be moved to later in the academic year when essential teaching was permissible on campus. This did have a knock-on effect on student learning resulting in some programmes having to extend (into a 5th year), whilst on others the students did not have the skills expected at that stage in the programme which impacted student placement activities and learning. Despite the uncertainty and the adjustments required to teaching spaces to comply with evolving Government, University and NHS legislation, guidance and policies, innovative teaching practices were emerging.

There were less opportunities for patient contact and in the following example, phantom heads were introduced to enable in-person teaching of clinical skills. The theoretical components of the course were taught digitally.

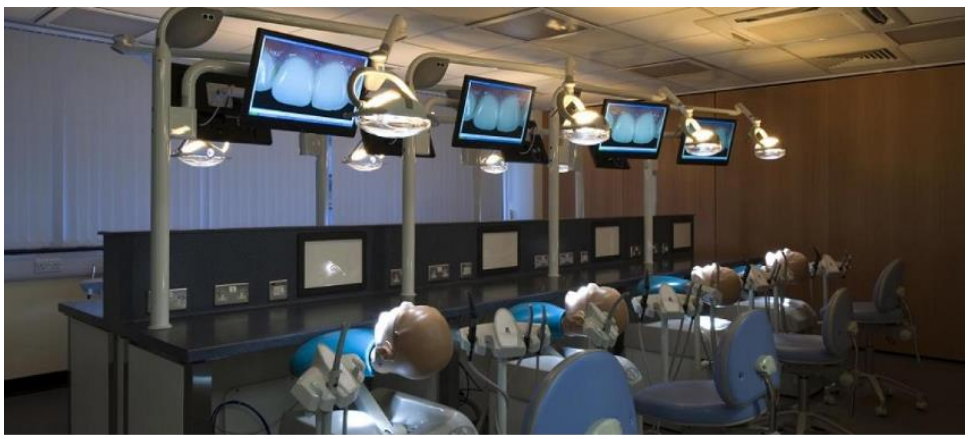

Figure 5.4 Clinical skills Mixed Mode Hybrid teaching using phantom heads.

The above example demonstrates the in-person teaching space, however there are digital components of teaching visible here, note the digital images above the phantom heads demonstrating the integration of digital technologies for the 'in-person' component of the Mixed Mode Hybrid course. This example demonstrates the flawed binary between digital and analogue (Gourlay, 2021). The importance of the digital is evident here demonstrating the need to pay attention to the digital and the need for a postdigital lens to consider the digital within the material on campus teaching space. The distinction between digital and material aspects of teaching and learning are entangled and complex, and this is recognised by depicting hybrid teaching as a continuum that evolves and is fluid.

The phantom heads did provide some reassurance and the opportunity to develop clinical skills, however there were compromises. The importance of the material and physical experience is not always easy to replicate as Luke highlights.

> *So these clinics were working on the phantom heads, but also working on each other, so they didn't lose, you know, there's simple things, there's certain ways that you sit when you're working on certain areas of a patient's mouth, so you know, it was so they didn't lose that skill, they didn't lose working with a nurse, they didn't lose looking at patient records, using the suction, picking up an instrument, you know, sitting at a chair. Whereas the phantom heads in the clinical skills just sort of pop up and down, there's no actual chair or nurse, or suction, or anything like that. So it was to try to, it was the closest we were going to get before we were allowed patients back."*
>
> Luke

Compromises were required for the in-person teaching aspects of hybrid teaching as a result of pandemic-imposed restrictions with phantom heads being used instead of patients. There is much more focus on the compromises that took place in digital spaces during the pandemic which is underscored by

the deficit language used for online teaching (Sinclair & Macleod, 2015; Ross et al, 2019; Fawns et al, 2020; Hodges et al, 2020), and is also evident in the messaging to 'return to normal' and on campus teaching (Bryant, 2022). This is perhaps a reflection of the desire to return to what may have been perceived as stable teaching and learning approaches and practices. The requirement to explore digital teaching approaches during the pandemic resulted in a collision with everyday existing practices which were previously unnoticed and considered normal (Boys, 2016). The changes required to teaching and learning made everything more visible, including underlying tensions that existed before the pandemic. This is explored further in section 6.2 where assumptions about traditional teaching practices are considered.

5.3 Organisational structure and the adoption of hybrid teaching

The Hybrid Teaching Continuum maps the common ways hybrid teaching was implemented across the university. The different types of hybrid teaching approaches identified during this research have been presented as a continuum to reflect the changing understandings of hybridity during the period of the research which is partly a result of the experience gained of teaching during this time, and partly a reflection of the uncertainty of Covid-19 mitigations and restrictions that had to be navigated during this period.

The decision making about implementing hybrid teaching, like many aspects of university decision making, was very devolved. Colleges and Schools adopted different interpretations and implemented hybrid teaching approaches in different ways. These decisions were taken at a time of great uncertainty and a plan was put in place for Semester 1 of 2020 in the hope that things would return to some normality (less lockdowns and social distancing) by semester 2. This turned out not to be the case and a further lockdown was imposed in early 2021 (Scottish Government, 2021) and the pandemic had implications for the teaching throughout the academic year (and beyond).

The type of hybrid teaching approach adopted was likely to be dependent on where in the organisational hierarchy the course was, often this decision would

be taken at the School level and the more nuanced decisions would be taken at the programme level. An example of this is decisions about what in-person teaching should be prioritised would be made at a departmental and programme level and not all courses would have in-person teaching.

> *...where can we actually have face to face teaching, you know, that's socially distant, and … what's kind of mandatory. So we kind of prioritised one thing in every year, and in most years it's kind of clinical skills that we prioritised. So in some ways our hybrid approach wasn't just at a course level, it was maybe perhaps more at a programme level of going yes they will have some physical face to face, but we need to look about where that is in relation to everything else.*
>
> Joe

Understandings about whether the teaching approach was hybrid or online (Digital First) could depend on how the course was perceived in the overall organisational structure. A Digital First course with no in-person component could be perceived as hybrid when viewed from a more holistic perspective at a cohort or year group level.

> *…it was very much the idea that we adapt, so that we looked at the whole cohort, so a whole year group. So not all students would have had the same experience of how they were being taught, but they'd be taught the same material if that makes sense. So it's that whole sort of framework that I would consider hybrid teaching, which I don't think was explained very well to the students but that's a whole different issue.*
>
> Adam

Some courses could in fact be considered online only (digital first) despite being part of a hybrid programme or cohort when applying hybrid teaching as a framework. This did lead to tensions where some students may not have experienced any in-person teaching despite communications being made that the teaching approach was hybrid. As the decision-making process evolved

there were contradictory communications from different levels within the organisational hierarchy leading to confusion and frustration for both staff and students.

> *I'm now kind of across two different Schools, when we use phrases like hybrid teaching or what we should be doing online this year and so on, I have to work under two different expectations, because there's not a university wide expectation of what hybrid teaching is. Oftentimes it is specific to the programme, potentially even to the School…….*
>
> Drew

> *…the fact that there is no university consensus on what any of this means is really, really problematic because if we were all speaking with a single voice, then that would be one thing. But [name of School] is one of those Schools with a lot of joint students which you know, there's many Schools like that, so they hear something slightly different from each School, and that's the [name of university] way, but it leads to confusion at the best of times, and in you know, the situation we were in, it really got very, very problematic I think, and there were a lot of angry students…*
>
> Adam

The mixed messaging and processing of multiple sources of information resulted in additional pressure and confusion. The lack of consensus was problematic and student expectations had to be managed. Research participants expressed frustration and concern that they were left to deal with angry, agitated, and worried students. There were concerns about student wellbeing and mental health during periods of lockdown and educators made an effort to reduce isolation and encourage a sense of belonging through the design of learning activities and interactions (this was explored in Chapter 4.4). Educators encouraged collaboration and participation during formal course activities to help reduce social isolation. One participant described how they used the provision of feedback on a formative assessment as an opportunity to

check in and have a conversation with students they had particular concerns about.

There was also recognition that the pandemic resulted in a unique set of circumstances and even those students who could participate in-person were often isolated, as they were unable to mix freely. They were expected to remain within ‘bubbles’, their routes to and from class were controlled, with one-way systems in operation, and there were no opportunities to mix informally and go for a coffee and chat after class.

The contradictory and confusing communications impacted the student experience of hybrid teaching and learning, and many were disappointed with the experience even when the quality of work was better than previous cohorts.

> *I think there were irresponsible decisions, but worse, the students were led to expect something that looked like normal, and I think that led to, even when we told the students that they were performing in ways that we wouldn't normally see, like the quality of discussions that we were getting were better than what we've seen in a normal year, and part of this was because work had been done to create this online learning environment and experience for them, they were still deeply disappointed.*
>
> Stevie

This communication was taking place during a global pandemic and decisions were being made during unique and unprecedented circumstances. Students and educators were having to adapt to uncertainty and change. There was understandably a focus on the negative impact of pandemic related changes, and this has resulted in less than positive messaging about online learning which has previously been outlined. Despite the difficult circumstances of teaching during a global pandemic, there have been examples of innovative and enhanced practice and these are explored further in Chapter 6 which considers the longer-term impact of adapting to teaching during a global health crisis.

5.4 Chapter summary

The common characteristics of hybrid teaching are identified and have been presented as a Hybrid Teaching Continuum to capture the uncertainty and the necessity to adapt to unfamiliar teaching approaches during AY 2020-21. This resulted in movement across the continuum where more than one hybrid teaching approach might be adopted, and this was dependent on the context.

The Hybrid Teaching Continuum captures the key elements of a complex approach to teaching during a time of uncertainty and rapid change which has been explored using a sociomaterial lens, where space and time were used to distinguished different ways hybrid teaching was enacted. The importance of the digital is evident in the naming of some parts of the continuum and is reflective of the postdigital perspective I adopted during data analysis. The material and social, as well as the digital were all evident in this research and each had a role to play in hybrid teaching. How these overlap and are entangled will result alignment at different points of the continuum dependent on the context. Each are important elements of hybrid teaching and none were identified as being more important than others during this research. Five types of hybrid teaching were identified as part of the continuum: Digital First (asynchronous), Digital First (mixed mode), Parallel Hybrid, Mixed Mode Hybrid, and Live Hybrid. Each of these were explored and examples showcased innovations that were taking place during the period of this research (AY 2020-21) and captured some of the barriers faced by educators and students.

Decision making about the implementation and adoption of hybrid teaching was complex and devolved and was influenced by the organisational hierarchy. Contradictory and confusing communications about hybrid teaching were problematic and led to frustrations and tensions, often expressed though a dissatisfaction with hybrid teaching despite some positive examples of enhancements to teaching and increased quality of student work. The contradictions experienced through the enactment of hybrid teaching are

considered in Chapter 6 which explores the potential of a post-pandemic teaching landscape.

Chapter 6: Teaching beyond the Covid-19 health crisis

This chapter explores the potential changes to teaching and learning that might emerge from the experience of teaching during the pandemic. Interview participants were asked if they would continue to adopt elements of hybrid teaching going forward to open up a dialogue about their perceptions of the impact of hybrid teaching beyond the Covid-19 health crisis (RQ3). Responses to this question along with analysis of the wider data set provides some insights into ways hybrid teaching might impact teaching and learning beyond the health crisis. The uncertainty of teaching during the pandemic has influenced the ways educators perceive teaching beyond the Covid-19 health crisis. There have been changes in understandings and practices and shifts in thinking over time as educators began to understand the possibilities of hybrid teaching approaches.

There have been tensions and difficulties as well as innovations and opportunities to explore different approaches to teaching and learning. It is important to capture and learn from both the tensions and innovations and take time to reflect on what might evolve as a result of the insights gained. It is important to consider what aspects of hybrid teaching educators might want to keep and how these could evolve. This chapter provides an opportunity to consider the impact of hybrid teaching beyond the crisis period and offers some insights into the possibilities of continuing to explore and adopt hybrid teaching approaches. The chapter highlights some innovative hybrid practices and captures some questioning of traditional teaching and learning practices such as the lecture and the purpose of contact time. The value of CPD and the importance of finding time to continue to explore hybrid education are also explored.

6.1 Examples of innovative hybrid practices

The pandemic resulted in a unique set of circumstances where educators needed to make a rapid change to their teaching practices. Some viewed this as an opportunity to adapt their teaching approach and explore innovations.

The perception of what is considered an innovative hybrid teaching practice will depend on the starting point. For those educators who were already exploring non-traditional teaching practices, their willingness to consider alternative approaches, to explore hybridity, and push boundaries was evident. In the following example Joe highlights an innovative approach that was designed to help students achieve intended learning outcomes of a course that was challenging to design in the virtual space. Joe describes the importance of the physical and material elements of the activity.

> *…you're having to think how to deliver a field course when you can't go into the field, which is where you are, the whole learning objectives are how to interact with, and measure physical objects, which not only can you not touch the physical object, or even really see the physical object properly, but you also don't have any of the tools to measure it, and trying to deliver that that learning outcome remotely…*
>
> Joe

The alternative digital activity took time to design, there were discussions about the benefits for the students, and there were compromises that had to be made and the intended learning outcome was changed. The alternative digital activity did allow aspects of the intended learning to take place, and there were positive aspects to it, however it did require additional time and effort on the part of all involved.

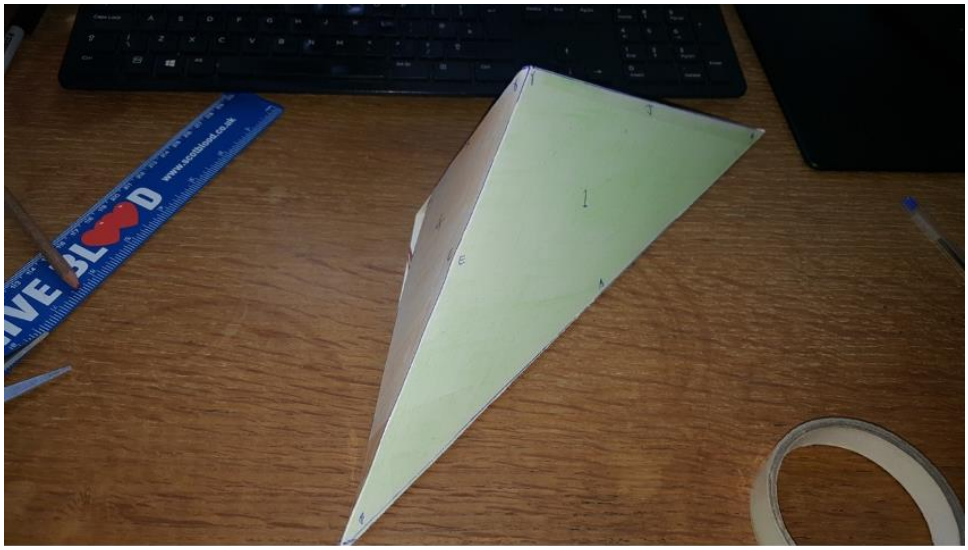

Figure 6.1 An example of a remote hybrid activity to measure the surface of an object.

…so we're doing this all online [measuring the surface of the image] through kind of video conferencing which was fun times, with multiple cameras, so I could kind of like zoom in, with a manual zoom by moving the camera in and out, and also basically run quick surveys where we basically, because we all have the same shape, and the shape has four sides, we can like switch it round, so we can say well if you put the green surface on the bottom, and align the long edge north-south, what is the red surface, what is the blue surface. And then we get the students to kind of like fill in a quick online quiz to compile everyone's measurements, so they're still kind of like having some kind of collective activity where they're bringing data together, and then we can show up some data and histograms, stuff like that to have that kind of group effort, which was quite good. I mean did it work as well as doing it in the field? No absolutely not. Was it better than not doing it? Yes, but it was a lot of work, for both kind of the preparation, but it also, I mean it took the best part of I would say, half of a teaching day for the students to do this activity …it takes half a day to get students to do it. Which is another thing that, the realisation that, we realised very early on that doing things remotely takes a lot longer…

Joe

Joe reflects that doing this alternative digital activity was better than not doing it, however doing it in the field would have been the preferred approach. The activity took longer to design and complete and Joe acknowledges that everything takes longer when done remotely.

This activity highlights the overlap of digital and physical elements, each are equally important to enable the activity to take place. The material and digital intersect with the social where interaction is possible through collaboration using digital tools and a sociomaterial and postdigital lens helps make this intersection apparent. Despite the challenges, the students could achieve their learning through an innovative teaching approach that incorporated a mixture of elements that captures the complexity and messiness of hybrid teaching spaces. Time as well as space changes, it takes longer to develop the activity, and it takes longer to enact.

There were also innovations in assessment approaches where the alternative approaches had advantages.

> *…we had a lot of in classroom presentations before, you know where people would stand in front and talk about a topic and present on it, and we are now doing pre-recorded presentations, which makes it much easier for us to give feedback, and also much easier to give more extensive feedback because we actually can hear everything, and don't have to you know, furiously scribble down everything we hear, while we're hearing it, and then having no chance of re-hearing it so to speak, so that's quite good yeah.*
>
> Ed

> *…for the group evaluation normally that would be a journal that they would submit, but we did it this year as a multimedia presentation and the students could choose how they submitted that. So we had a mixture of like narrated PowerPoints, we had some that did it as a video, did it as an actual video, we had one group that actually did on Padlet, so uploaded it, so all the sections and chapters were on different headings*

> *in Padlet, so it gave it a lot more, and again at something that will keep that works quite nicely, a lot more choice for students.*
>
> Jack

These alternative approaches offer benefits for students; they are provided with more in-depth feedback, and they are offered the autonomy to choose the format of their assessment. There are also benefits for educators such as being able to revisit recorded presentation to enable more in-depth feedback to be provided. These innovations demonstrate that hybrid teaching did have benefits despite the challenges encountered by educators and students.

Educators were forced to explore something they were unfamiliar with and began to see benefits as students performed better both during the course and in summative assessments. Some educators commented on the positive student feedback, some of this was captured anecdotally, and some was captured through quality assurance processes such as periodic reviews where positive student feedback led to a decision to keep some elements of the hybrid approach.

Some educators expressed a reluctance to revert back to pre-pandemic practices, that despite the trauma of the pandemic this was viewed as an opportunity for growth. They recognised that some of the changes worked well and they wanted to hold on to these aspects of hybrid teaching.

> *…the approach I want to take from this is that hybrid learning was not about getting through a tough period, but about growth, that this was an opportunity for us as academics to look at what we do, and to grow from it, and we don't want to return back to the way things are, we want to be better, and now we can use this experience as an opportunity for growth, and to actually be better than we were before, not to return back to a sense of how it was in 2019, but that 2021, or whenever we can really fully you know, kind of be open with what we want to do with teaching, I think this is, I think it's an opportunity for growth, and that's how I take it.*
>
> Drew

Educators indicated they wanted to keep and build on aspects of hybrid teaching. When asked if they would continue to use some of the new teaching practices adopted, the majority of questionnaire respondents indicated positively (82%, 41 from a total of 50 respondents – Figure 6.2).

Figure 6.2 Responses to questionnaire – intention to continue new teaching practices adopted during AY 2020-21.

The types of hybrid teaching that participants indicated they hope to continue include:

- Online project supervision meetings.
- Flipped classroom approaches through recording short videos to replace or in additional to traditional lectures.
- To use contact time wisely, for practical elements of the course for example.
- To take advantage of asynchronous aspects of hybrid teaching as well as the live teaching.

Innovations in teaching were explored throughout the pandemic and it is important to provide an opportunity to reflect on these and to consider the implications they may have.

6.2 Moving beyond traditional teaching practices: the purpose of the lecture and understandings of ’contact time’

Adopting a hybrid teaching approach resulted in some educators questioning their traditional teaching practices. This is explored further in the context of contact time and the purpose of traditional teaching formats such as the lecture.

6.2.1 The purpose of the lecture

The educational rationale of the traditional lecture has been questioned long before the Covid-19 pandemic. The passive learning format of the traditional lecture has resulted in a push for more active learning to be introduced in order to engage students (Revell & Wainwright, 2009) with undergraduate students performing better when an active learning approach is adopted in comparison with a traditional lecture (Freeman et al, 2014).

The move to hybrid teaching offered an opportunity to explore the possibilities of the digital teaching and learning environment and a move away from passive and transmissive approaches to teaching and learning that the traditional lecture often encompasses.

> *So I have seen it as an opportunity to grow and there's lots of things great about it that we shouldn't be going back to the old ways of doing it, because actually you know what, an hour face to face lecture isn't cutting it … that hour could be used in a much more meaningful and active way, so definitely has changed my perspective on things.*
>
> Jan

> *Time is at a premium in the lecture, so it's mostly the delivery of content, but it's not so much the self-assessment element in the lecture, there's just no time, not enough time for that. So then I thought OK that's a huge*

> *opportunity now, and I don't want to go back after Covid by the way, to the lecture format… So I turned this into an opportunity by giving the students a variety of learning activities…"*
>
> Chris

The lecture as a format, as a space for learning, has limitations and the experience of teaching in a hybrid mode offered educators the opportunity to explore alternatives to the traditional lecture. The accepted practices of the traditional lecture were being questioned as changes to more active forms of teaching and learning were experienced as possibilities, and this aligns with the assertion that the everydayness of existing practices allow them to go unnoticed (Boys, 2016). Hybrid teaching made visible some of the limitations of the lecture format such as the passive delivery of content, and the lack of time the format allows for engaging learning to take place.

Participants expressed mixed opinions about the lecture format, some did not want to revert back to lecturing as a teaching approach whilst others could see the value of the lecture format such as providing a common experience for students, and there was recognition that it was an efficient format for large class teaching. There was recognition that doing things differently would be challenging and would require a holistic and systematic approach as changes on one part of a programme would have ramifications for other parts, that there is risk involved in challenging traditional practices and student expectations would need to be managed. Charlie voiced concerns about continuing with a hybrid approach if other parts of the programme reverted back to pre-pandemic approaches.

> *I can see if other people started reintroducing lectures, face-to-face lectures, but will my part of the course be seen differently because it will stand as an outlier… it will go from being seen as the exemplar of how to do, an excellence, to a rubbish part of the course where they don't bother, they just give you online stuff. So that's my slight worry for the*

> *future, that it's not the quality of what we're doing won't change, but how it's perceived might shift in in this different context that's coming.*
>
> Charlie

The quality of the course would not have changed however changing student perceptions about the format might have implications for how the course was evaluated by student which in turn would have wider implications across the programme and beyond. This concern is understandable as the lecture format remains popular with senior leaders and decision makers (Ross, 2021). The perception of the lecture is complex and there was acknowledgement of the important role student expectations would play in determining a successful move from traditional teaching formats such as the lecture. Many students still expect to learn in a passive way rather than take on a more active role in their learning and Sam considers this a battle that many colleagues would be unwilling to pursue.

> *…the student perception is, no, you're supposed to tell me, I'm not supposed to find this out and then go to somewhere, you know, so that perception is something that she's had to battle against, and most of my colleagues will not do that. But once you get the students on side, and half of your academics, then you're on a completely different game.*
>
> Sam

The rapid shift to hybrid teaching and the way this was communicated to students did influence their perceptions and subsequently their experience of hybrid teaching which participants in this study voiced. It would be important to communicate future changes to students clearly, to provide clear reasons why the changes have been implemented, as well as guidance about what to expect. Students do not necessarily expect to return to pre-pandemic teaching formats. There are some early indications that the experience of the pandemic has resulted in changes to student perceptions (Killen & Didymus, 2022) and it's important that we continue to explore the potential that hybrid teaching has to offer as understandings continue to evolve. These evolving understandings

have resulted in some educators rethinking how they use the time they have available with their students, often expressed as ‘contact time’.

6.2.2 Rethinking contact time

The different pedagogical approaches that were adopted during the pandemic and the opportunity this provided to explore alternative teaching formats provided additional ways for students to engage and interact with their learning. This resulted in some educators questioning the time they had available with their students and what they hoped to achieve during this contact time to enable their students to develop their skills, knowledge and experience.

> *So that, at the moment, the interactive contact with the student on a course is probably an hour a week, and they get then two hours of lectures a week. If we could change that balance so that you had two hours of interaction per week plus an office hour. And you're really guiding the students learning, you’re prompting them to look at stuff, and think about things, and work through material. That's going to be far more valuable in the long run. And you know, getting students to start addressing real problems that are going to come across in their graduate experience. ……we want the students to learn skills, resilience, you know, ability to analyse problems and all that kind of stuff. You can't lecture that. The only way you can teach it is through developing individual students.*
>
> Sam

> *I think that the pandemic has been an opportunity to really question how we use them 200 hours of learning that's recorded …and actually it really has got us to problematise what is 200 hours? What is an hours lecture? What is an hours tutorial? And for me that's been really liberating, and that I think that I can get more content, that is actually going to be valuable to the students, or deliver it in a way that is more accessible, and it then allows maybe to prioritise then what we do and face-to-face time.*
>
> Jan

Both Sam and Jan are rethinking how they use the time they have with their students. That this time available could be better used to ensure students developed a deeper understanding of the topic. How the time the educator has with their students is used will depend on the context such the disciplinary area and the objectives of the course. This might be to use timetabled 'contact' with students to focus on practical rather than theoretical elements of the course and provide resources that enable students to explore these outside timetabled 'contact time' with the educator. This model was explored during the pandemic, often through a flipped classroom approach where content was made available for students to work through outside timetabled hours. This was a new approach for many and there were challenges, however both educators and students adapted to this approach and this was explored in more depth in Chapter 4.

These new approaches and uses of contact time described as 'classroom time' by Stevie resulted in less pressure on this time. The asynchronous nature of some aspects of student learning enabled the students to consider something in more depth than they would be able to do in a live classroom session.

> *I mean I think actually this is one of the advantages of the either hybrid or online, I think that the kind of run in to preparing, there's not all the pressure on the classroom time, that the students can arrange that to suit themselves, and I think also looking at things, if they hit a barrier and*

> *they need to go off and check something, if they're doing things asynchronously anyway, that doesn't matter. It kind of fits into that rhythm quite well. Whereas if it happens in the classroom, if it's not something you can just quickly look up on a device, then it can kind of close down an area of discussion or derail things a little bit I suppose.*
>
> Stevie

The asynchronous nature of non-timetabled learning requires some adjustments and rethinking from an educator's perspective and Chris reflects on this.

> *….[the students] engaged in some extent, not in the way I would like them to have engaged which means coming to the group activities, but then again I also appreciate that many students were properly able to do it on their own, or they had maybe their own peer system which is perfectly fine, but the problem is I couldn't really see what was happening because it was too detached. But I could see based on the quality of the submission so that the students were engaged with content, but just without my way, so circumventing me basically, they engaged with the content directly without engaging with me.*
>
> Chris

Student learning which takes place outside timetabled contact with the educator is less visible. This does not necessarily mean a lack of engagement despite students not participating as hoped, and other ways of judging student progress could be adopted. In the case of Chris, the quality of the assessment submissions indicated that the students were engaged with the course. This highlights the changing nature of the educators' role when they move away from traditional teaching approaches as they need to adjust to the different ways students might engage in hybrid teaching and this was difficult for many. The changing understandings of interactivity and engagement were explored in more depth during Chapter 4 and this aspect of hybrid teaching continues to be challenging for educators.

When considering the changing nature of ‘contact time’ during the pandemic it is important to recognise that time is not neutral (Gourlay & Oliver, 2018) and this lack of neutrality could be considered further by viewing the experiential, political and cultural aspects of time described as transtemporal (Sheail, 2018). Contact time has been experienced in very different ways by both educators and students during the period of the pandemic which has required shifts in teaching and learning practices. This cultural shift is still ongoing and is messy and challenging for all involved. The political aspects of time are touched on later in this chapter through pressures to revert back to traditional teaching approaches. The findings from this research indicates hybrid approaches have potential that should be explored beyond the pandemic however this will require a significant shift in conceptions of ‘contact time’ and this will have ramifications at an institutional and sector level. This is a complex and difficult aspect of teaching that needs to be addressed if the potential of hybrid teaching approaches is going to continue to be explored beyond the period of the pandemic.

The need to consider experiential and cultural aspects of time are evident when considering that adaptations and changes were taking place at pace across the institution and the requirement to rethink and redesign their courses had significant workload implications for educators; some talked about how tired they were as they worked longer hours and didn’t have a summer break. Adopting these new approaches took time and effort and doing this during a global pandemic resulted in additional workload which added to the time pressure. There were increases in time required for the pastoral care aspect of teaching for example, and some participants voiced concern about how their students were coping which necessitated putting in more time than they normally allocate to personal tutoring and pastoral care. This was all taking place whilst the majority of educators were working from home which had implications for their work life balance (explored in more depth in Chapter 4.2). Despite the challenges faced by educators during this period there was recognition of the benefits of adopting hybrid teaching approaches leading to a rethink about the purpose of traditional teaching formats.

It is worth re-iterating that the changes to teaching and learning that have been captured as part of this research have taken place at a time of uncertainty and upheaval. It's important that the benefits (and barriers) of hybrid teaching continue to be explored to ensure students benefit from an educational experience that is pedagogically robust. The next section explores how educators might be supported as they continue to explore the innovative teaching practices that they have had the opportunity to implement during the hybrid teaching adopted as a result of the pandemic.

6.3 Space and time to explore hybrid education

The importance of building on the changes in understandings and the innovations that have been adopted during the pandemic is evident from the findings of this research. There have been valuable changes to practices and a reassessment of the value of traditional teaching approaches. Making changes to traditional teaching formats such as the lecture which has such a long educational history will need institutional support at a strategic level. This type of change will be difficult and uncomfortable for many particularly given the financial and political pressures to 'return to normal' and resume in-person teaching on campus (Department for Education, 2022a; Department for Education, 2022b; Williams, 2022). These need to be offset by recognising the rapid adaptations that took place during this difficult and unstable period to enable opportunities to adopt aspects that worked well and build on these to support educators as they continue to explore innovative teaching practices. This section will capture some of the support mechanisms that helped educators make this unfamiliar and challenging shift to hybrid teaching and consider how these could be developed further to enable educators to continue to explore their understandings of hybrid teaching.

6.3.1 CPD and opportunities to share practices

Educators commented on the importance of having support as they explored hybrid teaching, and this was often in the form of continuing professional development (CPD) opportunities. Undertaking relevant CPD enabled

educators to develop their confidence and their willingness to explore unfamiliar and innovative teaching approaches. Some educators took advantage of CPD offered after the initial pivot to emergency remote teaching and prior to the adoption of hybrid teaching (the summer of 2020) although finding time to undertake this was a barrier. Others recognised they had a different starting point as result of previous CPD opportunities such as their participation in an accredited higher education teaching qualification offered by the university, or through previous opportunities to explore blended or flipped learning.

Some educators were confident enough to explore digital technologies autonomously and to incorporate these into their hybrid teaching. Others were frustrated that help and support was unavailable when they needed it and although they valued support from colleagues such as learning technologists, they recognised this was often insufficient. Many educators took advantage of the support that was available through central support units, whilst others took advantage of local support within their Schools. Opportunities to share ideas about what worked (or didn't) were valued and those colleagues who were more confident in digital technologies were often willing to help less experienced digital educators.

The need to develop and support educators as they adopt new teaching practices has been recognised in literature about online and distance learning. Educators become learners when they start teaching online and they need to develop an understanding beyond their on campus teaching experiences (Kilgour et al, 2018). There are differences between novice and experienced teachers in their approaches to teaching using technology (Englund et al., 2017). This aligns with the findings of this research, where those who had participated in CPD about digital and online pedagogy were better prepared for adopting hybrid teaching. The frustrations expressed by participants who were unable to access support when they needed it highlights the importance of providing appropriate CPD opportunities and communicating these to educators. When this support is being developed it is important to recognise that educators need contextualised and socially situated CPD opportunities (Alvarez et al, 2009; Bell & Morris, 2009; Macdonald & Poniatowska, 2011).

During the adoption of hybrid teaching educators valued the opportunity to share ideas and practices with peers.

> *And then they are kind of, going into my course and go, wow like your course looks really visual, really appealing, with how did you do that [mimics voice of colleagues], and I think they're kind of getting ideas, and seeing that maybe if a colleague isn't scared to try, they're going to try too.*
>
> Jan

> *I'm happy to take anyone along who's interested, as always open invite, if you want to discover this with me let's learn together…and those colleagues that said you know what, let's just, I want to try something different, let's learn this together, those are the ones I tend to collaborate with more…*
>
> Drew

We should recognise that CPD opportunities did exist during the pandemic, and when they were undertaken, they did support colleagues. Those CPD opportunities were not always available when educators needed them, and some needed more support than others, and this type of support is resource intensive. It is important to continue to offer a range of CPD opportunities across the institution both centrally and locally. As well as continuing to develop such opportunities, it is important that educators have time to participate in these in order to build on the hybrid teaching knowledge they have developed during the pandemic. Educators need both time and space to explore hybridity beyond the current health crisis.

There would be value in offering opportunities for educators to continue with teaching approaches that are of pedagogical value and align with course and programme aims and objectives. These also need to align with university strategic priorities and there are opportunities for the large-scale changes that were adopted during the pandemic to influence strategic projects, particularly

those with a focus on curriculum change and digital transformation. It does need to be recognised that the innovations that did take place during the pandemic were constrained because of the restrictions imposed, and that some educators may view hybrid teaching through a limited lens as a result of the difficulties and uncertainties experienced.

To take advantage of the benefits of hybrid teaching it is important that there are opportunities to continue to explore different aspects of hybrid teaching beyond the restrictive experience of teaching during a period of uncertainty. The implications of the pandemic are likely to be felt for some time, however educators have demonstrated that they are able to adopt innovative teaching practices and there should be space and time for them to continue to do this in a more planned and managed way. The experience of teaching during the pandemic has shifted knowledge and understandings of teaching practices and despite the economic, political and media pressures to return to normal, this is likely to be challenged by educators as they reflect on what has worked during the pandemic. If the focus was to revert to traditional teaching, valuable opportunities to push beyond the bounded campus teaching and learning experience would be lost.

Educators need time to explore hybrid teaching further when changes can be implemented in more systematic ways allowing decisions to be made based on an educational rationale rather than a reaction to a global health crisis. The direction of travel implies that there is political, economic and media pressure to ‘return to campus’ and to ‘face-to-face teaching’ In reference to academic year 2022-23 a UK government blog highlights the view that in-person and on campus teaching is and should continue to be the appropriate approach: “Students spend a lot of time and money on a university education and face-to-face learning should be the norm.” (Department for Education, 2022b).

This study was conducted during academic year 2020-21 and at this point in the pandemic educators expressed concern about the following academic year (2021-22) and how difficult they found the uncertainty when trying to plan their teaching. Some indicated they had picked up messaging about the importance

of on campus teaching through conversations with colleagues and university messaging. It is worth re-emphasising the unusual circumstances during the timeline of this project which was conducted during a period of unprecedented change where decision making was rapid and often in response to changing government guidance and legislation.

Despite their concerns about uncertainty, some educators indicated a frustration about the perception that in-person teaching was of better quality, and that online was inferior and less resource intensive.

> *I think we have to challenge this narrative that online is less than… So I was more than happy to embrace different things, and try things out and see it as yes, we have to provide high quality education, but it's also an opportunity for us to try things, and we might not get it right, and that's okay. We try things in the physical environment sometimes, that we don't get it right…*
>
> Jan

Jan takes a positive view and considers hybrid teaching an opportunity to try new things whilst acknowledging that they won't always work. This view aligns with literature exploring the opportunities online teaching can bring (Bayne et al, 2020). There does need to be recognition that teaching in online (and hybrid) ways necessitates a change in understandings and practices (Baran et al, 2011).

The deficit language used in relation to online learning is challenged (Bayne et al, 2020; Fawns et al, 2020) however it does persist (Jessop, 2020). The literature about online learning in comparison to traditional (in-person) learning is not definitive. In a literature review conducted to identify factors affecting student performance between online and traditional (in-person) courses Misopoulos et al. (2018) found no significant differences although they noted contradictory findings in the literature exploring student satisfaction. A metanalysis of online learning literature found it could be more effective than traditional classroom instruction if planned and designed appropriately

(Siemens et al, 2015). There does need to be a wider recognition that teaching in online environments is different and comparison with in-person is often not appropriate.

Fawns et al. (2019) acknowledge that online is different and challenge the instrumental views that online is more socially impoverished or isolating in comparison to in-person. The technological deterministic approach to adopting digital technologies is often not helpful as implementation is often seen as an inherent solution and complex sociomaterial understandings of the impact (positive and negative) of digital technologies on learning and teaching are simplified. Scholars in the field of digital education have been advocating for a more critical and nuanced approach for some time (Selwyn, 2010; Bennett & Oliver, 2011; Bayne, 2015) and the pandemic has highlighted how crucial this is as the commercialisation and marketing of digital technologies as educational solutions have become apparent (Selwyn et al, 2020; Williamson et al, 2020).

The complexities of teaching in digital spaces have become more visible during the pandemic as inexperienced online educators have adapted to online teaching (Hodges et al, 2020). The increasingly blurred binary between online and in-person has still to be understood by many within the education sector and beyond. The experience of teaching during the pandemic has shifted knowledge and understandings of teaching practices and despite the economic, political and media pressures, this is likely to be challenged by educators as they reflect on what has worked during the pandemic. A survey examining lessons learned from the shift to hybrid teaching indicated mixed perceptions about the impact on student engagement (QAA, 2022a) with some indicating the hybrid teaching approach has resulted in increased student engagement, whilst others indicated it had declined, or that there had been no change.

This survey was conducted during the pandemic and perceptions will continue to evolve as we move beyond the restrictive elements imposed on teaching and learning. This is an opportunity to build on the understandings and learning that has taken place as many educators were pushed outside their comfort zones and were required to adopt new teaching approaches. It would make sense to

encourage educators to continue with what worked, consider what could be improved and what could work better, and question why things didn't work and rethink such approaches.

It is important to also consider the student experience during the pandemic; to be aware that student attitudes to learning shifted, and there is an appetite for a more flexible approach. In a survey of student digital experiences during the 2021-22 academic year students indicated they wanted more flexibility in their learning wanted a mix of on campus and online learning (Killen & Didymus, 2022).

6.4 A postdigital approach to teaching beyond the pandemic

The hybrid teaching approaches enacted during the pandemic demonstrated the possibilities to push beyond the binaries of in-person or online; they are both interconnected. The separation of the digital from traditional teaching and learning approaches is no longer possible and digital scholars are exploring what a postdigital educational landscape will entail.

The importance of digital practices was evident during this research, and these were explored in Chapter 4 where the perceptions and roles of digital technologies were explored (RQ1b). Some examples identified from this research include:

- The use of digital tools to adapt the working from home environment in an attempt to blur private space during hybrid teaching.
- The use of the Virtual Learning Environment as a central component to design and teach in a hybrid mode.
- The integration of digital technologies within campus teaching spaces, perhaps not new, however more evident and visible during hybrid teaching.
- The adoption of 'flipped learning' and the exploration of pre-recorded media.
- The ways digital tools were used to adapt teaching and assessment practices and examples identified in this research included the use of

digital tools for group work and collaboration, the development of digital field trips, and recording presentations enabling more in depth feedback to be provided.

- The 'Digital First' components of the Hybrid Teaching Continuum although digital was incorporated into all components of the continuum.

The importance of the material (RQ1a) is evident and entangled in the digital and this is highlighted in the language used when describing hybrid teaching in digital environments as being able to 'see' the teacher, or being able to 'feel' the room. The importance educators placed on cameras being switched on provides some insights into the intersection of the social, material and digital with educators voicing concern about 'empty spaces' and 'faceless screens' when describing this experience. Student expectations and behaviours around camera use also changed over time as social norms in the digital classroom became established. The willingness for students to be 'seen', to be 'visible' changed depending on the context, as well as recognition by educators that that having their cameras switched off and being 'less visible', of being anonymous, could result in better engagement and an increased willingness to contribute by some students. Different perceptions and expectations about using cameras during hybrid teaching and learning provide a good example of postdigital which foregrounds the importance of the human relationship to technology (Jandrić et al, 2018).

It is important to raise awareness of this posdigital perspective and bring more educators into the conversation of what this postdigital landscape will look like for their teaching practices and how this will impact the experience of students.

6.5 Chapter Summary

This chapter explored how teaching during the pandemic might influence future education approaches and models. Despite the challenges faced there were innovations in teaching and assessment practices. The experience of teaching during the pandemic resulted in some educators questioning traditional approaches such the lecture format and the perception and understanding of

'contact time' was also explored with educators who were keen to make the most of this time with students through dialogue and interaction. Educators need time and space to build on the valuable changes to teaching and learning that have taken place during the pandemic and offering CPD and opportunities to share practice would be of value.

The overlap between the social and material aspects of teaching and learning have been explored and the integration of digital teaching approaches and practices is evident as the binary between in-person and digital, on campus and off-campus spaces (digital and physical) become increasingly difficult to identify. Adopting a postdigital approach offers opportunities to explore the potential of future educational landscapes where hybrid teaching could incorporate evolving understandings of a landscape that will continue to evolve even as the current health crisis subsides. Global uncertainty and rapidly evolving technologies will continue to influence educational approaches and priorities, continuing to explore the possibilities of hybrid teaching will help prepare educators for unknown educational futures.

Chapter 7: Conclusions

This chapter provides an overview of the research findings addressing the three research questions and putting the findings in context. Some recommendations are offered that might be helpful as we continue to explore hybrid and digital pedagogy. This research explored perceptions of hybrid teaching during a period of rapid change and uncertainty to capture and contextualise these changes, and to identify insights that might inform future teaching practices.

7.1 Uncertainty and evolving understandings

The forms of hybridity that were explored during the period of this research took place during a challenging and uncertain time. This uncertainty contributed to evolving understandings of hybrid teaching which resulted in educators pushing boundaries as they explored what was required and what was possible. Educators were learning how to navigate the uncertainty of teaching during a global pandemic and this could take various forms depending on their context and the changes imposed as a result of the pandemic.

It is reasonable to assume that educators were learning as they adapted their teaching to circumstances that could not have been envisioned or predicted. They could be considered students of hybrid pedagogy where their understanding of hybrid teaching could be conceptualised through threshold concepts where learning about hybrid teaching would reveal new perspectives which were previously inaccessible (Mayer & Land, 2006; Land et al, 2014; Kilgour et al, 2018). This provokes a liminal state where transformation and transitions from previous understandings takes place. This liminal space can be non-linear and a recursive process where new meanings and understandings are derived through portals and gateways which will vary depending on context. This spatial metaphor is a useful one, and the findings from this research point to the importance of space to help educators navigate the uncertainties of hybrid teaching.

From a sociomaterial perspective the boundary between the social and material aspects of education is understood to be messy and difficult to distinguish. The 'in-person' aspect of the education process is only one of many; teaching and learning can take place in multiple ways and the role of the material, whether this is understood through formal teaching spaces on campus, informal spaces on campus, or spaces beyond the campus, both physical and digital, are all intertwined and contribute to the educational process in complex ways that are evolving and changing. Hybrid teaching offers educators the opportunity to investigate this messy and complex process in multiple ways by exploring different combinations of hybridity that are appropriate for their educational context. Understanding what these hybridities are, and what approach is likely to work in a particular educational context takes time and experience and needs further exploration in a more stable landscape; one that does not need to constantly adapt and adjust to a global health crisis.

The pandemic has been a traumatic experience and there has been an understandable desire to return to the way things were, to return to 'normal', to return to campus, and to in-person teaching. Interacting with people is an important aspect of the education process and this is reflected in the importance placed on building relationships, on a sense of belonging (Pedler et al, 2022; Dufler et al, 2024) and there continues to be a belief held by some that this can only happen 'in-person'. This research challenges assumptions that teaching in online is of lesser quality (Sinclair & Macleod, 2015; Ross et al, 2019; Fawns et al, 2020; Hodges et al, 2020) by highlighting some innovative approaches to digital pedagogy, whilst acknowledging the difficult circumstances during the period of this research as demonstrated by some of the challenges faced.

7.2 Research Question 1: the hybrid teaching experience

The hybrid teaching experience (Chapter 4) focuses on Research Question 1 which explored perceptions about how hybrid teaching was experienced by educators teaching undergraduates during the Covid-19 health crisis. RQ1 included two sub-questions which explored the role the material has on the

experience of hybrid teaching (RQ1a) and how digital technologies are perceived and the role they have in shaping hybrid teaching practices (RQ1b).

Educators' perceived their experience of hybrid teaching in qualitatively different ways and a phenomeograhic informed approach to the analysis identified a number of different categories (expressed as *Aspects of Hybrid Teaching*) which capture the hybrid teaching experience at this point in time (AY 2020-21) as depicted in Figure 3.5.

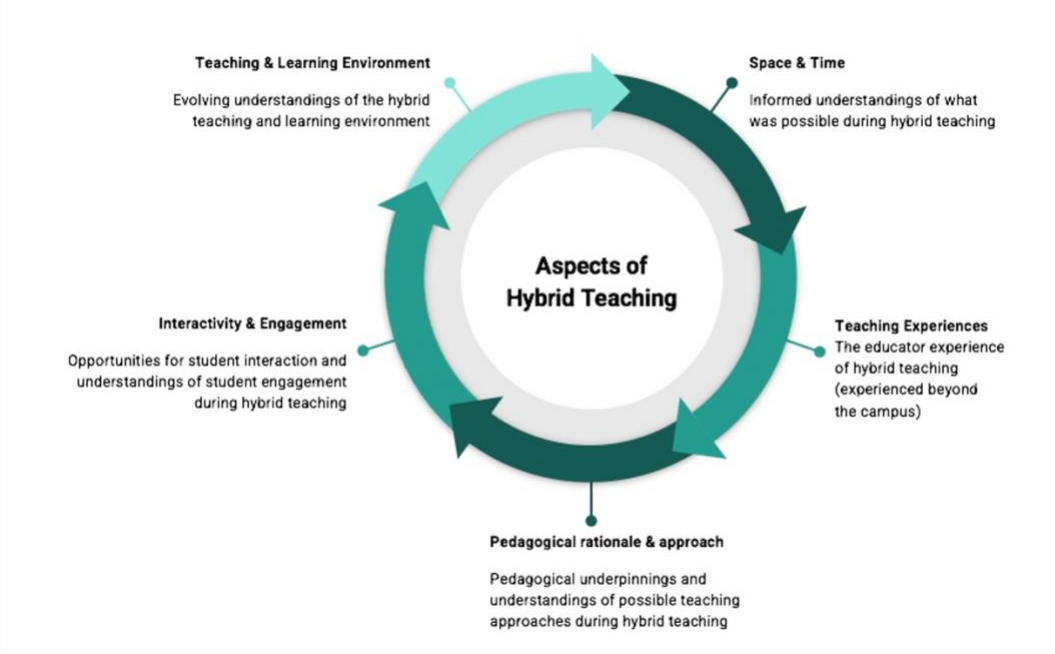

Figure 3.5 The hybrid teaching experience (Aspects of Hybrid Teaching).

7.2.1 Space & Time

Space & time informed understandings of what was possible during hybrid teaching and these were used by participants to make sense of this unfamiliar approach. Traditional teaching practices and campus spaces were challenged and what were previously considered as broadly understood aspects of teaching and learning became fluid, unbound and porous.

7.2.2 Teaching was experienced from beyond the campus

For the majority, teaching took place outside of campus spaces and perceptions of this experience varied depending on personal context and experience. Adjustments were made to non-campus work environments which reflected concerns about privacy and surveillance.

7.2.3 Pedagogical rationale & approach

Understandings about the pedagogical rationale for a hybrid teaching approach varied and evolved. Frameworks and models were used to inform hybrid teaching although the implementation of these varied depending on disciplinary context. Flipped learning approaches were adopted and understandings of how to engage students evolved. Educators encountered both benefits and barriers when incorporating videos as they adopted a flipped approach to their teaching.

7.2.4 Interactivity & Engagement

Educators found it difficult to find ways to interact and engage their students as they explored hybrid teaching and camera use (or lack of) was often perceived as a proxy for student engagement. Educators adapted and found ways to motivate their students which led to positive outcomes however this took time and effort and was different to traditional teaching approaches. There were also concerns about a lack of opportunity for social interaction and informal conversations. Understandings about opportunities for interactivity and engagement in hybrid teaching environments evolved over time.

7.2.5 The teaching & learning environment

The institutional VLE was used as a tangible way for educators to conceptualise and explore hybrid teaching approaches. It offered a familiar and stable tool to enact hybrid teaching during a time of rapid change and uncertainty. A number of other digital environments were also explored during this time and the choice of digital tool involved many competing considerations, demonstrating the complex entanglement of digital environments and pedagogical approaches.

Identifying the categories that encompassed educators' perceptions of their experience of hybrid teaching has provided a way to capture a holistic understanding of the quantitively different ways educators experienced hybrid teaching approaches to teach undergraduates during the Covid-19 health crisis, specifically during AY 2020-21.

7.3 Research Question 2: a continuum of hybrid teaching

The common characteristics of hybrid teaching have been represented as a continuum (explored further in Chapter 5) to highlight the changing understandings of hybrid teaching and how it was enacted during the period of this research. This fits with the concept of liminality (Land et al, 2014) where educators and institutional leaders explored hybrid teaching as a threshold concept where new perceptions and understandings evolved through the implementation and experience of hybrid teaching. The implementation of hybrid teaching was also dependent on the stage of the pandemic and what restrictions needed to be adopted, so hybrid teaching required continual adaptation during a period of uncertainty for all involved in the process.

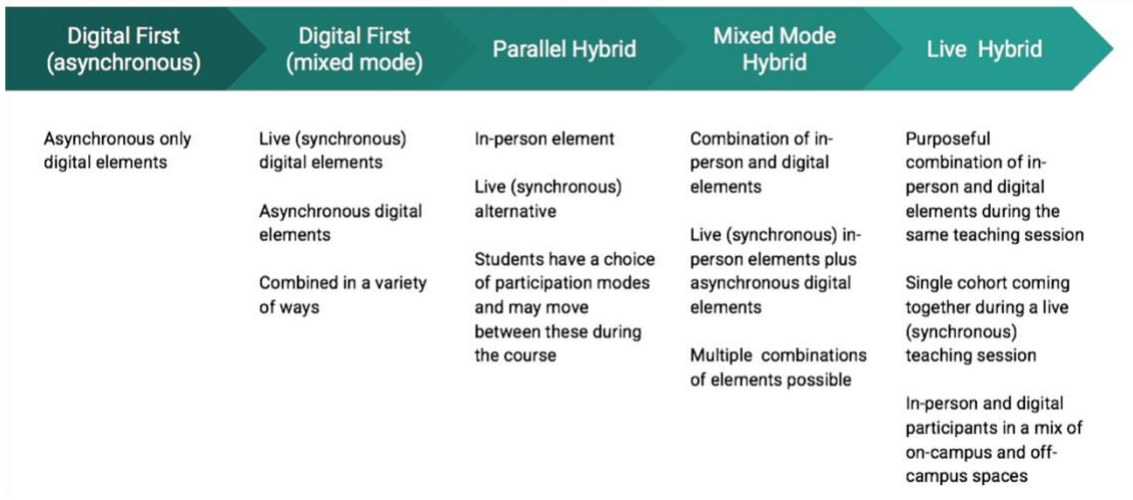

Figure 3.6 The Hybrid Teaching Continuum.

The Hybrid Teaching Continuum (Figure 3.6) comprises of the following 5 components:

- Digital First (asynchronous)
- Digital First (mixed mode)
- Parallel Hybrid
- Mixed Mode Hybrid
- Live Hybrid

I recognise that not everyone will agree with the distinctions made between the components of hybrid teaching captured via the continuum. These emerged from my analysis of the data and are useful to capture common ways educators experienced teaching during AY 2020-21. This is useful to capture and contributes to a growing body of knowledge about teaching during times of crisis and the Covid-19 pandemic in particular.

The continuum is contextual and represents a point in time. It is likely to continue to evolve and could be adapted to enable educators to have conversations about hybrid teaching and explore potential hybridities. The use of space and time to distinguish different types of hybrid approaches aligns with the sociomaterial lens used to explore the findings of this research. Space is not static but dynamic and is continually enacted by simultaneous practices through the 'hybrid, entangled and turbulent nature of space' (Fenwick et al, 2011, p. 11). The influence of post-humanism is recognised and it is important to explore both the human and non-human components of hybrid teaching. Taking a sociomaterial lens, space and time can be used as a critical tool for analysis, enabling educators to consider new approaches and the potential benefits and barriers as hybrid teaching is explored through human and non-human components encountered through space and time.

The Hybrid Teaching Continuum offers a practical and tangible way for educators to consider different combinations of space and time to explore a range of modalities and to push against a more siloed perception of hybrid teaching; that it was adopted in response to a global crisis and should now be

left to innovators and digital education specialist. Instead, the Hybrid Teaching Continuum could be adapted to help educators explore the possibilities of hybrid teaching in their own contexts and to move beyond the perceived binary of online and digital versus in-person and analogue.

7.4 Research Question 3: teaching beyond the Covid-19 health crisis

The experience of adopting hybrid teaching during the Covid-19 health pandemic has implications beyond the pandemic and these were explored in Chapter 6. There have been changes in understandings and practices as the possibilities of hybrid teaching were explored. Despite the challenges faced during a time of rapid change and uncertainty, innovative hybrid practices were evident. These included innovations to teaching, learning and assessment approaches.

Some educators expressed a reluctance to move back to pre-pandemic practices and acknowledges there were difficulties that needed to be explored if they were to continue to adopt aspects of hybrid teaching. This included the purpose of the lecture and its format, as well as the concept of ‘contact time’ which was challenged as hybrid teaching was explored. It is important to provide opportunities to continue to explore hybrid teaching beyond the health emergency as understandings and perceptions continue to evolve. A postdigital lens might provide an opportunity to enable further exploration of this complex and often contradictory educational landscape by considering the ways educators and students understand their relationship with technology.

7.5 The findings in context

It should be recognised that this research took place in one research-intensive higher education institute in the UK during a time of uncertainty and rapid change. The research was conducted by one researcher using a particular methodological approach and others are likely to have identified different themes and findings. The rationale and design for this research has previously been explored and the findings provide insight into the experiences of educators as they adopted hybrid teaching at one point in time in a particular

context. The findings do have implications beyond the health crisis and can offer insights that are likely to be useful in other higher education contexts and these are explored in more detail in the following section.

7.6 The significance of these findings

This research contributes to a growing body of knowledge about teaching during the Covid-19 health pandemic and provides useful insights that can contribute to planning and prepare educators for any future crisis that might impact the education process. The findings offer an insight into the experience of teaching during a time of rapid and significant change. The focus on the teaching experience contributes to a previously identified research gap highlighting the lack of research into teaching in online contexts (Bair & Bair, 2011; Preston, 2018; Aitken & Loads, 2019; Bayne et al, 2020). The findings highlight variations in the experience of teaching in a hybrid context and these, along with the continuum of hybrid teaching which has been developed during this research, will help both educators and institutional leaders explore and plan hybrid teaching.

The qualitative approach to this research highlights the importance of context and the uncertainty that educators had to contend with, and makes visible tensions that educators had to navigate as they adapted and developed innovative teaching approaches during the period of this research. The findings capture nuanced and contextual understandings of changing teaching practices that challenged previously widely accepted beliefs about teaching in bounded campus spaces. The innovations as well as the barriers identified during this research will help inform the lessons learned about teaching during a time of crisis and rapid change and will help inform future teaching approaches, as well as organisational planning and decision making.

The research makes use of a sociomaterial theoretical framework and whilst this is an established framework its application is underutilised. This research offers a tangible way for educators to explore sociomateriality and apply it to their own context. This is discussed further in the recommendations section

below (Section 7.7) where some suggestions are made about exploring sociomaterial arenas of space and time using the Hybrid Teaching Continuum.

The implications of the research findings are considered further in this chapter by contextualising them, then suggestions are made about ways they might be applied more broadly.

7.6.1 Exploring digital pedagogies through the Hybrid Teaching Continuum

These finding's highlight the important role that digital pedagogies and approaches to teaching and learning had during the Covid-19 health crisis. The adaptations required focused energies on digital pedagogies, with a rapid and reactionary adoption of hybrid teaching. This focus has started to diminish as the response to the Covid-19 crisis eases, however the importance of digital teaching approaches will not disappear despite the desire by some to revert to pre-pandemic teaching approaches. There is a need to integrate digital pedagogies when designing the curriculum to ensure educators are prepared for any future crisis, and that students are prepared for a world where digital technologies are now a core aspect of life.

The findings from this research offer a practical tool for educators to explore the various ways digital pedagogies could be purposefully integrated during curriculum design. A one size fits all approach to hybrid teaching is not appropriate and unlikely to succeed. This research explored nuanced understandings and conceptualisations of hybrid teaching which identified both benefits and barriers to hybrid teaching. The findings of this research identified variations in experiences, understandings, and appetites for exploring and adopting hybrid teaching. It is important that we recognise that context is important and to provide opportunities for educators to draw on their professional experience and knowledge, enabling them to adapt their teaching to suit the needs of their students and their teaching and learning environment.

The Hybrid Teaching Continuum (Figure 3.6) could be adapted to suit the institutional context enabling educators to consider factors that are pertinent to

their circumstances. The aspects of hybrid teaching identified in this research (Figure 3.5) could be used as a tool to enable educators to explore hybrid teaching from different perspectives. For example, the teaching and learning environment could be integrated into the Hybrid Teaching Continuum using space and time to make visible some of the barriers as well as the benefits a particular hybrid approach.

Using aspects of hybrid teaching to contextualise and adapt the Hybrid Teaching Continuum would make it applicable to a wide range of educational stakeholders and allow them to understand the implications of hybrid teaching from multiple perspectives, including curriculum design, resourcing and planning, as well as implications for institutional strategy and visions for digital transformation. Student support specialists could use it to collaborate with educators during curriculum design to identify how the flexibility provided by hybrid approaches could offer inclusive and flexible learning. Spending time adapting the continuum would also help clarify the language of various hybrid teaching approaches being explored. A common language could be developed that is appropriate to the institutional context and this could be more clearly and effectively communicated. The Hybrid Teaching Continuum could be used as a tool to make visible the complexities of a hybrid teaching approach in order to address some of the barriers whilst taking advantage of the benefits.

7.7 Recommendations

The findings of this research have provided insight into the complexities involved in adopting an unfamiliar pedagogic approach at scale during a health crisis. The Hybrid Teaching Continuum and the various aspects of the hybrid teaching experience could be used as tools to help contextualise and understand the implications of various hybrid teaching approaches.

Using these as tools offers a practical way to explore and challenge the dominance of in-person teaching by providing a mechanism to understand the role of non-human components in teaching and learning. Using spatial and temporal sociomaterial arenas could help educators integrate all the

components of the education experience without privileging the human aspect. This would offer educators an opportunity to consider both the human and material aspects of the education process which might take place outside the traditional teaching spaces (physical or digital) and beyond the bounded campus.

There are a number of challenges that need to be addressed and these include:

- Develop a consistent language to help with understanding of what hybrid teaching might involve.
- Address the deficit language used about online and distance education (education beyond traditional campus spaces).
- Plan for digital as well as physical spaces when considering the evolving needs of the university campus.
- Offer opportunities for educators to critically explore digital technologies and recognise that technologies are not neutral.
- Rethink what counts as ‘contact time’ and explore different ways for students and educators to interact and engage.

There should be recognition that adopting and embedding digital pedagogies takes resource, and that ways of working and institutional policies and processes are likely to need to change. Educators need time to explore hybrid approaches to teaching and adoption will require cultural changes and a need to re-think deeply engrained aspects of teaching such as the traditional lecture. There is a need to provide time and space for educators to continue to explore hybrid teaching and digital pedagogies, to share ideas and make sense of these in supported ways, recognising that new approaches might not always work.

Hybrid teaching challenges traditional enactments of higher education curricula and processes. The perceptions about campus spaces are challenged and these are no longer bounded physical spaces. Perceptions about time are challenged as asynchronous approaches are adopted and virtual teaching spaces enable students to participate in their education in a flexible manner.

Enabling the adoption of hybrid teaching will be challenging and require complex and often contradictory decisions making and a review of institutional polices will help making educational leaders and managers make these difficult decisions.

The pandemic has resulted in some HEIs reviewing their policies and some have developed hybrid working policies. There are opportunities for this to be extended to teaching contexts and to revisit policies that are now outdated following the rapid adaptations that occurred during the pandemic. Continuing to adopt hybrid teaching has implications for numerous learning and teaching policies including flexible learning and accessibility policies. Timetabling policies will need to be reviewed if understandings of 'contact time' are revised and this will have implication for campus teaching and learning spaces. Being willing to explore hybrid teaching requires a university wide approach to adapting what were considered accepted teaching and learning policies and practices and the implications of this are likely to be resource intensive and complex, requiring significant changes to teaching and learning models.

This research has focused on hybrid teaching at one higher education institution and I have focused on the institutional policies however there is a need to work at a sectoral, national and international level to share understandings and learn from the difficulties, as well as the innovations that have taken place.

The implications of digital innovation will continue to impact teaching and learning beyond the Covid-19 crisis (see the concerns raised about generative AI and the impact of academic integrity for example – QAA, 2023). Offering opportunities to continue to explore hybrid pedagogies will enable institutions to be better prepared for a future crisis and to continue to adapt to the changing needs of their students, and the evolving world that education inhabits.

7.8 Reflecting on my PhD research

I wanted to conclude this thesis with some personal reflections about my PhD and articulate some of the highs and lows of conducting part-time doctoral

research whilst also working full-time in the HEI where the research was being conducted. I reflected on being an insider researcher elsewhere in this thesis (Section 3.6.1) and my overall experience of being an insider research has been a positive one in that it afforded me the opportunity to conduct this research in a way that would otherwise not have been available to me. I would like to thank my colleagues for their time and support to enable me to conduct this research.

I conducted this research during Covid-19 and this did have some implications for my research, the most obvious being the focus of my research (hybrid teaching) was implemented as a direct response to the health crisis which offered me the opportunity to research significant and rapid changes to teaching practices at scale. The response to Covid-19 has had implications for my research design and the rapid changes experienced during this period resulted in a limited window to conduct this research before further changes were made in preparation for a new AY. This resulted in an intense period of data collection during semester 2 of AY 2020-21 and some uncertainty about getting enough data. In the end I had too much data and had to let go of some, although I do hope to pick this up again by writing a paper focusing on the survey data. The topic and timing of my research was difficult for my research participants too and the conversations I had with them were insightful and at times very personal, and I'm grateful that the participants were willing to share their experiences with me.

The analysis of the data took much more time and energy than I had anticipated, and this involved following an unfamiliar phenomenographic informed approach to the analysis, and I struggled with the outcome space aspect of this approach in particular. I believe this was the appropriate approach for my analysis which resulted in the identification and exploration of themes that provided a nuanced insight into hybrid teaching. The process of making sense of the findings and engaging with the literature enabled me to gain an in depth understanding of hybrid teaching and provided valuable insights into barriers and benefits of changes to teaching practices. This has

been of benefit to me professionally and I have applied this to my teaching practice and is something I will build on.

I hope to continue to research hybrid teaching as understandings and enactments continue to evolve. I am interested in continuing to explore the intersection between technology and pedagogy and how educators consider the temporal and spatial components when designing hybrid teaching. Further research using the Hybrid Teaching Continuum is one way of exploring this and this might be something I take forward. I'm also interested in exploring teaching beyond the campus as we move beyond the pandemic to capture more nuanced understandings and perspectives that are might not otherwise be surfaced (both educators and students).

Appendix One

Questionnaire - Hybrid Teaching Experiences (PhD Research)

Your teaching experience

The focus of this research is undergraduate teaching at the [name of university] during Academic Year 2020-21. Please confirm that you have been teaching undergraduates this academic year by selecting YES below. Please note your data will be excluded from the data analysis if you select NO although you are welcome to continue and review the survey.

- Yes
- No

How much teaching experience do you have? Please choose the most appropriate responses from list below.

	Select all that apply:		
	Face-to-face	Blended	Fully online
I have been teaching for less than 2 years			
I have been teaching for 2-5 years			
I have been teaching for 6-10 years			
I have been teaching for more than 10 years			

Please consider the following statements and choose an appropriate option. You are asked to consider your views on the statements prior to the move to remote and then hybrid teaching (before March 2020).

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
My teaching approaches worked well and there was no need for me to adopt new or innovative teaching practices.					
I would like to have adopted new or					

innovate teaching practices.					
I was working towards adopting new or innovative teaching practices.					
I did adopt new or innovative teaching practices.					

Please rate your confidence levels for each of the following:

	Not at all confident	Slightly confident	Moderately confident	Very confident	Extremely confident
Knowledge of online pedagogy					
Developing engaging online activities					
Building and facilitating online communities					
Supporting online students					
Embedding digital tools and technologies					

Your experience of hybrid teaching

This section will focus on hybrid teaching. The questions aim to gather information about your views of hybrid teaching, and how you experienced and

approached it whilst teaching undergraduate students during Academic Year 2020-2021.

Consider the following description of hybrid teaching: Hybrid teaching refers to courses and programmes that can be taken by online and on-campus students working together as a single cohort.

https://blogs.ed.ac.uk/learningexchange/2020/09/29/what-is-hybrid-teaching/ .

Does this reflect your experience of hybrid teaching?

- Yes
- No
- Partly

Please use the space below to provide further details about your choice.

[textbox provided]

Please consider the following statement taken from the Manifesto for Teaching Online:

Don’t succumb to campus envy: we are the campus.

Do you agree with the statement?

- Yes
- No
- Not sure

Please use the space below to provide further details about your choice.

[textbox provided]

Consider your experience of hybrid teaching this academic year (2020-2021) and indicate if you agree or disagree with the following statements:

Please don't select more than 1 answer(s) per row.

	Agree	Disagree
The majority of teaching that I have been involved with has taken place in the digital space with NO in person teaching.		
The majority of teaching that I have been involved with has taken place in the digital space with SOME in person teaching.		
The majority of teaching that I have been involved with has taken place in person with no or minimal changes to the pre-hybrid teaching approaches for my course(s).		
The majority of teaching that I have been involved with has taken place entirely in person with some digital teaching for those unable to attend the in person sessions.		
I have been involved in a mixture of in person and digital teaching at different times.		
I have been involved in teaching in person and digitally to my students at the same time.		

Please use the space below to provide comments on any of the options you have chosen.

[textbox provided]

Thinking about your experience of hybrid teaching, please consider the following statements and choose an appropriate option.

Please don't select more than 1 answer(s) per row.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Hybrid teaching has involved a mixture of live (synchronous) teaching and asynchronous teaching.					
Hybrid teaching has involved changes to the formative assessment elements of my courses.					

Hybrid teaching has involved changes to the summative assessment elements of my courses.					
My students are engaged in their learning this academic year.					
I have a sense that my students feel they belong to a learning community.					
I have had the support I needed to help me make the necessary changes to my teaching approach as I implemented hybrid teaching.					

Please use the space below to provide comments on any of the options you have chosen.

[text box provided]

Please use the space below to describe a hybrid teaching session that you felt went well. Briefly outline the session and include some details about the physical and/or virtual teaching and learning environment, the disciplinary

context, the size of the cohort, and the aims of session. Why do you think the session went well?

[text box provided]

Please use the space below to describe a hybrid teaching session that you felt did not go well. Briefly outline the session and include some details about the physical and/or virtual teaching and learning environment, the disciplinary context, the size of the cohort, and the aims of session. Why do you think the session did not go well?

[text box provided]

Were there any unexpected benefits as a result of the changes you have made to your teaching practices to adopt hybrid teaching?

- Yes
- No
- Not sure

Please use the space below to provide comments on the option you have chosen.

[text box provided]

Will you continue to use some of the new teaching practices you have adopted this year?

- Yes
- No
- Not sure

Please use the space below to provide comments on the option you have chosen.

[text box provided]

Please use the space below to provide any further comments you have about your experience of hybrid teaching during academic year 2020-21.

[text box provided]

Invite to participate in further research

You are also invited to participate in an online semi-structured interview to contribute to a more in-depth conversation about your experience of hybrid teaching. The interviews will be conducted during 2021 and will be recorded. There is no obligation to participate, however if you would like to participate further in this research please provide your contact details below.

If you are interested in participating in a semi-structured interview to contribute to a more in-depth conversation about your experience of hybrid teaching, please provide your contact details below (name and email):

[text box provided]

About You

This section will gather some information about you, your role, and where you are based in the university structure. This information is voluntary and every effort will be taken to protect the identity of participants. This will include aggregating any information provided to remove identifiable details. If you prefer not to provide this information then please scroll to the bottom of the screen where you will be asked to submit your responses to this questionnaire.

How would you describe your gender?

[text box provided]

Please provide your job title(s) below:

[text box provided]

Please provide a brief description of your role(s) below:

[text box provided]

Which College are you based in? More than one option can be selected if appropriate

University Colleges listed plus ‘other’ option.

Which School are you based in? More than one School can be selected if appropriate.

University Schools listed plus ‘other’ option.

Final Page

Thank you for the time you have given to this research project which will inform my PhD thesis.

Appendix Two

Interview Questions

Introduction to research

Thanks for being willing to participate in this research which is investigating your experience of hybrid teaching UG students during AY 20-21.

Note: I'm using the term hybrid teaching because that's the term adopted by the [name of university] for the teaching approach adopted during AY2020-21.

I'm interested in your experience of teaching this AY so when I ask about hybrid teaching, think about your experience of teaching this AY.

1. What is your understanding of hybrid teaching?
    a. Hybrid teaching refers to courses and programmes that can be taken by online and on-campus students working together as a single cohort.
2. Describe your experience of hybrid teaching this academic year.
    a. Show Q9 screen grab if needs prompting
    b. Show additional comments to this question if appropriate
3. Give one example of a hybrid teaching approach you have been involved in implementing.
    a. What worked?
    b. What could have worked better (barriers?)
    c. Why did you adopt this approach?
    d. Did this inform future sessions? In what ways?
4. Let's look at the images/screen shots you provided about hybrid teaching.
    a. Can you tell me about this image?
    b. Please describe image X - what does this represent?
    c. Is this a hybrid teaching approach that has been replicated by you?

    Ask participant to describe hybrid teaching scenario if no images

    provided.

5. Are there other examples that you would like to share?
6. Will you continue to adopt elements of hybrid teaching going forward? (Why/why not?)
    a. Show text from questionnaire response if appropriate

Appendix Three

Participant information sheet

Experiences of hybrid teaching

I am a PhD student at Lancaster University and I would like to invite you to take part in a research study about the hybrid teaching experience at the [name of university] during academic year 2020-2021.

Please take time to read the following information carefully before you decide whether or not you wish to take part.

What is the study about

This study aims to better understand hybrid teaching by inviting participants to discuss their experience of teaching undergraduate students in a hybrid mode during a global pandemic (academic year 2020-21). The study will focus on the hybrid teaching experience at the [name of university] in order to gain a better understanding of the common characteristics of hybrid teaching and to consider how hybrid teaching is likely to inform teaching practices beyond the current health crisis.

Why have I been invited?

I have approached you because you are likely to have been teaching undergraduate students this academic year and I am interested in finding out about your experience of teaching during this period. I would be very grateful if you would agree to take part in this project.

What will I be asked to do if I take part?

Taking part in this project would involve completing an online questionnaire which includes some brief questions about you and your role at the university. This is followed by questions which aim to gather information about your experience of teaching during academic year 2020-2021. You will also be invited to participate in a semi-structured interview which will be conducted online and recorded (use of a web cam is optional and not necessary for the research). The interview will last no longer than one hour and will provide an opportunity to discuss your experience of hybrid teaching in a little more depth. Prior to the interview you will be asked to provide a visual representation of one (or more) of your hybrid teaching environment(s). This might be a picture of a physical teaching space or a screen grab of a virtual teaching space and further guidance will be provided prior to the interview. You can choose to participate in the questionnaire only, or you may be interested in participating in both the interview and the questionnaire.

What are the possible benefits from taking part?

Participating in the project will give you the opportunity to reflect on your teaching experience this academic year which you may find helpful. Your insights will help build an understanding of hybrid teaching and changes to teaching practices during a time of rapid change and

uncertainty. This will help inform our understanding of the impact of these changes beyond the pandemic.

Do I have to take part?

No. It's completely up to you to decide whether you take part. Your participation is voluntary.

What if I change my mind?

If you change your mind, you are free to withdraw from this study by contacting me and your data can be removed within set time periods which are set out here.

Your data cannot be removed from the questionnaire after you submit as I will be unable to identify your data unless you indicate you are willing to participate in an interview and provide your email. If this is the case, you will be able to withdraw within one week of submitting the questionnaire by contacting me and your data will be removed.

Interview participants will be able to withdraw up until two weeks after they receive a copy of their interview transcript. After this period withdrawal will not be possible as the data will have been included in the project data set and removal of data will impact the overall project. All data will be de-identified and every effort will be made to ensure anonymity of participants.

What are the possible disadvantages and risks of taking part?

It is unlikely that there will be any major disadvantages to taking part. Taking part will involve around 20-30 minutes of your time to complete the questionnaire, plus a further 60 minutes of your time if you choose to participate in the interview.

Will my data be identifiable?

I will keep all personal information about you (e.g. your name and other information about you that can identify you) confidential, that is I will not share it with others. I will remove any personal information from the written record of your contribution. All reasonable steps will be taken to protect the anonymity of the participants involved in this project
After the interview, only myself, the researcher conducting this study and my supervisor will have access to the ideas you share with me.

How will we use the information you have shared with us and what will happen to the results of the research study?

I will use the information you have shared with me only in the following ways:

I will use it for research purposes only. This will include my PhD thesis and other publications such as journal articles. I may also present the results of my study at academic conferences or practitioner conferences and events.

When writing up the findings from this study, I would like to reproduce some of the views and ideas you shared with me. I will only use anonymised quotes (e.g. from my

interview with you), so that although I will use your exact words, all reasonable steps will be taken to protect your anonymity in publications.

How my data will be stored

Your data will be stored in encrypted files (that is no-one other than me, the researcher will be able to access them) and on password-protected computers. I will store hard copies of any data securely in locked cabinets in my office. I will keep data that can identify you separately from non-personal information (e.g. your views on a specific topic). In accordance with University guidelines, I will keep the data securely for a minimum of ten years.

What if I have a question or concern?

If you have any queries or if you are unhappy with anything that happens concerning your participation in the study, please contact me:
Celeste McLaughlin,
University Dept, Address and email provided.

You can also contact my supervisor: Dr Murat Oztok, Educational Research, County South, Lancaster University, Lancaster LA1 4YD m.oztok@lancaster.ac.uk

If you have any concerns or complaints that you wish to discuss with a person who is not directly involved in the research, you can also contact:
Professor Paul Ashwin, Educational Research, County South, Lancaster University, Lancaster LA1 4YD paul.ashwin@lancaster.ac.uk

This study has been reviewed and approved by the Faculty of Arts and Social Sciences and Lancaster Management School's Research Ethics Committee.

Thank you for considering your participation in this project.

Appendix Four

Interview invite email

Dear [name of participant],

Thank you for taking the time to complete my questionnaire about your experience of hybrid teaching. You kindly agreed to participate in the next stage of my PhD research which is a semi-structured interview which will last around one hour and will be recorded.

Please let me know if any of the following dates/times would be suitable for the interview:

[List of suggested dates and times]

If these don't suit, please suggest some alternative dates and times.

I plan to use the collaborate virtual classroom tool for the interview although I can use MS Teams if you prefer. Just let me know your preference and I'll set up the appropriate invite for you to join.

During the interview I would like to explore your hybrid teaching environment(s) in more detail and to help with this I'm going to ask you to send me some images (a maximum of 3) which you consider to best represent your hybrid teaching experience during the academic year 2020-2021. These might be pictures of physical teaching spaces which you may have taken. Please feel free to annotate the images if you think this is appropriate. You should also remove identifying features of students as the images may be incorporated in my PhD thesis or other publications. Your visual representation might also be of a virtual teaching space, perhaps a screen grab of the VLE or some other virtual teaching and learning environment. Again, please remove any identifying student details and annotate if appropriate. The visual representations you provide will be discussed during the interview.

I'm happy to provide further guidance prior to the interview or answer any questions you may have.

I've attached a Participant Information Sheet to remind you about my research and a consent form for you to complete and return to me by email.

Thank you again or taking the time to participate in this research.

Best wishes,

Celeste

Appendix Five

CONSENT FORM

Project Title: Experiences of hybrid teaching

Name of Researchers: Celeste McLaughlin

Email: [researchers work email]

Please tick each box

1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	☐
2. I understand that my participation is voluntary and that I am free to withdraw during my participation in this study within certain limitations which have been outlined in the participant information sheet. I understand that my data cannot be removed when these limitations have been exceeded.	☐
3. I understand that any information given by me may be used in future reports, academic articles, publications or presentations by the researcher/s, but my personal information will not be included and all reasonable steps will be taken to protect the anonymity of the participants involved in this project.	☐
4. I understand that my name will not appear in any reports, articles or presentation without my consent.	☐
5. I understand that any interviews will be audio-recorded and transcribed and that data will be protected on encrypted devices and kept secure. I also understand and agree that any visual representations I provide for the interviews may be reproduced and included into publications about this research.	☐
6. I understand that data will be kept according to University guidelines for a minimum of 10 years after the end of the study.	☐
7. I agree to take part in the above study.	☐

_____	_____	_____
Name of Participant	Date	Signature

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent_____ **Date** _____ Day/month/year

One copy of this form will be given to the participant and the original kept in the files of the researcher at Lancaster University

Glossary and/or List of abbreviations

AI	Artificial Intelligence
AY	Academic Year
CPD	Continuing Professional Development
DELT	Digitally Enhanced Learning and Teaching
ERT	Emergency Remote Teaching
HE	Higher Education
HEIs	Higher Education Institutions
MOOCs	Massive Open Online Courses
OfS	Office for Students
PIS	Participant Information Sheet
PPE	Personal Protective Equipment
QAA	The Quality Assurance Agency for Higher Education
RQs	Research Questions
UK	The United Kingdom of Great Britain and Northern Ireland
VLE	Virtual Learning Environment

References

Aitken, G, & Loads, D. (2019). Experiences of staff new to teaching postgraduate students online: implications for academic staff development. *Journal of Perspectives in Applied Academic Practice*, vol. 7, no.1

Åkerlind, G. S. (2012). Variation and commonality in phenomenographic research methods. *Higher Education Research & Development*, *31(1)*, 115–127. https://doi.org/10.1080/07294360.2011.642845

Alvarez, I., Guasch, T., & Espasa, A. (2009). University teacher roles and competencies in online learning environments: A theoretical analysis of teaching and learning practices. *European Journal of Teacher Education*, *32(3)*, 321-336. DOI:10.1080/02619760802624104

Al-Samarraie, H., Shamsuddin, A., & Alzahrani, A. I. (2020). A flipped classroom model in higher education: A review of the evidence across disciplines. *Educational Technology Research and Development*, *68(3)*, 1017–1051. https://doi.org/10.1007/s11423-019-09718-8

Badia, A., Garcia, C., & Meneses, J. (2017). Approaches to teaching online: Exploring factors influencing teachers in a fully online university: Factors influencing approaches to teaching online. *British Journal of Educational Technology*, *48*(6), 1193–1207. https://doi.org/10.1111/bjet.12475

Bair, D. E., & Bair, M. (2011). Paradoxes of Online Teaching. *International Journal for the Scholarship of Teaching and Learning*, 5(2). https://doi.org/10.20429/ijsotl.2011.050210

Baran, E., Correia, A.-P., & Thompson, A. (2011). Transforming online teaching practice: Critical analysis of the literature on the roles and competencies of online teachers. *Distance Education, 32(3)*, 421–439. https://doi.org/10.1080/01587919.2011.610293

Bayne, S. (2015). What's the matter with 'technology-enhanced learning'? *Learning, Media and Technology, 40(1), 5–20*. https://doi.org/10.1080/17439884.2014.915851

Bayne, S. (2020, September 29). What is Hybrid Teaching*? The Edinburgh Hybrid Teaching Exchange.* https://blogs.ed.ac.uk/learningexchange/2020/09/29/what-is-hybrid-teaching/

Bayne, S., Evans, P., Ewins, R., Knox, J., Lamb, J., Macleod, H., O'Shea, C.,Ross, J., Sheail, P. & Sinclair, C. (2020). *The manifesto for teaching online*; illustrated by Kirsty Johnston. The MIT Press

Beatty, B. J. (2019). *Hybrid-Flexible Course Design* (1st ed.). EdTech Books. https://edtechbooks.org/hyflex

Bell, A. & Morris, G. (2009). Engaging professional learning in online environments. *Australasian Journal of Educational Technology, 25(5)*, 700-713

Bennett, S., & Oliver, M. (2011). Talking back to theory: The missed opportunities in learning technology research. *Research in Learning Technology, 19(3)*. https://doi.org/10.3402/rlt.v19i3.17108

Biesta, G. (2020). *Digital first or education first?: Why we shouldn't let a virus undermine our educational artistry.* PESA Agora. https://pesaagora.com/columns/digital-first-or-education-first-why-we-shouldnt-let-a-virus-undermine-our-educational-artistry/

Bovill, C. & McLaughlin, C. (2021, April 29). *Insights and Learning from 2020-21.* The University of Edinburgh. http://www.docs.hss.ed.ac.uk/iad/Learning_teaching/CTP/Insights_and_learning_from_2020-21_CTP_Briefing_Paper.pdf

Boys, S. (2016). Finding the spaces in-between. Learning as a Social Material Practice. In Carvalho, L., Goodyear, P., & Laat, M. de (Eds.). (2016). *Place-based spaces for networked learning*. Routledge

Brame, C. J. (2016). Effective Educational Videos: Principles and Guidelines for Maximizing Student Learning from Video Content. *CBE—Life Sciences Education*, *15*(4), es6. https://doi.org/10.1187/cbe.16-03-0125

Braun, V & Clarke, V (2006). Using thematic analysis in psychology, *Qualitative Research in Psychology, 3:2*, 77-101

British Academy. (2022). *Understanding digital poverty and inequality in the UK*. https://www.thebritishacademy.ac.uk/documents/4427/Understanding_Digital_Poverty_and_Inequality_in_the_UK_full_report_2.pdf

Bryant, P. (2022, November 11). *'…and the way that it ends is that the way it began': Why we need to learn forward, not snap back*. Post Digital Learning. https://peterbryant.smegradio.com/and-the-way-that-it-ends-is-that-the-way-it-began-why-we-need-to-learn-forward-not-snap-back/

Buckley, A. (2014). How radical is student engagement? (And what is it for?). *Student Engagement and Experience Journal*, *3*(2). https://doi.org/10.7190/seej.v3i2.95

Castellanos-Reyes, D. (2020). 20 Years of the Community of Inquiry Framework. *TechTrends, 64(4)*, 557–560. https://doi.org/10.1007/s11528-020-00491-7

Cohen, L., & Manion, L. (1994). *Research methods in education* (Fourth ed.). London: Routledge

Cousin, G. (2006). An introduction to threshold concepts. *Planet, 17(1)*, 4–5. https://doi.org/10.11120/plan.2006.00170004

Cousin, G. (2009). *Researching learning in higher education:* An introduction to contemporary methods and approaches. (Staff and educational development series). New York: Routledge

Coyle, D., Smith, H., Lamb, J., Evans, P., White, M.L., De Vigne, J., Simpson, A., Craig, M., Timmons, W., Clayworth, A., Miranda, J.J., Chaurin, T., Hancock, J., & Al Bishawi, R. (2022, January). Hybrid Pioneers. Interim Report. *Hybrid Pioneers.* https://blogs.ed.ac.uk/hybrid_pioneers/wp-content/uploads/sites/5067/2022/01/Hybrid-Pioneers-Interim-Report.pdf

Creswell, J. W. (2017). *Qualitative inquiry and research design. Choosing among five approaches.* (International student edition.). SAGE Publications

Creswell, J. W. (2017). *Research design: qualitative, quantitative, and mixed methods approaches.* (Fifth edition, international student edition.). Sage

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

Department for Education. (2022a). *"Face-to-face teaching is a vital part of getting a high-quality student experience": Education Secretary Nadhim Zahawi writes to students.* https://educationhub.blog.gov.uk/2022/01/17/face-to-face-teaching-is-a-vital-part-of-getting-a-high-quality-student-experience-education-secretary-nadhim-zahawi-writes-to-students/

Department for Education (2022b). *Return to university – what you should know this autumn term*. https://educationhub.blog.gov.uk/2022/09/28/return-to-university-what-you-should-know-this-autumn-term/

Didymus, L. & Killen. C. (2022). *Teaching staff digital experience insights survey 2021/22. UK higher education (HE) survey findings*. Jisc. https://www.jisc.ac.uk/reports/teaching-staff-digital-experience-insights-survey-2021-22-uk-higher-education-findings

Disabled Students' Commission. (2022). *Exploring the use of automated captioning and its impact on disabled students in higher education.* Advance HE. https://www.advance-he.ac.uk/knowledge-hub/exploring-use-automated-captioning-and-its-impact-disabled-students-higher-education

Dulfer, N., Gowing, A., & Mitchell, J. (2024). Building belonging in online classrooms: Relationships at the core. *Teaching in Higher Education, 1–17*. https://doi.org/10.1080/13562517.2024.2349993

Englund, C., Olofsson, A., & Price, L. (2017). Teaching with technology in higher education: Understanding conceptual change and development in practice. *Higher Education Research & Development, 36(1)*, 73-87. DOI: 10.1080/07294360.2016.1171300

Entwistle, N. (1997). Introduction: Phenomenography in Higher Education. *Higher Education Research & Development, 16 (2)*, 127-34

Fawns, T. (2019). Postdigital Education in Design and Practice. *Postdigital Science and Education, 1(1)*, 132–145. https://doi.org/10.1007/s42438-018-0021-8

Fawns, T. (2022). An Entangled Pedagogy: Looking Beyond the Pedagogy—Technology Dichotomy. *Postdigital Science and Education, 4(3)*, 711–728. https://doi.org/10.1007/s42438-022-00302-7

Fawns, T., Aitken, G., & Jones, D. (2019). Online Learning as Embodied, Socially Meaningful Experience. *Postdigital Science and Education, 1(2)*, 293–297. https://doi.org/10.1007/s42438-019-00048-9

Fawns, T., Jones, D., & Aitken, G. (2020). Challenging assumptions about "moving online" in response to COVID-19, and some practical advice. *MedEdPublish, 9, 83*. https://doi.org/10.15694/mep.2020.000083.1

Fenwick, T., Edwards, R. & Sawchuk, P. (2011). *Emerging Approaches to Educational Research: Tracing the Socio-Material*. Taylor & Francis Group

Fenwick, T., & Landri, P. (2012). Materialities, textures and pedagogies: Socio-material assemblages in education. *Pedagogy, Culture & Society: Materialities, Textures and Pedagogies, 20(1)*, 1-7

Frampton, N. & Smithies, D. (2021, August). *University Mental Health: Life in a Pandemic. Listening to higher education communities throughout 2020/2021.* Student Minds. https://www.studentminds.org.uk/student-mental-health-in-a-pandemic.html

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences, 111(23)*, 8410–8415. https://doi.org/10.1073/pnas.1319030111

Gaebel, M., Zhang, T., Stoeber, H., & Alison Morrisroe. (2021). *Digitally Enhanced Learning and Teaching in European Higher Education Institutions. Survey Report*. Brussels, EUA. https://www.eua.eu/downloads/publications/digihe%20new%20version.pdf

Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education. *The Internet and Higher Education. 2*. 87-105. https://doi.org/10.1016/S1096-7516(00)00016-6

Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education, 7(2), 95–105*. https://doi.org/10.1016/j.iheduc.2004.02.001

Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: framework, principles, and guidelines*. Jossey-Bass.

Goria, C., Witthaus, G., Turner, M., Hanford, S., Bhend, M., Wray, A., Wahyudi, M., & Gibson, A. (2022, November 21). *Hybrid Teaching: a futurist model or a realist model for the future?* QAA. https://www.qaa.ac.uk/membership/collaborative-enhancement-projects/learning-and-teaching/hybrid-teaching-a-futurist-model-or-a-realist-model-for-the-future

Gourlay, L. (2021). There Is No 'Virtual Learning': The Materiality of Digital Education. *Journal of New Approaches in Educational Research, 10(1)*, 57. https://doi.org/10.7821/naer.2021.1.649

Gourlay, L., & Oliver, M. (2018). *Student engagement in the digital university: Sociomaterial assemblages*. Routledge/Taylor & Francis Group

Grix, J. (2018). *The foundations of research* (Third edition). Macmillan International Higher Education.

Hack, K. (ed). (2022). *Modes of learning: a practice guide*. Advance HE. https://www.advance-he.ac.uk/knowledge-hub/beyond-flexible-learning-practice-guide

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). *The Difference Between Emergency Remote Teaching and Online Learning*. EDUCAUSE Review. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Hodgson, V., & McConnell, D. (2019). Networked Learning and Postdigital Education. *Postdigital Science and Education, 1(1)*, 43–64. https://doi.org/10.1007/s42438-018-0029-0

Jackson, K. & Bazeley, P. (2019). *Qualitative data analysis with NVivo* (3rd edition). SAGE Publications

Jandrić, P., Knox, J., Besley, T., Ryberg, T., Suoranta, J., & Hayes, S. (2018). Postdigital science and education. *Educational Philosophy and Theory, 50(10)*, 893–899. https://doi.org/10.1080/00131857.2018.1454000

Jessop, T. (2020). *Let's lose the deficit language about online education*. WONKHE. https://wonkhe.com/blogs/lets-lose-the-deficit-language-about-online-education/

Johnston, B., MacNeill, S., & Smyth, K. (2018). *Conceptualising the Digital University: The Intersection of Policy, Pedagogy and Practice* (1st ed. 2018). Springer International Publishing : Imprint: Palgrave Macmillan.

Kelly, J. & Mote, K. (2021, March 3). *Video captioning and accessibility regulations*. Jisc. www.jisc.ac.uk/guides/video-captioning-and-accessibility-regulations

Kilgour, P., Reynaud, D., Northcote, M., McLoughlin, C., & Gosselin, K. P. (2018). Threshold concepts about online pedagogy for novice online teachers in higher education. *Higher Education Research & Development, 38(7)*, 1417–1431. https://doi.org/10.1080/07294360.2018.1450360

Killen, C. & Didymus, L. (2022, September 1). *Student digital experience insights survey 2021/22: UK higher education (HE) survey findings*. Jisc Repository. https://repository.jisc.ac.uk/8850/

Kirkwood, A. & Price, L. (2013). Missing: evidence of a scholarly approach to teaching and learning with technology in higher education, *Teaching in Higher Education, 18:3*, 327-337

Knox, J. (2019). What Does the 'Postdigital' Mean for Education? Three Critical Perspectives on the Digital, with Implications for Educational Research and Practice. *Postdigital Science and Education, 1(2)*, 357–370. https://doi.org/10.1007/s42438-019-00045-y

Lamb, J., Carvalho, L., Gallagher, M., & Knox, J. (2022). The Postdigital Learning Spaces of Higher Education. *Postdigital Science and Education, 4(1)*, 1–12. https://doi.org/10.1007/s42438-021-00279-9

Lamb, J., & Ross, J. (2022). Lecture capture, social topology, and the spatial and temporal arrangements of UK universities. *European Educational Research Journal, 21(6)*, 961–982. https://doi.org/10.1177/1474904121993982

Land, R., Rattray, J., & Vivian, P. (2014). Learning in the liminal space: A semiotic approach to threshold concepts. *Higher Education, 67(2)*, 199–217. https://doi.org/10.1007/s10734-013-9705-x

Larsson, J., & Holmström, I. (2007). Phenomenographic or phenomenological analysis: Does it matter? Examples from a study on anaesthesiologists' work. *International Journal of Qualitative Studies on Health and Well-Being*, *2*(1), 55–64. https://doi.org/10.1080/17482620601068105

Lee, K., Fanguy, M., Bligh, B., & Lu, X. S. (2021). Adoption of online teaching during the COVID-19 Pandemic: A systematic analysis of changes in university teaching activity. *Educational Review, 1–24*. https://doi.org/10.1080/00131911.2021.1978401

Literat, I., Conover, A., Herbert-Wasson, E., Kirsch Page, K., Riina-Ferrie, J., Stephens, R., & Vasudevan, L. (2018). Toward multimodal inquiry: Opportunities, challenges and implications of multimodality for research and scholarship. *Higher Education Research and Development, 37(3)*, 565-578.

Lundberg, A., & Stigmar, M. (2022). University teachers' shifting views of successful learning environments in the future. *Scandinavian Journal of Educational Research*, 1–16. https://doi.org/10.1080/00313831.2022.2115127

Macdonald J., & Poniatowska B. (2011). Designing the professional development of staff for teaching online: an OU (UK) case study. *Distance Education, 32:1*, 119-134, DOI: 10.1080/01587919.2011.565481

Markl, N. (2022, June 21-24). *Language variation and algorithmic bias: Understanding algorithmic bias in British English automatic speech recognition*. FAccT '22: 2022 ACM Conference on Fairness, Accountability, and Transparency, Seoul. Republic of Korea. Association for Computing Machinery. https://doi.org/10.1145/3531146.3533117

Marton, F (1986). Phenomenography—A Research Approach to Investigating Different Understandings of Reality. *Journal of Thought, 21(3)*, 28-49

Marton, F., & Booth, S. (1997). *Learning and awareness*. Taylor & Francis Group

McGowan, S. (2012). Obstacle or opportunity? digital thresholds in professional development. *The Journal of Faculty Development, 26(3)*, 25-28

McLaughlin, C. (2019). *An evaluation of the provision of academic development opportunities for educators who teach online at a research-intensive university*. [Unpublished paper submitted as part requirement for PhD; Lancaster University]

McLaughlin, C. (2020). Developing an understanding of hybrid teaching during the global Covid-19 pandemic. [Unpublished research proposal as part requirement for PhD; Lancaster University]

McLaughlin, C. (2023, April 3-4). *Re-imagining universities* [Conference session]. Sustaining Connections – The Participatory and Intercultural Potential of Digital Learning. 2nd Joint Conference on Digital Learning and Teaching. Edinburgh Napier University, Scotland

McNaught, A. & Wilkinson, P. (2021). *Guidance for captioning rich media. Institutional approaches to supporting disabled learners*. Advance HE. www.advance-he.ac.uk/knowledge-hub/guidance-captioning-rich-media

Meyer, J., & Land, R. (Eds.). (2006). *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge*. Routledge

Misopoulos, F., Argyropoulou, M., & Tzavara, D. (2018). Exploring the Factors Affecting Student Academic Performance in Online Programs: A Literature Review. In A. Khare & D. Hurst (Eds.), *On the Line* (pp. 235–250). Springer International Publishing. https://doi.org/10.1007/978-3-319-62776-2_18

Morris, S. J. (2020, June 10). *Technology is not pedagogy*. Sean Michael Morris. https://www.seanmichaelmorris.com/technology-is-not-pedagogy/

Morris, S. M. & Stommel, J. (2018). *An Urgency of Teachers: the Work of Critical Digital Pedagogy*. Hybrid Pedagogy Inc

Mote, K. (2020, October 13). *Practical steps to meeting accessibility regulations*. Jisc. https://www.jisc.ac.uk/guides/practical-steps-to-meeting-accessibility-regulations

Moura, E. O. de, & Bispo, M. de S. (2020). Sociomateriality: Theories, methodology, and practice. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences de l'Administration, 37(3)*, 350–365. https://doi.org/10.1002/cjas.1548

Nordmann, E., Horlin, C., Hutchison, J., Murray, J.-A., Robson, L., Seery, M., & MacKay, J. R. D. (2020). *10 simple rules for supporting a temporary online pivot in higher education* [Preprint]. PsyArXiv. https://doi.org/10.31234/osf.io/qdh25

Northcote, M., Reynaud, D., Beamish, P., Martin, T. & Gosselin, K. P. (2011). Bumpy moments and joyful breakthroughs: The place of threshold concepts in academic staff development programs about online learning and teaching. ACCESS: *Critical Perspectives on Communication, Cultural & Policy Studies, 30(2)*, 75-90

O'Dea, X. (Christine), & Stern, J. (2022). Virtually the same?: Online higher education in the post Covid-19 era. *British Journal of Educational Technology*, bjet.13211. https://doi.org/10.1111/bjet.13211

Office for Students. (2022). *Blended learning review panel*. OfS. https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/blended-learning-review-panel/

Oliver, M. (2011). Technological determinism in educational technology research: Some alternative ways of thinking about the relationship between learning and technology: Educational technology and determinism. *Journal of Computer Assisted Learning, 27(5)*, 373–384. https://doi.org/10.1111/j.1365-2729.2011.00406.x

Orgill M. (2012). Phenomenography. In: Seel N.M. (eds) *Encyclopedia of the Sciences of Learning*. Boston, MA. Springer. https://doi.org/10.1007/978-1-4419-1428-6_271

Orr, S., Highton, M., Lieven, N., Thomas, S. & Lawson, M. (2022, October). *Blended learning review. Report of the OfS-appointed Blended Learning Review Panel*. OfS. https://www.officeforstudents.org.uk/media/dc1c3c84-269a-4c40-8f87-15bfae0fcced/blended-learning-review-panel-report.pdf

Pedler, M. L., Willis, R., & Nieuwoudt, J. E. (2022). A sense of belonging at university: Student retention, motivation and enjoyment. *Journal of Further and Higher Education, 46(3)*, 397–408. https://doi.org/10.1080/0309877X.2021.1955844

Preston, D. (2018). The move to online teaching: a head of department's perspective. In: Baxter, J., Callaghan,G., & McAvoy, J. (Eds.), *Creativity and critique in online learning.* Springer.

QAA. (nd). *Quality Enhancement Framework*. QAA Scotland. https://www.qaa.ac.uk/scotland/quality-enhancement-framework

QAA. (2020). *Building a Taxonomy for Digital Learning*. The Quality Assurance Agency for Higher Education. https://www.qaa.ac.uk/docs/qaa/guidance/building-a-taxonomy-for-digital-learning.pdf

QAA. (2022a). *From Pivot to Permanent: Examining Lessons Learned from the Shift to Online and Hybrid Teaching and Learning*. The Quality Assurance Agency for Higher Education. https://www.qaa.ac.uk/news-events/news/qaa-explores-student-engagement-and-performance-during-the-shift-to-digital-teaching-learning-and-assessment

QAA. (2022b). *Blended Learning Review*. The Quality Assurance Agency for Higher Education. https://www.qaa.ac.uk/membership/collaborative-enhancement-projects/learning-and-teaching/blended-learning-review

QAA. (2022c). *Quality Compass: International Perspectives on Degree Classification Profiles - Is it an Issue Around the World?* The Quality Assurance Agency for Higher Education. https://www.qaa.ac.uk/news-events/news/international-perspectives-on-degree-classification-profiles-latest-quality-compass

QAA. (2023). *QAA briefs members on Artificial Intelligence threat to academic integrity*. The Quality Assurance Agency for Higher Education. https://www.qaa.ac.uk/news-events/news/qaa-briefs-members-on-artificial-intelligence-threat-to-academic-integrity

Raes, A., Detienne, L., Windey, I., & Depaepe, F. (2020). A systematic literature review on synchronous hybrid learning: Gaps identified. *Learning Environments Research, 23(3)*, 269–290. https://doi.org/10.1007/s10984-019-09303-z

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online University Teaching During and After the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. *Postdigital Science and Education, 2(3)*, 923–945. https://doi.org/10.1007/s42438-020-00155-y

Revell, A., & Wainwright, E. (2009). What Makes Lectures 'Unmissable'? Insights into Teaching Excellence and Active Learning. *Journal of Geography in Higher Education, 33(2)*, 209–223. https://doi.org/10.1080/03098260802276771

Rhoads, D. D. (2020). *Traditional, online, or both? A comparative study of student learning and satisfaction between traditional and hyflex delivery modalities* [Doctoral Dissertation; Concordia University, Irvine, USA] https://www.proquest.com/dissertations-theses/traditional-online-both-comparative-study/docview/2410811261/se-2

Richard, V. M, & Lahman, M.K.E. (2014). Photo-elicitation: Reflexivity on method, analysis, and graphic portraits. *International Journal of Research & Method in Education, 38(1)*, 3-22

Richardson, J. T. E. (1999). The Concepts and Methods of Phenomenographic Research. *Review of Educational Research, 69(1)*, 53–82. https://doi.org/10.3102/00346543069001053

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed). Free Press.

Ross, J. (2021, October 28). *University leaders more wedded to lectures than before Covid*. Times Higher Education. https://www.timeshighereducation.com/news/university-leaders-more-wedded-lectures-covid

Ross, J., Bayne, S., & Lamb, J. (2019). Critical approaches to valuing digital education: learning with and from the Manifesto for Teaching Online. *Digital Culture and Education*, Vol. 11 , No.1

Rowe, M. (2019). Shaping Our Algorithms Before They Shape Us. In J. Knox, Y. Wang, & M. Gallagher (Eds.), *Artificial Intelligence and Inclusive Education* (pp. 151–163). Springer Singapore. https://doi.org/10.1007/978-981-13-8161-4_9

Scagnoli, N. I., Choo, J., & Tian, J. (2019). Students' insights on the use of video lectures in online classes: Students' insights on video lectures. *British Journal of Educational Technology*, *50*(1), 399–414. https://doi.org/10.1111/bjet.12572

Scottish Government. (2020, December 20). *Coronavirus (COVID-19): universities, colleges and student accommodation providers*. Scottish Government. Retrieved August 20, 2021, from https://www.webarchive.org.uk/wayback/archive/20210407112557/https://wwwgov.scot/publications/coronavirus-covid-19-universities-colleges-and-student-accommodation-providers/pages/where-we-are-now/

Scottish Government. (2020 & 2021). UK Web Archive Retrieved August 20, 2021 from https://www.webarchive.org.uk/wayback/archive/*?url=www.gov.scot/publications/coronavirus-covid-19-protection-levels

Scottish Government. (2021, January 8). *Coronavirus (COVID-19) update: First Minister's statement – 8 January 2021*. Scottish Government. Retrieved May 7, 2022 from https://www.gov.scot/publications/coronavirus-covid-19-update-first-ministers-statement-8-january-2021/

Selwyn, N. (2010). Looking beyond learning: Notes towards the critical study of educational technology: Looking beyond learning. *Journal of Computer Assisted Learning, 26(1)*, 65–73. https://doi.org/10.1111/j.1365-2729.2009.00338.x

Selwyn, N., Hillman, T., Eynon, R., Ferreira, G., Knox, J., Macgilchrist, F., & Sancho-Gil, J. M. (2020). What's next for Ed-Tech? Critical hopes and concerns for the 2020s. *Learning, Media and Technology, 45(1)*, 1–6. https://doi.org/10.1080/17439884.2020.1694945

Shannon-Baker, P. (2023). Philosophical underpinnings of mixed methods research in education. In *International Encyclopedia of Education* (Fourth Edition) (pp. 380–389). Elsevier. https://doi.org/10.1016/B978-0-12-818630-5.11037-1

Sharma, S. (2013). Critical Time. *Communication and Critical/Cultural Studies, 10(2–3)*, 312–318. https://doi.org/10.1080/14791420.2013.812600

Sheail, P. (2018). The digital university and the shifting time–space of the campus*. Learning, Media and Technology, 43(1)*, 56–69. https://doi.org/10.1080/17439884.2017.1387139

Siemens, G., Gašević, D., & Dawson, S. (2015). *Preparing for the Digital University: A Review of the History and Current State of Distance, Blended and Online Learning.* Athabasca University Press. https://research.monash.edu/en/publications/preparing-for-the-digital-university-a-review-of-the-history-and-

Sin, S. (2010). Considerations of Quality in Phenomenographic Research. *International Journal of Qualitative Methods, 9(4)*, 305–319. https://doi.org/10.1177/160940691000900401

Sinclair, C., & Macleod, H. (2015). Literally virtual: The reality of the online teacher. In *Critical Learning in Digital Networks* (pp. 77-99). Springer International Publishing.

Stommel, J. (2018). What is hybrid pedagogy? In Morris, S. M., & Stommel, J. *An urgency of teachers: The Work of Critical Digital Pedagogy*. Hybrid Pedagogy Inc. https://pressbooks.pub/criticaldigitalpedagogy/chapter/what-is-hybrid-pedagogy

Svensson, L. (1997). Theoretical foundations of phenomenography. *Higher education research and development, 16 (2)*, pp.159-171

Tight, M. (2016). Phenomenography: The development and application of an innovative research design in higher education research. *International Journal of Social Research Methodology, 19(3)*, 319–338. https://doi.org/10.1080/13645579.2015.1010284

Toy-Cronin, B. (2018). Ethical issues in insider-outsider research. In *The sage handbook of qualitative research ethics* (pp. 455-468). SAGE Publications Ltd. https://www.doi.org/10.4135/9781526435446

Trowler, P. (2022). *Doctoral research from inspiration to completion: Blended resources.* Independently published.

Varga-Atkins, T., Sharpe, R., Bennett, S., Alexander, S., & Littlejohn, A. (2021). The Choices that Connect Uncertainty and Sustainability: Student-Centred Agile Decision-Making Approaches Used by Universities in Australia and the UK during the COVID-19 Pandemic. *Journal of Interactive Media in Education, 2021(1)*, 16. https://doi.org/10.5334/jime.649

Watermeyer, R., Crick, T., & Knight, C. (2021). Digital disruption in the time of COVID-19: Learning technologists' accounts of institutional barriers to online learning, teaching and assessment in UK universities. *International Journal for Academic Development, 1–15*. https://doi.org/10.1080/1360144X.2021.1990064

Weller, M. (2020). *25 Years of Ed Tech*. Athabasca University Press. https://www.aupress.ca/books/120290-25-years-of-ed-tech/

Williams, B. A., Brooks, C. F., & Shmargad, Y. (2018). How Algorithms Discriminate Based on Data They Lack: Challenges, Solutions, and Policy Implications. *Journal of Information Policy, 8*, 78–115. https://doi.org/10.5325/jinfopoli.8.2018.0078

Williams, T. (2022, March 17). *English regulator launches review of blended learning standards*. Times Higher Education. https://www.timeshighereducation.com/news/english-regulator-launches-review-blended-learning-standards

Williamson, B., Eynon, R., & Potter, J. (2020). Pandemic politics, pedagogies and practices: Digital technologies and distance education during the coronavirus emergency. *Learning, Media and Technology*, *45*(2), 107–114. https://doi.org/10.1080/17439884.2020.1761641

Williamson, B., & Komljenovic, J. (2022). Investing in imagined digital futures: the techno-financial 'futuring' of edtech investors in higher education. *Critical Studies in Education*, *64(3)*, 234–249. https://doi.org/10.1080/17508487.2022.2081587

Yates, C. (2021, January 21). *Coronavirus variants: why being more transmissible rather than more deadly isn't good news*. The Conversation. https://theconversation.com/coronavirus-variants-why-being-more-transmissible-rather-than-more-deadly-isnt-good-news-152863

Young, C. & Perović, N. (2015). *ABC Learning Design Method*. UCL. https://abc-ld.org/