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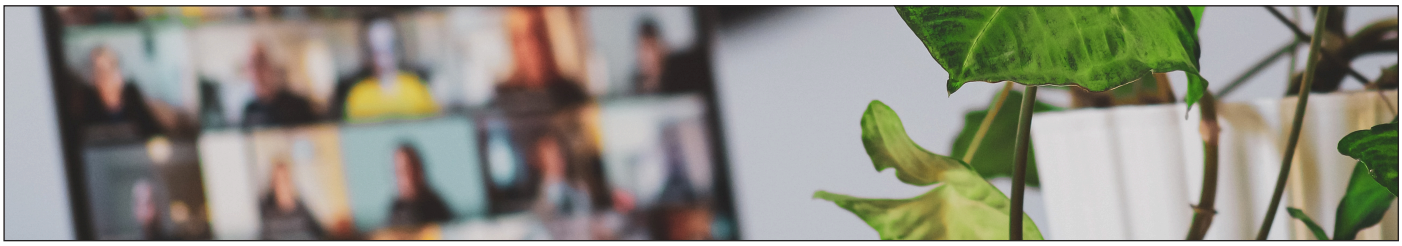

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Hybrid pedagogy and learning design influences in a higher education context

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Abstract

After pivoting to a completely new mode of teaching and learning for much of the higher education sector, a focus on the learning design influences and networked communities sought to address a gap in current literature. The research attempted to delve into the scope of hybrid learning design in response to the changing educational landscape, forced by the Covid-19 pandemic. Thirty-eight participants from across the higher education sector participated in a qualitative survey and institutional context was derived from internal system analytics and engagement data to inform usage of specific systems and tools. Overall, hybrid learning design was limited in its prevalence across the participants learning design, with online and blended playing a key role. Furthermore, the research focuses on identification of key factors influencing learning design and possibly the neglect of a hybrid model required to meet the expectations and needs of the current scenario higher education finds itself. Possible limitations of this research and future associated research are addressed in relation to the results and analysis, with recommendations of how to improve.

Keywords
hybrid learning; learning design; community of practice; digital capabilities; online pivot; online learning

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1. Introduction

The Covid-19 pandemic has created the largest disruption of education systems in history, affecting nearly 1.6 billion learners in more than 190 countries and all continents (United Nations, 2020). The Covid-19 pandemic has made higher education providers quickly pivot to digital teaching and assessment, with the 'new normal' just becoming a reality for the 2020/21 academic year. The digital environment will remain a crucial aspect of this 'new normal' and how quality is maintained is an important aspect (QAA, 2020). Digital learning provision often involves a broad range of staff, such as learning technologists, IT departments, educational designers and academics among others. As a result, the planning and management of digital approaches to learning have the potential to take longer and be more complex than those based on campus. Typically, digital delivery requires greater preparation time, associated with the development and design of digital teaching materials and activities (QAA, 2020, p. 3). Technologies and the tools of digital delivery often drive the focus at the expense of digital pedagogy. Teaching staff are the foundation of maintaining the quality of digital teaching and learning and providing a quality student experience.

Hybrid pedagogy is a development from blended learning, where there are elements of online learning and face-to-face learning, but with a hybrid approach there is no separation made between the digital and on-campus cohorts. The need for hybrid learning has mused for many years (Wong, 2008) yet has been exacerbated by the current pandemic and restrictions placed on educational institutions, with the Department for Education (DfE) setting out advice and guidance for higher education (HE) establishments to support students in self-isolation and those in physical attendance. Where institutions and students want to maintain their learning but are required to avoid face-to-face attendance, online synchronous sessions have been the standard. However, some students have continued to attend face-to-face sessions in unison with online peers. There is an added complexity with a hybrid approach to teaching and learning and it is more than just presenting lessons online and educators must re-imagine how they plan lessons, manage their classrooms, connect with students and assess their progress (Doering & Veletsianos, 2008). Here, learning design an important aspect which Koper (2006, p. 13) describes as "*a description of the teaching-learning process that takes place in a unit of learning*". Conole (2013) suggested that despite the affordances of new technologies to support learning there remained a gap between the theory and reality. She suggested learning design being able to bridge the gap and provide practitioners with the guidance and support required to connect the potential of the technologies and the support the co-design of learning.

Hybrid course design has the potential to provide flexibility for institutions to engage in face-to-face classroom and online learning by providing students with relevant meaningful content while maintaining student teacher relationships (Teeley, 2007) in a 'Covid-hit' curriculum, and beyond, yet this is not yet being observed at scale in the sector. Jisc's most recent publication (2020, p. 6) continued to highlight a focus on blended and face-to-face learning, identifying that "*leaders believe blended learning enables anytime/anywhere learning, breaks down geographical barriers to delivery and extends institutional reach into new markets.*" When considering a post-pandemic approach to education, we can look to Currie (2020) and Dr Donald Birx's offering on what post-pandemic opportunities afforded by hybrid models, suggesting:

> "Even when we have a vaccine, issues will come up with illness, students who are working or needed at other events. The hybrid model allows a school to adapt and better support students and enable more diverse populations to get an education," (2020, p. 2)

The purpose of this study was to gather data from the higher education sector and establish current learning design practices alongside the influences that support or hinder them, with a specific focus on hybrid learning design and the expectations for the future.

1.1 Research questions

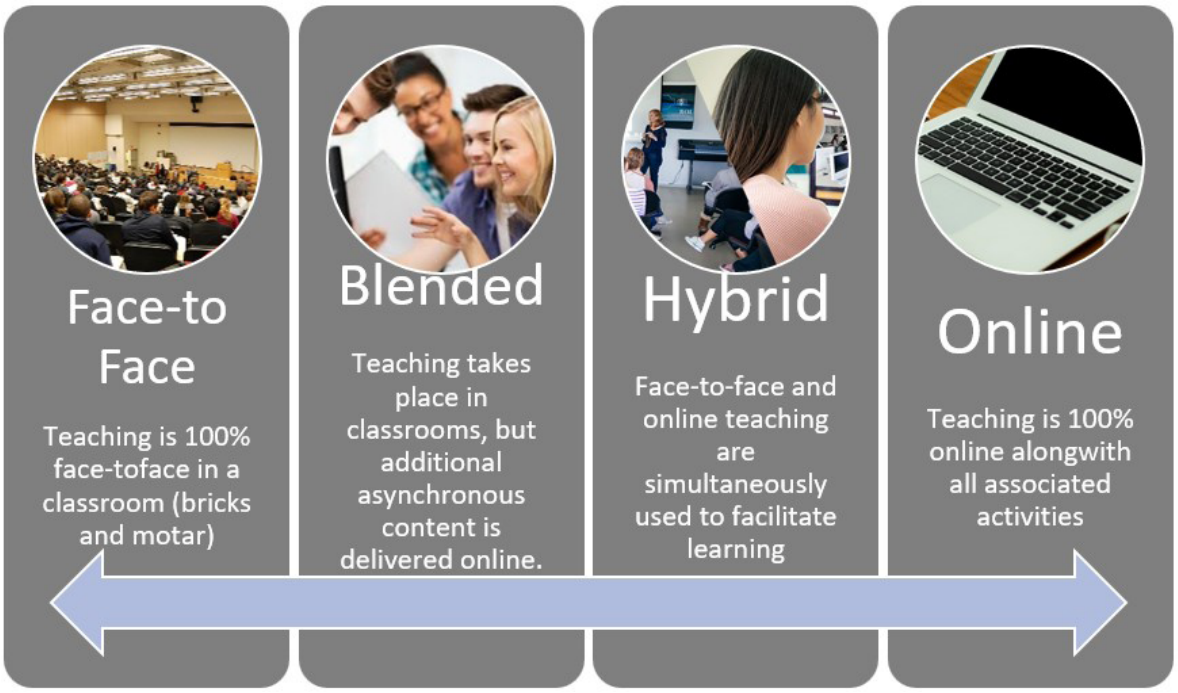
1. What have been the key influences (positive and negative) in the learning design for a hybrid delivery model?
2. Have Communities of Practice (CoP)/learning networks been engaged with to inform and support your learning design and if so how?

2. Literature review

2.1 Online, blended and hybrid pedagogy

Over the years, the confines of the physical classroom have been challenged and a broader notion of learning spaces has emerged, indicating that learning can no longer be perceived as tied to brick and mortar (Temple, 2008). Hybrid learning is different from blended learning and not to be confused as it is not an instructional strategy that uses

Figure 1. Teaching Approach Continuum Overview



sequences of online and offline learning activities and combines online materials with in-person instructions (Figure 1). From fully online to face-to-face teaching and learning, a continuum can be used to establish the similarities and differences. Hybrid learning moves beyond distinctions between online and offline spaces, they challenge divisions between teacher/student roles, formal/informal contexts and analogue/digital communication and media (Hillia, Nørgård and Aaen, 2020). Hybrid teaching and learning is a synthesis of conventionally separate elements, face-to-face and online, making it distinct and not merely blended or flipped. Rorabaugh and Stommel (2012) suggested hybrid learning is not 'safe' or 'familiar', but always on the move towards something new, never fully formed or determined. However, with the current pandemic and pedagogic approaches being taken, the space to have hybrid learning as a primary learning design approach is up for debate.

Creating and facilitating hybrid learning requires mutual commitment, care, respect and collaboration between the parties and dimensions entering into hybrid connectivity in an effort to co-create a shared world (according to Aaen and Nørgård, 2016; Nørgård, Mor and Bengtsen, 2019). Paechter and Maier (2010) previously highlighted students' perceptions regarding their preferences for online or face-to-face learning components, identifying their appreciation of online learning for its potential in providing a clear and coherent structure of the learning material, in supporting self-regulated learning, and in distributing information. They preferred face-to-face learning for communication purposes in which a shared understanding has to be derived or in which interpersonal relations are to be established. Köppe, Nørgård and Pedersen (2018, p. 5) characterize hybrid learning by "*open-endedness, risk-taking, experimentation, empathy, dialogue and critical creativity*", it could be argued not something traditionally evident in the current higher education landscape.

Hybrid learning in higher education implies a pedagogical design that mixes different discourses, formats, tools, people and contexts to stimulate higher education teaching and learning in a different way to the 'either or' model of online or face-to-face. Through hybrid teaching and learning, people inside and outside the classroom and campus can become entangled in joint dialogues, collaborations, and communities (Nørgård, Mor, & Bengtsen, 2019). In a recent National Union of Students (NUS) survey, 81% of surveyed students suggested a will for their course to return to 'normal' after the pandemic interference (NUS, 2020), with social interaction the overriding issue. Conversely 55% suggested the online provision during the pandemic was of a good quality/standard, but some commenting on the clamour for more interactive classes. Comparing this with a recent JISC (2020) Teaching Staff Digital Experience Insights Survey, where it concluded that a number of staff never carried out a range of digital practices (using interactive

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quizzes, give digital feedback, work online with learners and creating online materials) one can conclude that effective blended learning is scarce, with hybrid learning even less so. The following section looks to address the role of learning design in attempts to create a pedagogically sound approach to support students in the learning process.

2.2 Learning design

Learning design research work developed in response to a perceived gap between the potential of technologies in terms of their use to support learning and their actual use in practice (Bennett et al., 2007; Conole, 2004; Herrington et al., 2005). Goodyear (2005) also used the term 'educational design' focusing on a set of practices involved in constructing representations of how to support learning in particular cases. It focuses on practice rather than theory, while recognising that practice embodies experiential and theoretical knowledge. Goodyear and Retalis (2010) argued that good design, deemed to be simple, important, clear, progressive and innovative, is hard and takes time; it involves the design of good tasks but also the design of supportive learning environments. Beetham and Sharpe (2007) prefer the term 'designing for learning', which they describe as the process by which teachers arrive at a plan or structure or design for a learning situation. Likewise, Goodyear and Yang (2010) believe that learning can only designed for what actually occurs accommodating numerous extraneous factors. Chatteur et al. quoting Neal and Miller (2005) argued that e-learning design is a careful balancing act between pedagogy and technology, often at the expense of pedagogy (Chatteur et al., 2010, p. 183). The pandemic has intensified the requirement for teachers and leaders to develop a range of new skills, especially learning how to engage students productively in online learning, blended learning and hybrid learning models (Darling-Hammond and Hyler, 2020).

Conole (2004) previously argued of the gap between the promise and reality of the use of technology in education and the lack of evidence, to suggest that learning design and education in general had developed in line with the technology. Agostinho et al. (2008, p. 81) reiterated this later, suggesting that the uptake of the use of information communication technology (ICT) based learning designs in higher education had been slow. Koedinger and Corbett (2008, p. 61) also commented that as new technologies have emerged, the promise of radical transformation has not been a reality, but a constant expectation by many.

Holdsworth and Hegarty (2016) explain that universities and colleges have many local, national and sector-wide requirements that inform and shape the design of courses including:

- linked curriculum;
- institution-wide graduate attributes;
- learning-focused approaches;
- professional accreditation requirements; and
- graduate attributes.

They also suggest the scope and variety of such influences can be synthesised to produce effective curriculum design and pedagogic practice, or limit and hinder the learning design and practice in higher education. Falconer and Littlejohn (2008, p. 20) contend that there are three challenges facing teachers when it comes to learning design:

1. the increasing size and diversity of the student body;
2. the increasing requirement for quality assurance; and
3. the rapid pace of technological change.

Teachers are becoming increasingly confused by the range and volume of technologies and different pedagogical approaches they can adopt, and often struggle with implementing theory into practice (Fang, 1996). Design is arguably the most important aspect of learning and teaching yet tends to be based on prior experience with practitioners making limited use of different pedagogical approaches. It also suggests that design is complex, and teachers need support and guidance to effectively incorporate new technologies, to think differently and to change their practice. Darling-Hammond and Hyler (2020) advocate the need, now more than ever, for more effective ways of developing and sharing expertise, with communities of practice being an effective mechanism for achieving this. Communities of practice will be addressed in the next segment of this paper and aims to highlight the potential benefit they encompass in relation to learning design.

2.3 Communities of practice

Communities of practice have been defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 2006, p. 1). Communities of practice models highlight professional learning occurring within groups which work together and develop common values over a period of time. Cooperative activities occur in face-to-face or in online contexts and newcomers are progressively initiated into the situation while also being encouraged to share ideas and pinpoint innovative practices (Lave & Wenger, 1991; 1998; Owen, 2004).

Grossman, Wineburg and Woolworth (2000) highlighted the levels of maturity of groups operating as professional learning teams and communities of practice. Many interest-focused groups initially operate at a 'starter' level in terms of individual commitment to the group, with individuals and teams undergoing a period when commitment increases ('developer'), prior to participants showing a strong sense of identity and group learning as a 'mature' community of practice. Bridwell-Mitchell (2016) highlights that effective professional learning occurs within situated and actual practical contexts, and through collegial work in ongoing networks, coaching and mentoring.

While communities of practice are generally self-organising and rely on internal leadership and building sustainability through team members valuing the collaborative work and relationships, formal organisational structures can be used to nurture the community (Wenger, 1998). More formalised leadership can support learning communities through provision of comprehensive and systematic approaches. This includes time for ongoing and supportive collegial learning which challenges ideas and builds new skills and subsequently leads to rethinking and changes in curriculum practice (Senge, 1994; Bolman and Deal, 2003; Heifetz and Lindsay, 2002; Darling-Hammond and McLaughlin, 1995).

Social influence has an impact on individual behaviour and technology acceptance through three mechanisms: compliance, internalisation, and identification (Venkatesh & Davis, 2000; Warshaw, 1980). This research looks to address the learning design influences on approaches taken in response to the Covid-19 global pandemic and the role learning communities play in this too. There is currently a gap in literature in this area due to the ongoing global situation and the rapidly changing nature of the higher education landscape. It is hoped that this research will cast light on ways teachers are addressing their learning design and whether communities of practice are playing a role in this. At the outset of the UK lockdown and enforced shift to what was termed 'emergency remote teaching', a dramatic shift in approaches was seen and now 9 months later, it is important to address the progress and mechanisms that have supported this.

3. Methodology

To investigate hybrid pedagogy and learning design influences, an exploratory mixed methods research design in the form of survey and institutional analytics was conducted. Data compromised of participant responses to an 18-question Qualtrics survey consisting of open and closed questions, alongside the analytics of an institutional learning community (Digital Education Network – DEN). A mixed method approach was deemed appropriate as the focus was to gain insight and ask questions around how and why certain approaches are formed, addressing alongside actual practice.

Thirty-eight participants, academics in a range of UK higher education institutions, contributed to the survey, which was circulated via numerous internal and external networked groups, including Twitter, Lancaster University Digital Education Network (DEN), and external institutions' networked groups. One limitation of the research design was the lack of identifying markers in the survey set, meaning delving deeper into institutional detail in not possible. Questions were predominantly open-ended in nature to allow participants to explain and elaborate on their current feelings towards their practice and to allow space to reflect and develop their thoughts on future implications and practice. Participants were asked what effect the shift to online teaching had on their teaching, the immediate challenges and benefits of such a shift, how technology supported their transition in practices, what they understood by hybrid teaching and learning, what can be learnt and what they envisage being on the horizon based on the past 9 months of change and flux in higher education. Gauging the initial shift to online teaching was important as this was an enforced shift by the UK Government, with the additional focus on hybrid teaching and learning coming during the planned 20/21 academic year where on campus teaching was permitted.

Analysis of the data consisted of initial Qualtrics reviewing, using in-built visualisations to overview the qualitative data. NVivo was used to complete in-depth analysis and to generate core themes: *digital literacies, institutional influences on learning design, internal and external networked groups, and pedagogy impact*. Statistical data were gathered via the DEN and used to supplement the qualitative responses from the survey. The thematic analysis was completed in 6 steps:

- Familiarisation – going through the textual contents while taking necessary notes, and general observation of the data to accumulate an overview.
- Coding – highlighting the keywords and major sections of the text and linking these with shorthand or "codes" to easily label the content.
- Generating themes – Based on the codes created, next defining some relatable themes by understanding the patterns in the codes was completed. In this stage, some codes were discarded if they were

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not repeated much or do not hold relevance to any theme in particular.

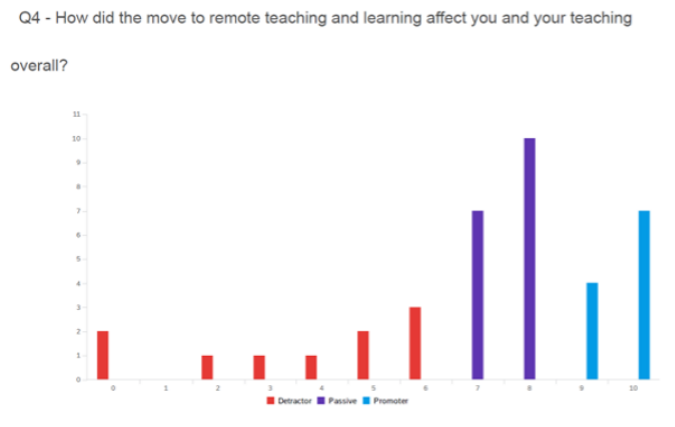
- Reviewing themes – iterative process where re-viewing themes to filter any unwanted or irrelevant themes used earlier and to refine the usefulness and accuracy of the themes representing the data.
- Defining and naming themes – When the final list of themes are decided, naming and defining the themes were completed to allow references in the later analysis.
- Writing up – this forms the final summarisation of the analysis.

4. Results and Analysis

Results from both qualitative and quantitative data were analysed and have been structured into 4 specific areas (pedagogic focus, digital focus, institutional influence on learning design and internal and external networked groups), aligned to the thematic analysis conducted. The 4 areas aim to directly address the research questions, detailing the key influences in the learning design for a hybrid delivery model and the types of communities of practice/learning networks and their impact on supporting the learning design process.

Addressing the immediate shift during the pandemic from face-to-face teaching to online, question 4 (Q4 in figure 2) asked participants to rate the effect of the shift from 'normal' teaching to the pandemic response online approach on a scale of 0 (no effect) to 10 (absolute change), with 73% indicating 7 or above, signifying a substantial impact on their teaching. A need to establish participants' understanding of hybrid pedagogy and learning design was key before progressing into specific details.

Figure 2. Q4 rating effect of online shift



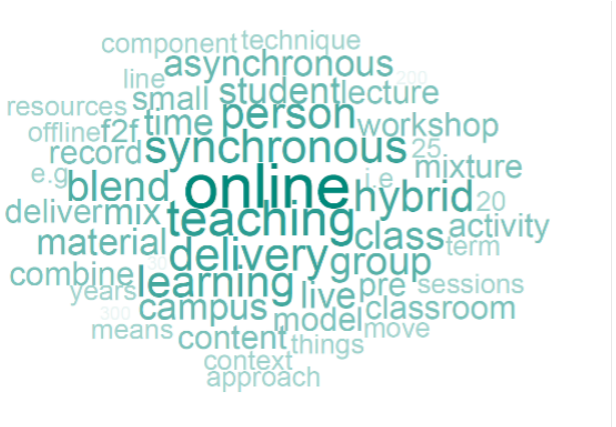
The effects are further explored in additional questions targeting specific areas of strengths and weaknesses in response to the pandemic teaching approach. Question 16 (What is your understanding of a hybrid delivery model?) aimed to gather participant responses to define hybrid delivery, with a range of response types collected. Figure 3 consolidates key words into a visual word cloud from the 38 responses collected, with online, synchronous and blend all featuring prominently. This allowed for additional analysis and to delve deeper into specific responses which signified that some still conform to a different explanation of hybrid teaching and learning based on the continuum (Figure 1) highlighted earlier, with online and face-to-face separated.

> To me it is about combining different ways of teaching, and integrating them as one. Combining the F2F with the online experience as opposed to an "either/or". It is something that we should integrate in to our courses and modules regarding of context - it is a move away from seeing things as "online only" or "F2F only"

Many responses line up with Nørgård, Mor, and Bengtsen's (2019) definition of hybrid teaching and learning, underscored by one participants' response above, but some revert to a more 'established' blended, online or face-to-face (f2f) definition which involve sequences of online and offline learning activities and combines online materials with in-person instructions (Hilli, Nørgård & Aaen, 2019), emphasised by the participant quote:

> Using both the traditional classroom and things outside it, especially software and tools for remote and online learning, to deliver teaching.

Figure 3. Qualtrics Word Cloud Data Analysis Q16



As more established teaching and learning approaches, face-to-face, blended and online learning still dominate education, but hybrid is starting to emerge and gain more focus due to the pandemic. The differing institutional approaches, local authority regulations and staff/student judgements on teaching and learning is shifting the conversation in the direction on hybridity, something supported by Currie (2020) who discusses the need for ongoing flexibility in teaching and learning and addresses the pandemic as one of potentially many disruptive events challenging the standard model of teaching and learning in HE.

4.1 Pedagogical focus

Thematic analysis lead to pedagogical focus being one of the main themes to emerge from the data. Survey results (from Question 9 – What are the advantages of delivering teaching and learning digitally?) highlighted positive elements that a shift in pedagogy and learning design towards digital teaching learning has prompted and can be sustained for the future. Numerous factors were identified including:

- Reduction in physical classroom and associated technology issues;
- Removal of geographic boundaries;
- Increased inclusivity afforded by digital teaching and learning;
- Increased flexibility of accessing learning materials; and
- Increased formative assessment and feedback opportunities.

One participants' response encapsulates many of the positive elements identified by many:

> Better engagement and feedback for my students. One specific example - one module I used OneNote and Teams for a group consultancy project (end assessment) so students were working within the online environment int he classroom prior to Lockdown. It meant in the 3 hr session I had to work my way around the classroom helping groups- I often got caught by some groups for longer, other were talking over each other trying to get my attention and some groups I ended getting round at the very end. The move to remote in lockdown meant that I scheduled and spent an hour per week with each group and they received much more support and feedback than they did F2F. But certainly a more positive engagement and relationship with groups and time (and space) in the physical classroom did not allow.

An increased awareness of the pedagogic affordances that digital technologies offer in teaching, learning and assessment have arisen. Digital learning platforms are not direct replacements for face-to-face learning yet offer opportunities to develop pedagogies and contribute to learning opportunities. Carless (2020) addresses the longstanding issues surrounding the provision of timely and effective feedback to students prior to COVID-19, with evidence to suggest that the pandemic shift in teaching approaches has heralded opportunities to engage in more sound and impactful practices. Survey data indicate learning design with more formative assessment and feedback opportunities throughout. Additionally, the integration of technology-enhanced assessment into the curriculum can engage students and more efficiently utilise institutional resources (Bozalek, Ng'ambi, and Gachago, 2013) whilst also creating employable graduates (Porcaro et al., 2016), thus tying into institutional and sector-wide employability foci.

Learning design and the subsequent impact were addressed in question 5 (What were the immediate challenges in the first few months of the lockdown period) of the move to remote teaching and learning?) and question 7 (Has the move to remote delivery presented new barriers for student and staff engagement with teaching and learning?). Responses highlighted some of the barriers and limitations surrounding the shift to a different approach to teaching.

Two key responses typify the overarching sentiment of participants:

> Thinking about the social dynamics of learning and designing solutions.
>
> As Academic researchers we have not fully appreciated or understood the significance of the distinction between curriculum design and inclusive pedagogy.

Responses unearthed the struggles faced by academics in an area of teaching and learning that was anything but standard for many. Creating social cohesion and an inclusive learning environment is difficult, but when adding in the shift in teaching approach from face-to-face to online/remote delivery the gaps in both practical and pedagogical practice were becoming self-evident. Designing activities for an online or blended learning approach have elements of technical and instructional qualities but require greater preparation and deliberation in order to provide the interactive learning experiences. At the outset of the lockdown time and preparation was not a luxury afforded, instead a swift and dramatic shift to remote delivery was required and excavated many issues. Redesigning activities and

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approaches used in a traditional higher education approach proved troublesome, not just at a technical level but at a pedagogic level (McLaughlin et al., 2014). As Bennett, Lori and Agostinho (2018, p. 1) allude: "Re-framing teaching as design usefully emphasises the creative problem-solving needed to balance pedagogical, logistical and technical considerations within specific educational contexts, tailored to learners' needs." All of which we not given the time and consideration required due to the situation.

Laurillard (2013) and later Goodyear (2015) both expressed the need to focus on effective learning design to improve pedagogy and the quality of higher education teaching. Goodyear also pointed to the value in creating capacity and opportunities for staff to develop their practice through effective upskilling in digital learning design, something Ertmer (2005) had touched on in relation to adopting new approaches and the consequential effects on student engagement and adoption of learning technologies. Many participants highlighted a lack of digital capabilities as a barrier to effective pedagogic design, whilst also addressing the absence of appropriate time to upskill and develop the required practice. This will be discussed in the following section in greater depth, focusing on digital capabilities specifically.

4.2 Digital capabilities

Digital capabilities were a prominent feature in the qualitative survey data and can be rooted back to the initial research question regarding the influences in designing a hybrid delivery model. Question 5 (What were the immediate challenges in the first few months of the lockdown period of the move to remote teaching and learning?) results implied that digital capabilities of (primarily) staff as a prominent immediate challenge, with fifty-four percent of HE teaching staff commenting on the scale of upskilling required and the "very steep learning curves" as a result. One participants' comment consolidates much of what the fifty-four percent identified:

> Learning new technology in order to deliver effective courses online. A feeling of being overwhelmed by the choice…

Much of what was witnessed from a personal perspective highlighted this dramatic shift to online and the gap in both pedagogic and digital literacy skills. Responses aligned with Calvani, Cartelli, Fini and Ranieri's (2009, p. 186) definition of digital competence as "the ability to explore and face new technological situations in a flexible way, to analyse, select and critically evaluate data and information, to exploit technological potentials to represent and solve problems and build shared and collaborative knowledge, while fostering awareness of one's own personal responsibilities and respect of reciprocal rights/obligations". In the context of a shift in HE, digital capabilities are no longer just the proficiency with ICT (Jisc, 2015) but now require the pedagogy and curriculum design and how they impinge or enhance as a direct result. Much of what was achieved in the early stages of the transition to online was 'substitution', where the technology acted as a direct tool substitute with no functional change, which is the initial stage of the SARM model (Puentedura, 2006). A recent HEPI (2020) publication reflected this, stating "the replacement of physical classes with video conferencing has been the dominant approach taken." Furthermore, they commented on the limited capacity to recreate an effective teaching and learning experience with the substitution alone.

Digital capabilities were also flagged as a key limiting factor in designing hybrid pedagogy in question 13, directly relating back to research question (RQ) 1, (What are the challenges still to be overcome to enable high-quality digital teaching and learning in the future?). Results point towards the notion that digital capabilities of teaching staff and students are essential for the development and delivery of effective hybrid learning, with fifty-eight percent of respondents directly relating to these as future challenges. One participant expressing the necessity and task ahead.

> "I need to continue to up-skill myself! This is a major challenge."

This was not an isolated response, with others commenting on the further development of such digital capabilities with students playing a more prominent focus. Responses included:

> Infrastructure and the low skill base of many academics who are stuck in a late 90s/early 2000s Powerpoint karoke mode of delivery.
>
> Many students not good with the tech in fact.
>
> Student training to use the tech.

McKnight et al. (2016) express the influence of staff digital capabilities in relation to a student's own digital capabilities and how modelling can be a factor in the wider development of student autonomy and self-regulated learning (Austen et al., 2016). Alongside the digital capabilities there was an orientation with the institutional influence on such developments, with participants placing an emphasis

on the role they play in learning design.

> Curriculum design to make proper use of it. We need more learning technologists and training in instructional design.
>
> Upskilling of staff still remains a big issue that will need to be addressed more systematically. Also, student expectations will have to be managed more effectively so that students don't get the impression that they are being 'short-changed'. Redesigning and altering assessment will also be high on the priority list for most institutions - if not the highest priority.
>
> More equipment support, continued training support, an institutional commitment not to rush back to some version of the pre-Covid status quo.

Flavin (2016) drew upon the work of Smith et al. (2013) and emphasised that various aspects, such as site licences, site administration, technical support, computer hardware, technology infrastructure, course development, faculty development and student training are all important elements of creating a digital infrastructure that supports the development of the required pedagogic approaches. He also expressed that a strategic approach to technology-enhanced learning based on practice is more likely to be successful than an approach which starts with the ICTs themselves, which was troublesome during the initial shift to online teaching and learning that staff and institutions faced and had imposed. This will be focused on in more depth in the following section, looking at the institutional role on learning design.

4.3 Institutional influence on learning design

Leibowitz et al. (2014) set out the role of 'context' and how various macro, meso and micro features, professional development and quality teaching, etc., are factors in higher education settings. Archer's (1996) definition of context reflects some of the ways in which institutional contexts may influence how change occurs with regard to quality teaching and the professional development of academics, which is prominent throughout the survey data. These context specific elements were prominent throughout responses based on the perceived challenges (Questions 5-7) and can be seen in the context of RQ1:

> For staff it has been a lot of extra work for those who have not used online/hybrid approach before. Even for those who have, such as me, it feels quite different being told to use it to support current teaching.
>
> I think that there will be a lot of people talking same old bollocks about paradigm shifts etc.etc. while failing to realise that Universities are INCREDIBLY resilient and resistant to change…
>
> The positivist in me hopes it will (change), but HE culture is notoriously difficult to change. For me, the institution has a view on digital technology that is not particularly aligned to my view on it. I still fear that a reactive approach to digital T&L will be present.

These responses emphasise the overarching influence an institution can play on future curriculum design, as well as illuminating the anxiety and concerns of academic staff towards their culture and approach to digital teaching and learning. As Bennett, Lockyer and Agostinho (2018) propose, re-framing teaching requires a balance of pedagogical, logistical and technical considerations within specific educational contexts. However, not only negative sentiment towards the institutional influence were collected, with limited contributions advocating the constructive developments in specific contexts via policy, training and the digital infrastructure provided to make the transition more effective:

> We have had to react quickly to revise policy, e.g. on recording of educational sessions (not just in-person sessions), and produce guidance on e.g. use of external tools, appropriate behaviour in online live sessions etc. We had already been planning to move to an Active Learning Framework that makes best use of digital tools, whether that be online or face-to-face sessions - the current situation has caused us to accelerate this shift.
>
> Teams will become the main communication platform (complementing email and continued use of Moodle). SOME use of recorded lectures will continue - this will impact on the activities in the remaining f2f lectures i.e. more interaction.
>
> Some of the 'fear of tech' will be reduced. We have become more used to helping each other via short demo videos, sharing screens in 1:1 support calls. We have become more open and willing to share things that have worked and not worked.

Although positive in sentiment, these comments still foreground the substitution or augmentation of teaching and learning, addressing the limited scope for modification or redefinition based on the SAMR model. Addressing RQ1, the

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institutional approach clearly had an impact on the design and readiness for a hybrid delivery model. Hybrid approaches are currently not surfacing in the curriculum design or teaching practices at scale, with online learning and blended still dominating the HE landscape in the current pandemic practices. This is underpinned by responses to question 11 (Q11 - How will the lessons from this experience shape your approach to digital teaching and learning and inform your organisational culture in the medium to longer-term?). Responses where academics addressed the blended, flipped and online approaches that would continue and that have positively influenced their approaches. One respondent's comment sums this up:

> We have had to react quickly to revise policy, e.g. on recording of educational sessions (not just in-person sessions), and produce guidance on e.g. use of external tools, appropriate behaviour in online live sessions etc. We had already been planning to move to an Active Learning Framework that makes best use of digital tools, whether that be online or face-to-face sessions - the current situation has caused us to accelerate this shift.

Hybrid learning design was not mentioned in any response, with sixty-eight percent addressing, flipped, blended or online delivery being a lasting factor. This can point towards a lack of strategic focus on the changing dynamic of HE with a persistence in delineation between campus based and distance learning students. Question 7 (Has the move to remote delivery presented new barriers to student and staff engagement with teaching and learning?) along with question 13 (see previous) unearthed accessibility and access prominently in the survey data. Academic staff stressed the universal design requirements that need to be considered when it comes to a number of access and inclusion issues. Selected responses highlight the impact of infrastructure:

> Yes, I think some students struggle to engage as they do not have microphones or a camera, their IT and / or connection can limit their engagement, particularly in breakout groups. Discussions can therefore be limiting.
>
> Yes - there is a postcode lottery - some staff simply do not have the connectivity to make this work and their kit is not up to broadcasting. Similarly students have infrastructure issues.
>
> Students - technology poverty, lack of confidence to have camera on, Staff - so much to learn about delivering online and all the available techniques/ platforms etc. Rethinking the whole module Both - Chinese firewall, lack of appropriate space in which to work.

Accessibility and equal opportunities featured in the 2019/20 National Union of Students survey (NUS) with 27% stating they were unable to access online learning during lockdown (NUS, 2020). The above selection of responses also indicates the institutional context of infrastructure needs and the subsequent impact on learning design and pedagogy. It can be inferred that without the required infrastructure, curriculum design will be hampered and curtailed into what is viable, rather than what is possible. Data from the institutional 'Embrace Digital' website (Figure 4) shines a light on the engagement in a variety of support tools created by the institution and aimed at supporting pedagogic and practice developments.

Formulas' refers to a section dedicated to pedagogic and practical guidance on a range of approaches and tools that link with the institutional 'minimum expectations' for a range of teaching events. Having 2,119 unique views, from 1,323 full-time academic staff and 1,704 full-time professional service staff, indicates the scale and uptake of the support on offer, which married with the overall page views (Figure 5) coming predominantly in the middle of the pandemic and prior to the start of the academic year. Although not including part-time and casual staff, the uptake of the internal support resource can be linked. Also, the slight increase in September points towards the influence of such institutional support mechanisms on learning design throughout the pandemic. Numbers 4-16 (Figure 4) detail specific teaching and learning events that have pedagogic and practical guides to support staff.

Figure 4. Institutional Analytics Breakdown for Embrace Digital Website

Page path level 2	Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
	15,300 % of Total: 0.05% (29,971,470)	10,151 % of Total: 0.05% (21,866,981)	00:02:01 Avg for View: 00:01:32 (31.41%)	26.87% Avg for View: 34.82% (-22.84%)	18.73% Avg for View: 22.48% (-16.69%)
1. /	6,928 (45.28%)	3,640 (35.86%)	00:01:41	20.56%	17.13%
2. /formulas/	2,924 (19.11%)	2,119 (20.87%)	00:02:23	43.41%	20.42%
3. /search/	988 (6.46%)	734 (7.23%)	00:02:16	23.53%	22.06%
4. /large-teaching-events/	915 (5.98%)	695 (6.85%)	00:03:04	42.31%	19.89%
5. /general-expectations/	828 (5.41%)	687 (6.77%)	00:02:04	54.29%	25.12%
6. /teaching-smaller-groups/	557 (3.64%)	460 (4.53%)	00:03:19	46.88%	25.13%
7. /case-studies/	373 (2.44%)	250 (2.46%)	00:01:19	22.22%	12.33%
8. /tutorials-and-office-hours/	364 (2.38%)	320 (3.15%)	00:02:18	64.29%	17.03%
9. /moodle/	355 (2.32%)	305 (3.00%)	00:01:42	46.45%	21.13%
10. /lab-and-practical/	265 (1.73%)	237 (2.33%)	00:02:12	53.85%	15.47%
11. /workshops/	220 (1.44%)	200 (1.97%)	00:01:44	16.67%	12.73%
12. /assessment/	214 (1.40%)	178 (1.75%)	00:02:00	0.00%	10.28%
13. /other/	146 (0.95%)	132 (1.30%)	00:00:40	0.00%	9.59%
14. /accessibility/	128 (0.84%)	83 (0.82%)	00:02:25	41.67%	25.00%
15. /field-trips-site-visits-and-placements/	88 (0.58%)	80 (0.79%)	00:01:50	0.00%	14.77%
16. /large-teaching-event/	6 (0.04%)	5 (0.05%)	00:01:32	0.00%	0.00%
17. /embrace-digital	1 (0.01%)	1 (0.01%)	00:00:22	0.00%	0.00%

4.4 Internal and external networked groups

Looking to address RQ2, question 17 (Have you engaged with any online networked groups to inform your move to online teaching and learning?) indicated that seventy-five percent of respondents' engagement (Figure 6) with a variety of online networked groups to inform and support their online teaching and learning.

Figure 7 uses the Qualtrics word cloud to focus on some specific networked groups, with colleagues, department, institutional and external all being identified. The prevalence of institutional and external Microsoft Teams groups was evident in the majority of responses, with fifty-seven percent indicating their use and engagement including some specific groups:

- MS Education Groups;
- Lancaster University Digital Education Network; and
- Digilearn Communities.

McConnell (1998) stated networked collaborative learning (NCL) was bringing together learners to work as a community, but more contemporary discussion (Hansen, 2018, Dohn et al., 2018, De Laat & Dohn, 2019) shifted the emphasis away from merely learners to people, expanding the scope and focusing on the potential of the technology to enable connections across numerous boundaries (NLEC, 2020). Figure 8 displays engagement in an institutional networked group (Digital Education Network – DEN), addressing peak engagement points around September, where preparation for the start of the 20/21 academic year was at its height. When coupling Figures 8 and 9, which indicate the active users and engagement data respectively, a parallel connection with Ponti and Hodgson's (2006) 8 principles underpinning networked learning design is possible. This includes being supported by collaborative groups, dialogue and social interactions supporting co-construction of knowledge, and responsibility for the learning process being shared. Staff used the networked group to share ideas, concerns and co-construct approaches to best suit the situations they faced.

Figure 9 gives an overview of the engagement and active users covering August-November, with the limitation of March-July data being unobtainable. It shows that throughout August to November there was consistently over 200 active users of the networked group, with the main peaks coming during the working week and dips during non-work days (weekends), clearly showing the engagement with CoPs/learning networks to inform learning design. Figure 10 shows a snapshot of activity in an institutional networked

Figure 5. Embrace Digital Pageviews July - August

Figure 6. Q17 Online Networked Groups Engagement Statistics

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Have you engaged with any online networked groups to inform and support your move to online teaching and learning? - Selected Choice	1.00	3.00	2.59	0.63	0.40	37

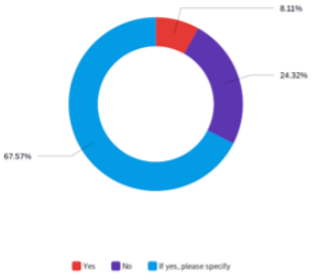
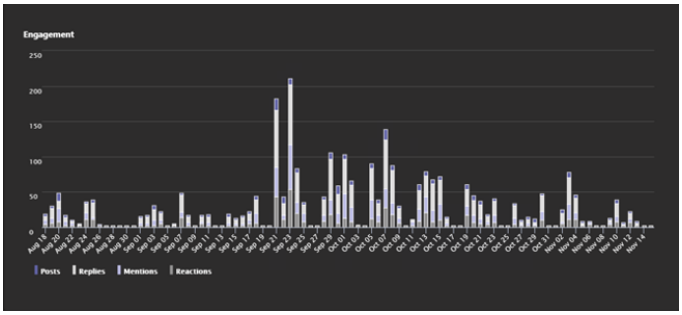


Figure 7. Qualtrics Q17 Word Cloud Overview

Figure 8. DEN Analytics Overview



https://doi.org/10.21428/8c225f6e.b5af8bae

Figure 9. DEN Active Users Data

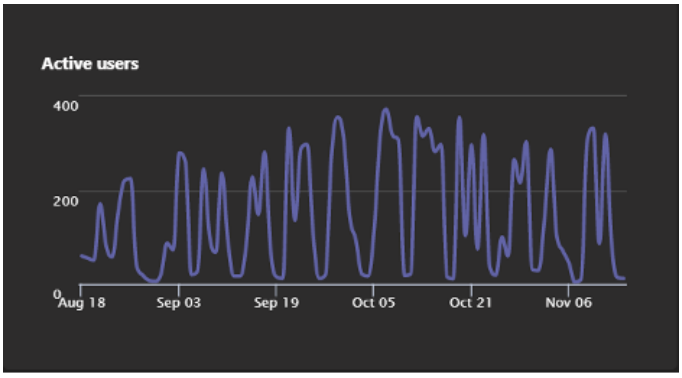
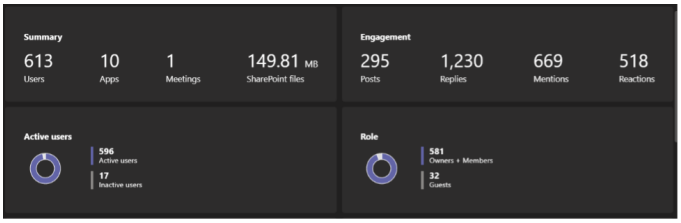


Figure 10. DEN Summary Engagement Data



group, with 596 active users and an overview of 296 posts and 1,230 replies to a range of discussions and documents. Other networked learning connections were emphasised, with Twitter also binding with the idea that it promotes people, between sites of learning and action, between ideas, resources and solutions across time, space and media (Networked Learning Editorial Collective 2020). The affordances of current technologies can be seen to have opened avenues for networked groups to form and offer academic staff an array of support and collaboration mechanisms in the pursuit of effective learning design. What cannot be addressed in this research is the quality of these networks, which may open opportunities for future research.

5. Conclusion

The purpose of this research was to identify key influences in learning design during an unprecedented time in education, with an additional focus on the engagement and influence that communities of practice and networked groups have on this. The unparalleled shift to online teaching and learning at the outset of the global Covid-19 pandemic led to a concentrated use of online platforms, systems and services that put organisational infrastructure, teaching practices and the digital capabilities of teaching staff in the spotlight.

Data linked to the ongoing challenges (Q 13, Q14 – What is the main way government, higher education provider leaders, teachers, or students could improve digital teaching and learning across the HE sector?) infers the need for teaching staff being given support and structured pathways to develop their digital literacies and informed pedagogic approaches, which must be achieved with a focused strategic plan and implementation. Analytic data from the institutional networked groups suggests that staff are seeking opportunities to support their own development, upskill and share experiences to support others.

Throughout the survey participants addressed digital literacies, institutional influence and the value of networked groups on their learning design and pedagogic approaches. Responses to targeted survey questions relating to a change in learning design (Q6, Q7, Q8, Q9) led to academic staff expressing a variety of different influences on their learning design, one being communication in collaborative settings allowing them to share and develop practice with other practitioners and to contextualise innovations in their own subject area. These take place in both structured and unstructured settings, with institutional networked groups and communities of practice providing an effective platform for positively influencing learning design and teaching practice. In conjunction with this comes the need for recognition of effective teaching, learning and assessment practices and the space to experiment with new approaches, currently not widespread in the sector or at an institutional level for many.

What does not come across strongly in the survey data is the consideration of a hybrid learning design, with face-to-face, blended and online still dominating the planning process. With shifting expectations from both staff and students in regard to a post-pandemic higher education sector, the consideration for hybrid learning design could be a missing element.

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