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# Online Education and the COVID-19 Outbreak: A Case Study of Online Teaching during Lockdown

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**Abstract:** The COVID-19 pandemic has become a critical challenge for the higher education sector. Exploring the capacity of this sector to adapt in the state of uncertainty has become more significant than ever. In this paper, we critically reflect on our experience of teaching urban design research methods online during the early COVID-19 lockdown in the UK. This is an exploratory case study with a qualitative approach with an aim to inform resilient practices of teaching in the face of public health emergencies. Drawing on the experience of teaching the Research Methods and Techniques subject during lockdown, we discuss the rapid transition from face-to-face to online teaching and point to the challenges and opportunities in relation to the learning and teaching activities, assessment and feedback, and digital platforms. This paper concludes by outlining some key considerations to inform the development of more adaptive and resilient approaches to online teaching in the context of unprecedented global health crises such as the COVID-19 pandemic. We argue that it is critical to move beyond fixed pedagogical frameworks to harness the productive capacities of adaptive teaching.

**Keywords:** online teaching; urban design; higher education; pandemic; COVID-19; public health; technology; EdTech; research methods



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## 1. Introduction

The COVID-19 pandemic has become a critical challenge across many sectors, including higher education. Exploring the capacity of the higher education sector to adapt in the state of uncertainty and manage the emerging situations associated with the pressing challenge of the coronavirus outbreak and subsequent lockdowns has become more critical than ever. There is an emerging body of knowledge exploring the impacts of the COVID-19 pandemic on higher education [1–8]. Many universities across different countries have experienced an unprecedented transition from face-to-face to various forms of online education and remote learning amid the COVID-19 outbreak and subsequent lockdowns as discussed in case studies in China [9], India [10], Bulgaria [11], Pakistan [12], and Germany [13], among others. Reflecting on the early experiences of managing the conditions of uncertainty and emergency can pave the way for developing more nuanced approaches to learning, teaching, and assessment (LTA), and for enhancing the resilience of the higher education sector in the face of public health crises.

In this paper, we focus on a case study of teaching urban design research methods right in the middle of the early COVID-19 outbreak in the UK (March 2020) by drawing on the experience of teaching the Research Methods and Techniques (RMT) subject during lockdown. RMT is an intensive subject in the MA Urban Design (MA UD) programme at Cardiff University. The MA UD students take this subject before dissertation. While the RMT subject used to be delivered mostly face-to-face, it has been inevitably and rapidly adapted for online mode of delivery during the early lockdown period. This rapid transition from face-to-face to online teaching delivery is further discussed in this paper with the

aim to outline some key considerations for online education in the face of unprecedented public health emergencies. We argue that it is critical to move towards diversifying online teaching practices and developing adaptive approaches to sustain effective forms of online education and remote learning, particularly in response to unprecedented global challenges such as the COVID-19 pandemic.

This is an exploratory case study with a qualitative approach. The research questions that we seek to address are: How did the rapid transition from face-to-face to online teaching play out in the RMT subject delivery during the early COVID-19 lockdown in the UK? What were the key adaptations in this process? What were the challenges and opportunities associated with online mode of teaching delivery? How can learning from these rapid changes and adaptations during the early COVID-19 lockdown inform post-COVID-19 educational practices as well as measures to be taken in higher education against potential public health crises in the future? Following a concise review of relevant literature on online education and teaching during the COVID-19 pandemic, we discuss methods and case study analysis with a particular focus on the ways in which teaching urban design research methods played out during the early COVID-19 outbreak and the subsequent lockdown in the UK. The paper concludes by outlining some key considerations including primary challenges and opportunities to inform the development of more resilient and adaptive teaching frameworks in response to public health emergencies.

## **2. Online Education and Teaching during the COVID-19 Pandemic**

### *2.1. Higher Education and Online Mode of Delivery*

There is an evolving body of knowledge exploring the capacities and challenges of online education [14–18]. The constant and rapid evolution of information and communication technology has undoubtedly had profound impacts on the academic discourse and everyday practices of research, scholarship, and teaching. The use of up-to-date online technologies and the process of continuously evaluating them have also become integral to students' changing demands, particularly within their online educational contexts [19]. A substantial change has been “the speed and power of communications technology and the expanded capacity to send, receive, and use information” [20] (p. 57) along with the increased capacity to bridge time and space for educational purposes and goals [21]. As Prensky [22] (p. 1) puts it, “our students have changed radically. Today's students are no longer the people our educational system was designed to teach”. Prensky views today's students as “digital natives” and their less digitally competent educators as “digital immigrants”. It is important to note that digital natives have not only acquired a set of skills in using up-to-date technologies but also have developed new learning skills and styles using them. The induced learning styles may include “fluency in multiple media”; “learning based on collectively seeking, sieving, and synthesizing experiences”; “active learning based on experience”; “expression through non-linear, associational webs of representations rather than linear stories”; and “co-design of learning experiences personalized to individual needs and preferences” [23] (p. 10).

With the proliferation of online teaching in higher education, there is an increased need to discuss the challenges associated with this mode of delivery for both instructors and students alongside the related capacities. It has been argued that students taking online courses are less likely to participate in collaborative learning activities, discussions with others, and student–faculty interactions, compared to their counterparts in face-to-face settings [14]. For Norton et al. [24], developing core professional qualities, including communication, interpersonal and practical skills among students, and sustaining student retention rates, along with training and support to effectively use online technologies and address technical issues and cyber security risks, are seen as major challenges for online education. Shuey [25] discusses challenges faced by instructors in higher education when adapting certain activities (e.g., continuous assessment and performance assessment) to the online setting without losing content knowledge or interactions between peers and/or instructors.

Despite the recent surge of interest in the introduction of research-based principles and instructional models for effective online teaching and learning [18,26], the remaining challenge to address “is not whether online courses will replace classrooms, but whether technology will drive the redesign of teaching and learning” [24] (p. 1). Public discourse on online education often makes a clear distinction between online and on-campus study, both of which are subject to change as a result of online technology. What matters is how emerging technology can be utilised to support teaching and learning activities regardless of the medium of delivery. Johnson et al. [27] (p. 9) highlight that “simply capitalising on new technology is not enough; the new models must use these tools and services to engage students on a deeper level.” This accords with Hattie’s [28] argument that effective teaching and learning strategies in higher education involve giving primacy to pedagogy over technology. To explore the potential benefits of learning with technology, it is also helpful to understand what technology this form of learning encompasses. As discussed by Norton et al. [24] (p. 21), such technologies vary between recorded lectures uploaded online and interactive digital subjects with adaptive learning platforms, in-built assessment, virtual simulations, and the like.

Online learning can act as a complementary approach to face-to-face training. This focuses attention on today’s blended learning approaches, which typically include online lectures, discussions, forums, and interactive software with the capacity to connect students for synchronous learning activities. In other words, blended learning approaches and designs are among the most favoured course delivery models in higher education [29], typified by the “integration of thoroughly selected and complementary face-to-face and online approaches and technologies” most effective for meeting the learning outcomes of a course [30] (p. 148). A multifaceted approach is then required to enable effective blended teaching and learning [31]. The question here is to explore whether students favour blended learning design or other fully face-to-face or online options as their preference for course delivery models.

Technology inevitably will have impacts on students’ choices between higher education providers. It is likely that competition will be most apparent between online universities and on-campus universities where the desire to blend technology and in-class teaching will be peaked [24]. This continues to have significant impacts on reimagining the future of universities and the academic community despite the widely held critique of higher education’s digital transformation in the wake of rapid technological innovation and labour market transformation [32–34]. According to the findings from the ECAR Study of Undergraduate Students and Information Technology 2019, about 70% of students favour mostly or completely face-to-face learning environments [35]. This suggests that students continue to have a stronger preference for some forms of blended learning environments; they see in-class lectures as an opportunity to engage with teaching staff, peers, and course content, and they see technology as useful means to enable such engagement. The increased flexibility, integration of sophisticated multimedia, and ease of access have been among the most acknowledged advantages [29] (p. 12). While online tools and their effective application have been reported as increasingly useful to students’ learning experiences, accessibility to stable internet connection is almost limited due to the low rate of Wi-Fi reliability in dormitories/campus housing and outdoor areas. The preferences (e.g., learning environments, technology experiences, and use in the classroom) might be considerably influenced by the changing landscape of the student demographics [35]. The 2019 EDUCAUSE Horizon Report cites the significant challenges that are more likely to impede technology adoption as “improving digital fluency”, “increasing demand for digital learning experience and instructional design expertise”, “the evolving roles of faculty with ed tech strategies”, “advancing digital equity”, and “rethinking the practice of teaching”—out of which, the first two are the most solvable [29] (pp. 13–19). Therefore, one can argue that rather than considering this report as the end of the discussion about the use of technology in students’ learning experiences, it is important to pose the question

of how the meaning and use of these findings might change in the face of COVID-19 and emergency remote LTA.

## 2.2. COVID-19 and Online Teaching

The emergence and unprecedented spread of the COVID-19 as a global pandemic has been posing substantial challenges to the practices of everyday life. There has been a surge of interest to explore the dynamics of online education across different contexts amid the COVID-19 pandemic [36–40]. Many higher education institutions, particularly in the context of the global North, have inevitably made some urgent adjustments to LTA designs while coping with profound social suffering and significant economic hardship. To remain competitive within the emerging market conditions and to be adaptive to uncertainties and changing situations, academics as frontline providers of higher education did not cease all their programme deliveries although some LTA activities such as national and international field site visits and certain forms of assessment were suspended or adapted. The immediate impact of the outbreak left many higher educators with limited choices to address the condition of urgency by a headlong transition to digital interfaces [41]. It has also been reported that for many academics, the forced immersion into technology-enabled forms of LTA has become a disorienting and unusual experience shaped under the weight of panic and duress [42].

The rapid transition of higher education to online provision and the enforced digitalisation of pedagogical approaches in relation to LTA have engendered significant challenges for both the academic community and students. Gamage et al. [43] indicate the increased importance of the ways in which technological advancements enabling online delivery works otherwise to challenge academic integrity management and assessment security during the COVID-19 pandemic. A recent study derived from UK academics of various disciplines and positions identified an abundance of “afflictions”, which overshadowed the potential “affordances” in the context of emergency online migration and online pedagogies [42]. These afflictions will continue to have undeniable impacts on “student recruitment”, “countries’ GDP made by international students”, “local economies”, “sustainability of universities within a global student marketplace,” and “academic labour-market” [42]. While the majority of the survey respondents critically articulated the dark side of the rapid online migration, there were some—much fewer yet no less visible—who positively debated about its capacities and turned the tragedy of COVID-19 into an opportunity to deliberate its impacts on higher education. For these optimistic academics, the forced transition in the light of the coronavirus crisis could inform different forms of change that were long overdue. Besides, the technology advocates echoed how the enforced online migration has contributed to the professionalisation of academics as pedagogues, moving beyond “the tokenism of pedagogic credentialism” (i.e., outlining higher education “as a socially immersive and participatory learning experience”) and further incentivising better practices [42] (pp. 631, 636). Such debates serve as the basis for diagnosing and exploring the impacts of emergency adoption and experimentation of online and other forms of technology-enabled LTA on the role of the academic community and the long-term future of higher education. This resonates with what other higher education commentators have previously argued as digital transformation [32–34]. Answers to many questions in this context are far from clear, yet the extent to which the higher education sector has the capacity to adapt in the context of emergency immersion into online/distance LTA and digital pedagogies remains a critical discourse and is a subject to further elucidation.

## 3. Methods

This is an exploratory research [44] (p. 64) with a qualitative approach focusing on a single case study [45]. We used the case study research design to “describe and diagnose” processes by observing their developments and contextual influences [46] (p. 98). The significance of case study has also been addressed in the context of education research as it can be adopted as an effective method to provide teachers with a range of experiences that can enable them to

become prepared and knowledgeable to manage different situations [47]. We selected the online teaching design model—what Power [48] (p. 509) called “blended online learning environment design model”—for the delivery of the RMT subject at Cardiff University as a critical response to the process of rapid transition from a face-to-face to a remote online mode of delivery during the early COVID-19 outbreak and subsequent restrictions in the UK. Access to the case study has been among the key selection criteria. We also used diagrammatic thinking as an abstraction with the capacity to unravel relationships between different elements/activities in the context of higher education. This paper was mostly written in May–July 2020 during the public health emergency related to the COVID-19 pandemic in the UK. In addition to scholarly publications, we also relied on emerging discussions in the digital media and news articles at the time.

The following limitations have also been identified in this study. Due to the suspension of face-to-face academic activities and rapid shift to remote online delivery during the early COVID-19 outbreak and subsequent lockdown in the UK, it was not possible to develop and collect comprehensive surveys from students and/or academic staff members at the time. In addition, subject evaluations were suspended for Spring semester subjects such as RMT. It is also beyond the scope of this paper to evaluate the process of learning, the associated institutional frameworks, or the related policy setting. Exploring the experiences of students is a limitation of this paper and remains a task for future research. The tight schedule of this study and the related subject delivery during the rapid period of transition to online teaching has also been among the key limitations.

## 4. Context

### 4.1. *The Early Lockdown in the UK and Transition to Online Education*

UK government announced a national lockdown in March 2020 [49] and fully suspended face-to-face teaching in higher education to contain the coronavirus. Consequently, universities across the nation including Cardiff university closed their campuses and took the steps necessary to rapidly move to remote and blended online methods of LTA during this period of disruption. Regardless of the difficulties imparted by government enforced movement constraints and social distancing measures, universities must have continued to ensure that necessary academic standards and high-quality student experience were maintained in accordance with the “safety net policy” and learning outcomes associated with each degree programme. In this paper, to reflect on the experience of teaching urban design research methods in the RMT subject, we carry out a comparative analysis of the pre- and post-adaptation of the subject design pertaining to digital transition to online platforms. We elaborate on the ways in which the RMT subject was adapted and redesigned when the COVID-19 outbreak led to the immediate closure of Cardiff University campuses and emergency migration of the teaching activities into online domains.

### 4.2. *Urban Design Education and Research Methods*

Urban design is an evolving field with critical links to a range of other disciplines including architecture, urban planning, geography, urban studies, social sciences, environmental psychology, and urban economics, among others. Addressing any research question in this field relies on a strong use of case studies, looking hard at cities [50] and adopting multiple methods and scales of analysis [51]. While engaging with specific research methods has been integral to some key contributions to the development of the knowledge base in the field of urban design [52–57], research methods have often remained underexplored, particularly in the context of urban design education. Learning urban design research methods can enable students to focus their inquiry by critically observing, analysing, exploring, and understanding cities.

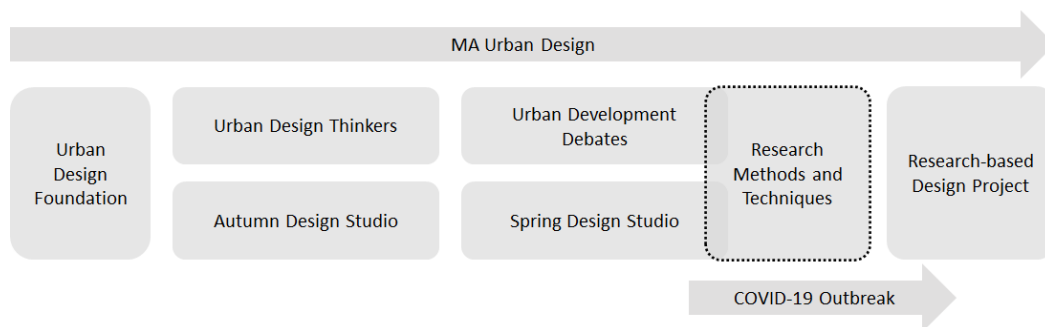
There have been attempts to outline the capacity of certain methods in urban design education, such as urban mapping, digital parametric methods [58], and extensive geospatial databases such as GIS [59]. There has been less scholarly focus on developing pedagogical frameworks based on a more extensive range of urban design methods. This



paper focuses on teaching the RMT subject amid the COVID-19 outbreak and the subsequent lockdown in the UK. The primary aim of this subject is to introduce a range of research methods concerning critical questions in the field of urban design. It also seeks to enable students to deepen their methodological understanding and critical thinking in relation to those forms of urbanism that have remained underexplored [60–62] and to the ways in which urban places work at the intersections between spatiality and sociality [63], between the measurable and the non-measurable [64], and between urban morphology and streetlife intensity [65,66].

#### 4.3. Research Methods and Techniques Subject in MA Urban Design

Figure 1 illustrates the position of the RMT subject within the broader context of the MA Urban Design (MA UD) programme at Cardiff University. The RMT subject typically starts in the last weeks of the Spring semester and ends before the Urban Design thesis—called Research-based Design Project (RbDP)—starting in summer. The MA UD programme is organised in three semesters from Autumn to Summer, and the main subjects include Urban Design Foundation, Urban Design Thinkers, Autumn Studio, Urban Development Debates, Spring Studio, Research Methods and Techniques, and Research-based Design Project. The programme also includes field study visit. Figure 1 illustrates the RMT subject in relation to other subjects in the MA UD. The RMT subject has been designed to support the MA UD students to prepare for their end-of-year dissertation subject.



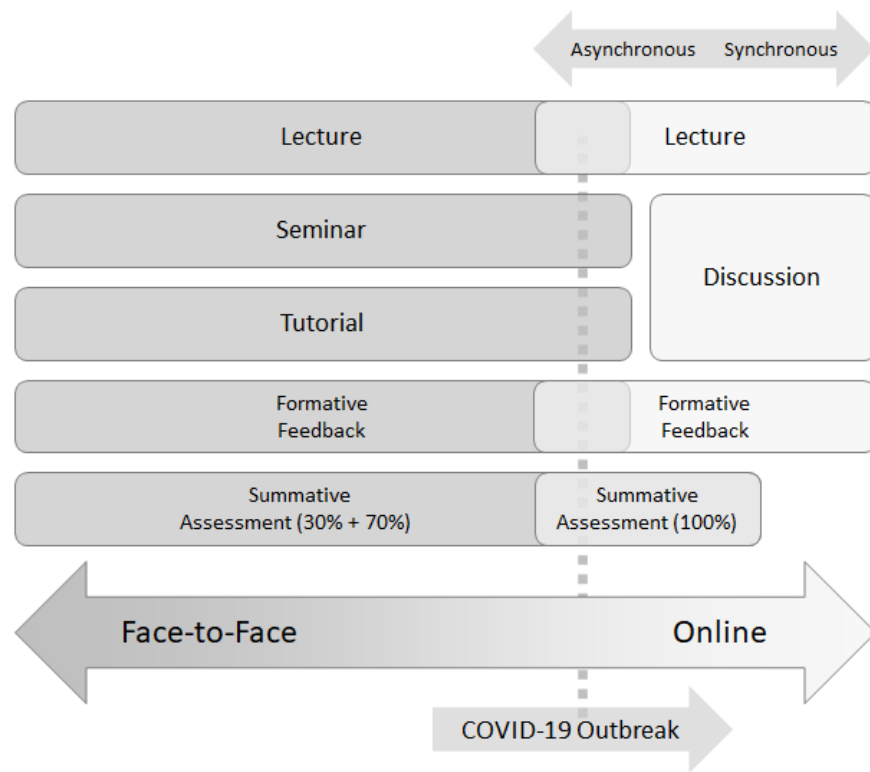
**Figure 1.** The Research Methods and Techniques (RMT) subject in relation to other subjects in the MA Urban Design programme.

The RMT subject introduces students to various key methods and techniques for urban analysis and design through a mix of weekly lectures, reading seminars, and work-in-progress tutorials. The aim is to enable students to deepen their critical understanding and methodological approach in relation to a range of key topic areas and questions in urban design. The subject develops skills to draft a research proposal related to urban design and provides an understanding of alternative approaches to research in urban design. It also helps develop an ability to identify suitable methods to address the outlined research questions and provide an informed explanation for selecting a particular methodology to address the related research questions. Enabling a constructive alignment [67] between the subject material, teaching and learning activities, assessments, and intended learning outcomes has been a primary focus in developing the RMT subject.

#### 5. Case Study Analysis

The RMT was among the subjects in the MA Urban Design programme that was hit the most in the time of the early outbreak in the UK. To become more amenable to online LTA, as illustrated in Figure 2, the entire subject was inevitably adapted and redesigned for online delivery under unprecedented pressures with limited substantial resources and increased demand for online teaching and learning. In what follows, we discuss the challenges and capacities of online teaching based on the experience of delivering the RMT subject during the lockdown with the aim to outline some key considerations for sustaining effective remote LTA in the face of uncertain, changing, and challenging situations such as the COVID-19

pandemic. The case study analysis section is structured in relation to the three themes of teaching and learning activities, assessment and feedback, and digital platforms with a focus on the conditions before and during the lockdown. The RMT subject delivery before and during the lockdown in the UK is comparatively summarised in Table 1 as well.



**Figure 2.** The emergency transition of the RMT subject from face-to-face to online learning, teaching and assessment (LTA) during the early COVID-19 outbreak in the UK.

**Table 1.** The RMT subject delivery mode before and during the early lockdown in the UK.

	Before the Lockdown	During the Lockdown
<b>Learning and teaching activities</b>	Lecture	Primarily face-to-face with subject leader and guest lecturers and on campus with the support of asynchronous online material
	Seminar	Online and primarily synchronous with subject leader and guest lecturers with the support of asynchronous online material
	Tutorial	Combined with tutorials and primarily changed to live online discussion sessions with subject leader and tutors
	Primarily face-to-face with tutors and on campus with the support of asynchronous online material	Combined with seminars and primarily changed to live online discussion sessions with subject leader and tutors

Table 1. Cont.

		Before the Lockdown	During the Lockdown
Assessment and feedback	Formative feedback	Sessional oral feedback Primarily face-to-face during lectures by subject leader; during seminars and tutorials by subject leader, tutors, and peers with the support of asynchronous online material	Online during live synchronous lectures and discussion sessions by subject leader and tutors with the support of asynchronous online material
		Interim presentations Primarily face-to-face with the format of individual presentations by students followed by feedback from internal/external crits	Online parallel sessions with the format of individual presentations by students followed by feedback from internal/external crits
		Summative Assessment 30% (lecture/seminar contribution) + 70% (research proposal)	100% (research proposal)
Digital platform	Synchronous		Microsoft Teams
	Asynchronous	Learning Central	Learning Central

### 5.1. Learning and Teaching Activities

Core lectures and guest lectures were the primary means for the face-to-face delivery of the academic content of the RMT subject. They presented the critical knowledge that students needed to develop their research proposals. A range of guest lectures were designed in a way that supervisors of the RbDP subject could deliver short presentations on their research themes and respond to students' questions. All face-to-face lecture material was uploaded online on a weekly basis. As an important component, face-to-face reading seminars allowed students to individually discuss their reflections from the readings while interacting with their tutors and other students. These weekly RMT seminar readings were about empirical investigations that used or adopted those methodological approaches, methods, and techniques discussed earlier in that week's lectures. They also gave students the opportunity to understand other multiple ways of observing and analysing cities without reducing them to a single way of observing or analysing. Similar to seminars, face-to-face work-in-progress tutorials included a combination of group and individual activities. Encouraging discussion and enabling a critical understanding of the subject material and its relevance were among the effective teaching principles [68]. The weekly interactive tutorials provided the opportunity for students to critically discuss their ideas on how to develop their individual research proposals with their peers and tutors.

After the inevitable migration to online teaching and learning during the COVID-19 outbreak in the UK and the subsequent national lockdown, all the on-campus face-to-face lectures were replaced by a mix of synchronous and asynchronous online lectures (Figure 2). A part of the asynchronous online lectures included short lectures delivered by RbDP supervisors in the second week of the subject after the introductory lecture in the first week. All supervisors were expected to deliver a short presentation on their research themes in the RMT subject. These presentations were mostly recorded as PowerPoint presentations saved as narrated video files and made accessible via the Learning Central (LC) online platform—the Cardiff University's primary virtual learning and teaching environment. The advantage of making short presentations of supervisors available online was that it could allow students to engage with various research topics as well as each supervisor's broad research expertise in addressing different questions in relation to urban design thinking. The online material delivery rather than cessation of all such learning and teaching activities could also facilitate a better fit and informed alignment between supervisors' expertise and students' interests.

More asynchronous lecture material about research ethics, library resources, literature search, annotated bibliography, and referencing were made available using the LC online platform. The rest of the online lectures were synchronous, using Microsoft Teams as the primary online platform. As shown in Figure 2, reading seminars and work-in-progress



tutorials were entirely replaced by online discussion sessions using the Microsoft Teams General interface. The Microsoft Teams has been quite effective in facilitating both synchronous online lectures and discussion sessions and enabling an engaging environment for a large cohort of students joining from multiple geographical locations and time-zones. It also facilitated both individual and group discussions, using different channels, conversations, scheduling, file sharing, and storage features.

### 5.2. Assessment and Feedback

Assessment in this subject includes both forms of summative and formative. Formative assessment allows tutors to gauge students' learning during the learning process mainly through synchronous interim presentations. Interim presentations include those sessions designed particularly for students to individually present their pre-submission work-in-progress assignment and obtain timely and focused feedback and advice from their instructors (i.e., a number of supervisors who are involved in supervision in the RbDP subject). This will help students learn and improve their work for the final submission. The importance of timely and clear formative feedback has been acknowledged in relevant studies [69]. Other work-in-progress tutorials and reading seminars offer students the opportunity to obtain formative feedback from their peers and instructors. Summative assessment in this subject includes two main components: lecture/seminar contribution and a written research proposal attracting 30% and 70% of the total mark, respectively.

During the lockdown, to include the component of interim presentations in the blended online delivery mode, different channels were created in the Microsoft Teams, each of which included about 16 students presenting their works individually to an internal/external crit and receiving immediate synchronous feedback and advice. Nevertheless, a specific form of summative assessment, including the 30% lecture/seminar contribution, was suspended as the individual contribution could no longer be fairly assessed online during the lockdown. Thus, the assessment changed into a 100% research proposal submission with a higher word count.

### 5.3. Digital Platforms

As previously noted, LC has been the primary online learning and teaching platform in different degree programmes across Cardiff University. Subject description, schedule outline, seminar and tutorial structure, interim presentation schedule, learning material, reading list, assessment brief, group allocation, list of the subject team as well as the supervisors involved in the next subject, supervisors' research themes, and presentation materials were all available on LC. Students were also provided with supporting documents such as research proposal templates and guides (e.g., library search guide, preliminary draft research proposal template, individual writing and reflection guide, and reading summary template).

We have primarily used a mix of Learning Central and Microsoft Teams as the key online platforms to deliver the subject material during the lockdown period. LC has been used as the main platform to facilitate asynchronous learning and teaching while Microsoft Teams has been utilised to enable a range of synchronous learning and teaching activities. We have noticed some of the critical capacities and limitations of both platforms in teaching urban design research methods online. The core subject materials, such as lecture slides, reading lists, and assessment briefs, have been made available on LC so that individual learners would be able to download and access them anywhere and anytime. The LC platform, though, has been found challenging and not particularly user friendly when it came to synchronous teaching and learning. In contrast, the Microsoft Teams platform has become quite useful and more user friendly in enabling an engaging learning environment for lectures and seminar discussions. Both platforms fell short in the extent to which they could effectively simulate the whiteboard as a collaborative platform for sharing ideas and diagrams. Collaborative drawing is particularly difficult in both platforms, partly because it relies on the degree to which the teaching team and individual learners

have access to related hardware, including digital pens and drawing boards. We also noticed the following limitations using Microsoft Teams as the primary online platform for coordinating synchronous learning and teaching: all the team members were added manually, which was quite time-consuming given the large size of the cohort; there were limited number of participants visible on screen at once; anonymous file sharing and archiving seemed impossible since all members could access any shared files by either students or tutors.

## 6. Discussion

Moving towards online teaching during urban public health emergencies such as the COVID-19 outbreak has become necessary rather than optional as the demand for the development and implementation of adaptive learning spaces and the integration of virtual reality and innovative digital learning pathways is growing. At stake is to avoid normalising hasty transitions to online teaching in the face of such global challenges. While the condition of emergency may justify immediate action, it is the role of academia to remain reflective of its practice. The COVID-19 outbreak might be an opportunity for universities to learn from the rapid changes and adaptations during this unprecedented time, and as such rethink the extent to which many courses rely on face-to-face teaching on campus. Nonetheless, the COVID-19 pandemic cannot be simply considered as an excuse to prioritise online teaching and dismiss traditional face-to-face learning. Forms of blended teaching and learning are already underway to at once harness the capacities of both online and face-to-face teaching and hopefully manage the limitations of both when it comes to learning. Focusing on the learning experience is critical in the process of integrating traditional and online forms of teaching and learning and implementing blended learning [70]. In what follows, we open the discussion in relation to the capacities and challenges of online mode of teaching.

One of the significant challenges associated with blended online teaching delivery is about the extent to which online platforms can enable and sustain small-group learning and student-to-student communication. This is mainly at stake in the context of urban design pedagogy, which often aims to enhance teamwork skills among different learners through small group teaching and peer learning. This is linked to the idea put forward by Exley and Dennick [71] that communication is integral to effective small group teaching in higher education. While online teaching enabled student-to-teacher communication, it fell short in sustaining student-to-student communication, which is even more important in urban design subjects relying on effective teamwork and collaboration among students within small groups. Teaching urban design research methods during the lockdown period has shown that blended online modes of teaching delivery have less effectively enabled discussions among students. This partly supports Dumford and Miller's [14] argument that students taking online courses are less willing to participate in collaborative learning, interactions with diverse peers, compared to those in the traditional classroom. This also means that students are less likely to develop core professional qualities including communication, interpersonal and practical skills [24]. Facilitating synchronous communication through discussions among individual learners has also become more challenging using online platforms such as LC and Microsoft Teams. The challenges of establishing eye contact with students, forming sub-groups, and encouraging active engagement have made online synchronous small group teaching and learning activities less productive. Synchronous discussions sessions have been more effective as individual learners had the opportunity to raise questions using oral and/or textual means of communication. Nevertheless, it is worth noting that similar to Bryson and Andres's [72] observation, managing multiple cues from students including those who engage in voice-based discussions whilst observing and responding to the questions in the chat box in the synchronous discussions sessions can be particularly challenging for the teaching staff.

While the transition to online teaching may offer more flexibility in terms of the university-based timetabling and location, it poses critical concerns regarding the challenge

of home-based timetabling. Arranging appropriate places for on-campus face-to-face teaching has been a burgeoning challenge for many academics and professional staff involved in timetabling. Desirable physical spaces for teaching certain subjects face-to-face may not often be available on campus when needed. One of the key capacities of online teaching lies in the ways in which academic staff can allocate more time to focus on actual teaching and learning activities and subject materials instead of spending a considerable amount of time to organise suitable physical spaces on campus corresponding a desirable schedule, which often ends up in working with what is available, rather than what is desirable. Nonetheless, scheduling synchronous interactive teaching and learning has become problematic due to the challenge of managing different geographical locations and time zones of international students [42,73] along with the challenge of developing a functional arrangement for home-based teaching and learning. Many students, particularly those self-isolating as protection against COVID-19, may not have access to the appropriate space to effectively concentrate and engage with online synchronous learning activities. Many academic staff members with home-schooling and caring responsibilities have to manage double burden of paid work with unpaid care work. As such, they struggle with the challenge of arranging a suitable physical space and time with minimum disruption for online synchronous teaching activities. This has been particularly experienced by female academics with younger dependents, often engaged disproportionately in household and pastoral activities, in the face of emergency online LTA transition [42,74].

Practices of online teaching and learning cannot be simply generalised as differences can play a crucial role in the ways in which they play out in reality. Attracting a mix of international and local students from different backgrounds has become integral to how many universities can most effectively work, mainly in the context of the global North. In the UK, for instance, a considerable proportion of the annual tuition fee income in many higher education institutions is made up by Chinese international students [75]. Having said that, hasty transformations to online teaching and learning are likely to remain blind to such differences. While there is no systematically compiled data on the extent to which international students consider studying abroad in the current climate of uncertainty, it would be naive to assume that online learning works similarly for different students. While local and international students cannot be considered as homogenous groups, a common characteristic of international students is about their endeavours to leave primary networks of support in pursuit of higher education in different contexts [76] (p. 201). For many international students, going through the challenge of moving to another country for education and finding an appropriate place to stay during their study may seem unnecessary when they can effectively benefit from a mix of synchronous and asynchronous online learning. This might be substantially different for many local students who have physical access to on-campus learning environments.

Using online platforms can arguably facilitate more equitable opportunities, particularly for those students who are likely to be less involved with teaching and learning activities. This lends itself well to the argument that “virtual identity will be unfettered by physical attributes such as gender, race, or disabilities” [23] (p. 10). It is critical to note that providing equal access to appropriate hardware such as laptops or tablets and infrastructure such as broadband and stable internet connection needs to be addressed first before we can discuss the issue of equity in relation to online platforms. As such, individual learners with different learning capabilities are empowered to participate more effectively in discussions and interact with their tutors asking questions and communicating their comments. These include different forms of communication, such as textual conversations, along with oral comments and questions. Some reticent students appeared to be more comfortable using text-based communication rather than oral communication. The use of technology can potentially enable a more inclusive access to lecture and discussion session materials. Students can get back to the discussed material from lectures or discussion sessions by checking the chat history and reading the minutes. This can provide opportunities for deeper and more critical reflection particularly for those students in different time zones.

Effective adaptation to online modes of pedagogy is subject to accessibility of new, relevant, and regularly updated technological tools and services on laptops and other mobile devices. More importantly, the challenge for many universities and educational institutions is to provide their academic staff and students with necessary guides to develop their technological literacy skills. Nevertheless, as discussed in the 2019 EDUCAUSE Horizon Report, merely facilitating the basic technological literacies among students and instructors is no longer sufficient to respond to and support the complex needs of people in a digitally mediated society [29] (p. 14). Hence, focusing on the distinction between technological fluency and technological literacy alongside further leveraging the technological fluency is crucial in the age of pandemic crisis to support personal and professional development and acquiring skills in the education such as creativity, critical thinking, independent problem solving, effective collaboration and self-directed learning. The demand for adaptive learning and teaching environments, digital learning innovations, and pedagogically sound teaching and learning designs will increase in the face of the COVID-19, and those universities investing in integrating more learning designers and instructional design experts will be better placed in their strategic attempts to design or redesign programmes. Having said that, it is worth noting that decisions about technology should not take priority over the content and the learning outcomes [72].

Online pedagogical approaches and the use of technology can facilitate parallel modes of online teaching. Examples of this have been evidenced in the RMT experience where the subject leader and tutors could simultaneously address multiple questions and comments, written and verbal, raised by students. Using a mix of audio, visual, and textual means of parallel communication, along with screensharing, has enabled the teaching team to address different questions and engage with individual learners simultaneously. Using live text-based communication for raising questions or responding to questions has been found particularly popular online as it allowed individual learners to receive an immediate response by one of the teaching team members. This is linked to the ways such synchronous communications help e-learners feel like members of a community rather than isolated individuals communicating with their computers [77]. The Microsoft Teams platform has enabled effective management of parallel presentations across different groups using channels functionality and live screensharing. Screensharing is a key feature of using technology in synchronous teaching and learning. In addition to the possibility of delivering live talks and presentations, screensharing has provided the critical benefit of immediate synchronous feedback from both tutors and students. Using the tool, it is possible to also share visual content as part of the lecture and seminar activities and leave the chat and messaging features open for live student-to-student and student-to-teacher communication as well as synchronous Q&A sessions. Such increased engagement in both lecture and seminar sessions can result in deeper learning through the representation of multiple viewpoints. This supports the idea that “technology can now provide immediate, nuanced feedback on student progress, drill down in areas of misunderstanding, tailor curriculum to personal needs, and create new ways for students to interact with their peers and teachers – all factors known to drive learning effectiveness” [24] (p. 20).

Establishing eye contact is integral to face-to-face teaching and learning. Yet, it is a burgeoning challenge for online platforms to at least enable a degree of such contact via digital technology. The importance of such a contact for a successful online learning has been previously outlined, which is mainly due to the fact that learning is a social act [36]. We argue that the rights to see and to be seen are taken for granted in the face-to-face teaching environments. However, in online teaching and learning, the discussion of such rights can pose challenges as cameras can be easily switched off, and participants, including tutors and students, can choose to become visible or remain invisible during synchronous teaching and learning. The use of technology also matters here to enable or constrain the capacity of seeing all those attendees with open cameras simultaneously. For instance, such a capacity is constrained in Microsoft Teams as only a limited number of attendees can become visible on the screen during an online session. There have been ongoing

conversations about how to address this limitation in Microsoft Teams, yet the point is not necessarily limited to the capacities of specific online platforms. While it might not be possible to simulate the nuances of face-to-face interactions in online settings, the task is to critically reflect on the extent to which the rights to see and to be seen in online learning environments can be negotiated to enable active engagement.

## 7. Conclusions

Drawing on the experience of teaching the Research Methods and Techniques subject during the early lockdown in the UK, we discussed the rapid transition from face-to-face to online teaching and pointed to the associated challenges and opportunities in relation to the learning and teaching activities, assessment and feedback, and digital platforms. We also outlined some key considerations to inform the development of more adaptive and resilient approaches to online teaching in the context of unprecedented global health crises such as the COVID-19 pandemic. Much less acknowledged, yet no less crucial are challenges such as the development of core professional qualities, including communication, interpersonal and practical skills, along with the integration of thoroughly selected online technology to most effectively redesign teaching activities and deeply engage students. We argue that it is critical to move beyond fixed pedagogical frameworks to harness the productive capacities of adaptive teaching. As discussed, pedagogy should be given primacy over technology in the wake of the COVID-19 pandemic and emergency online teaching and learning. In this sense, the pandemic can also be considered as an opportunity to deliberate over its impacts and associated changes in a way that contribute to the pedagogical reinventions as well as the evolution of online education.

The question of equity is paramount, yet it cannot be simply reduced to dichotomous thinking outlining online teaching in contrast to face-to-face teaching. Online and face-to-face teaching can both become problematic when it comes to the provision of more equitable opportunities for different learners. Addressing diversity and the inequality of access to infrastructure, such as suitable hardware and required software as well as a stable internet connection, is critical for enabling a more inclusive online teaching and learning in the first place. Regardless of the specific capacities and limitations of online platforms, it might not be possible for all individual learners to equally and effectively benefit from synchronous teaching and learning due to limited access to adequate infrastructure, software and hardware. Normalising the condition of emergency cannot justify the ways in which hasty practices of online teaching dismiss differences, including the pre-existing inequalities concerning digital technology and its literacy. Face-to-face teaching is not necessarily a more just alternative as it can also dismiss differences and normalise or even intensify the pre-existing inequalities. While a blend of synchronous and asynchronous online teaching may provide more equitable opportunities for whom access to face-to-face teaching is limited, face-to-face teaching can also provide more equitable opportunities for those with limited access to the required infrastructure. The discussion, though, is not simply about selecting one and dismissing the other. The task is to focus on the intersections and productive capacities of online and traditional campus-based forms of learning and how they can most effectively co-function to facilitate learning outcomes and provide more equitable opportunities for different learners.

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