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Online Education in the Post COVID-19 Era: Students' Perception and Learning Experience

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Abstract: Students' learning experiences and perceptions are markedly influenced by the use of digital technology during the COVID-19 pandemic. Exploring students' perception of blended online learning, amid the adaptations of the higher education sector in the wake of uncertainty, has become more critical than ever. This paper reflects on the experience of learning and teaching the Research Methods and Techniques subject in the postgraduate programme of MA Urban Design at Cardiff University during COVID-19 in the UK. To do so, we designed and carried out an online survey to explore students' perception of online teaching and learning activities, feedback and assessment, and digital platforms based on their experience during the subject delivery period in the 2020–2021 academic year. One of the significant findings of this paper was that students agreed with the impact of eye contact on their virtual learning experience but as long as this was aligned with their rights to see others, including their peers and instructors, rather than reciprocal rights to be seen. In addition, students felt that facilitating synchronous communication through effective interaction among diverse peers has been quite challenging in small-group online reading seminars. The majority of respondents also reported that attending live online lectures was more helpful than watching pre-recorded lectures. Online formative feedback and synchronous interim reviews also allowed students to reflect on their progress and develop their projects further before their summative assessment. The outcomes of this paper can effectively assist educators who consider delivering programmes, adopting a blended online learning environment design model, in the post COVID-19 era. The findings of this study can also provide guidance for further developments and improvements in using digital technology and blended online learning in urban design education and pedagogy.

Keywords: student experience; postgraduate; online learning and teaching; higher education; online education; blended online learning; COVID-19; post-pandemic; public health; pandemic; technology; urban design; research methods

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1. Introduction

The rapid changes and disruptions caused by the unprecedented spread of the COVID-19 pandemic continue to transform learning and teaching experiences and the broader higher education landscape. The dynamics of online education, across different contexts during the pandemic, have received a considerable scholarly focus in the higher education literature to date [1–3]. Institutions' fast-paced move into the blended or hybrid models and the widespread adoption of digital technologies for course redesigns and pedagogical transformations have engendered significant challenges for both students and academic communities [4,5]. These discussions have extensively influenced the understanding of the impacts of emergency use and integration of online and other types of digitalised learning and teaching on the role of university instructors and post-pandemic higher education. There has been, however, far less scholarly attention devoted to the role that the technology-enabled online course delivery can play in students' perceptions and learning experiences.

This paper focuses on the experience of teaching and learning the Research Methods and Techniques subject in the postgraduate programme of MA Urban Design at Cardiff

University amid COVID-19 in the UK (Spring 2021). The subject was delivered using a blended online delivery mode. We begin from the view that exploring students' perception and learning experience, particularly in terms of the capacities and challenges of the online mode of delivery, is integral to the ways in which the relevant learning and teaching communities can engage with embracing a post-pandemic evolution and initiating effective adaptations in higher education.

The overall nature of the present study is exploratory with a single case study approach. The importance of case study, in the context of education research, as a key method has been previously acknowledged [6], which offers instructors a range of experiences to become prepared and more effectively cope with various situations. To collect information on students' perceptions of online learning and teaching activities, we designed and carried out an online survey. In this paper, we start by summarising the existing literature on online learning and teaching in higher education, digital technology and student perception, and COVID-19 and Online learning and teaching. We then discuss methods with a particular focus on online survey design and dissemination, which is followed by case study analysis and discussion of the findings in relation to the key themes of online learning and teaching activities, feedback and assessment, and digital platforms.

2. Higher Education and the COVID-19 Pandemic

2.1. Online Learning and Teaching in Higher Education

The capacities and challenges of online education have been extensively studied and discussed worldwide over the past two decades [7–10]. In light of the rapid evolution of information and communication technology (ICT), academic discourse and educational practices of teaching and scholarship have changed markedly. The fast-changing speed and power of communications technology as well as the enhanced capacity to link space and time for teaching methods and higher education objectives, have been further acknowledged [11,12]. As such, today's higher education community has faced a new generation of individual learners—what Prensky [13] calls the "digital natives"—whose thinking and learning are deemed as different from the less digitally-proficient instructors —"digital immigrants". It is notable that educators today attend to these differences and the ways in which this knowledge can be used to enable a more engaging, interactive, and, indeed, more effective learning environment [14]. This is a generation of students heavily influenced by the pervasive digital media that have not only developed certain skills and qualities in adopting digital technology but also have acquired a range of new learning styles and skills utilising them. Dede [15] outlines such learning styles as "active learning based on experience", "learning based on collectively seeking, sieving, and synthesizing experiences", "co-design of learning experiences personalized to individual needs and preferences", "expression through non-linear, associational webs of representations rather than linear stories", and "fluency in multiple media".

The literature on online learning and teaching in higher education has seen a growing interest in the study of key challenges in relation to the online mode of delivery besides the associated capacities. Dumford and Miller [9] argue that the students enrolled in online courses are often less engaged in collaborative learning, student-faculty communication, and discussion with their peers than their counterparts in traditional face-to-face courses. It has also been noted that major challenges for online education include developing core professional qualities—namely, the acquisition of interpersonal and practical skills, communication skills, sustaining student retention rates, and effective use of online technologies [16]. Challenges have also been raised by educators whilst adapting some activities, such as performance assessment, to the virtual learning environment avoiding the loss of content knowledge or effective interactions between learners and/or educators [17].

The emergence of a range of learning scenarios and pedagogical models have extensively informed practices of online learning and teaching in the higher education context [7,18]. Nevertheless, a less addressed challenge is "not whether online courses will replace classrooms, but whether technology will drive the redesign of teaching and

learning" [16] (p. 1). Making clear distinctions between online and on-campus models of learning and teaching has been at the forefront of online education discourse. What matters here is to understand how to best support innovative and collaborative learning and teaching activities, utilising emerging instructional technologies regardless of the medium of delivery. It is also useful to understand what form of technology—varying between online recorded lectures, in-built assessment, collaborative digital subjects with flexible learning environments, and remote simulation [16]—enable a certain pedagogy or changing the existing pedagogical model [19]. As Johnson et al. [20] indicate, "simply capitalising on new technology is not enough; the new models must use these tools and services to engage students on a deeper level" (p. 9). This also lends itself well to other researchers' arguments that giving primacy to technology over pedagogy is a barrier to successful technology integration and, indeed, effective teaching and learning strategies in higher education [21,22].

Online learning and teaching can act as complementary to the dynamics involved in face-to-face learning. This accords with today's blended learning approaches and designs as the most popular pedagogical concepts and course delivery models in higher education [23]. As Garrison and Vaughan [24] outline, a blended learning environment is featured by the mix of rigorously selected online and face-to-face methods and designs in alignment with students' performance and learning objectives of certain coursework. To bring about more effective blended learning and teaching, a multifaceted approach is then required [18]. The remaining question here would be to understand which course delivery model stands as the students' favoured learning and teaching design—blended, fully face-to-face, or online choices.

2.2. Digital Technology and Student Perception

Students' perceptions, attitudes, preferences, and expectations regarding higher education providers are influenced markedly by the use of digital technology. Norton, Sonnemann, and McGannon [16] indicate that competition between different online and on-campus courses will be most likely, according to which desires and motivations to blend digital technology and in-class learning and teaching will come to the fore. Despite the commonly held critique that digital technologies are "transforming" the nature of university learning and teaching or, in some cases, even disrupting the "student experience", digital technologies will inevitably continue to be integral to the future of university education and higher education community around the world [25–28]. According to a recent study, students support certain forms of blended learning, primarily due to the in-class lectures with the possibility to enable effective engagement with the course materials, teaching staff, and other learners, and they view digital technologies as an integral tool to promote and sustain such a level of engagement [29]. Nevertheless, another recent report outlines the key challenges that can impede technology adoption as "the evolving roles of faculty with ed tech strategies", "increasing demand for digital learning experience and instructional design expertise", "improving digital fluency", "rethinking the practice of teaching", and "advancing digital equity" where the first two seem to be the most solvable [23].

Digital technology is a seminal aspect of the postgraduate students' perceptions and learning experiences. Hence, there has been scholarly attention paid to the capacity of digital technology to support and enhance students' experience during their university learning and teaching. Moreover, as discussed in the previous section, today's new generation of students, as "digital natives", are more digitally attuned and adept than previous generations. In this sense, Wright et al. [30] have discussed how university learners, as digital "residents", are accustomed to perceiving digital technologies as seamless and interactive social spaces. In this case, digital spaces (e.g., the internet) act as a way of life rather than merely a form of functional tool. Hence, a central question here is to address why students engage with certain forms of digital technology in university learning and teaching. More recently, Henderson, Selwyn, and Aston [25] seek to answer this question and explore those aspects that individual learners consider notably helpful. To this end,

they investigate 1658 undergraduate students' actual experiences of digital technology. Results revealed 11 particular digital "benefits" varying between the flexibility of place and location and organizing and managing the logistics of studying to the ability to review, replay, and revise digital learning materials [25].

2.3. COVID-19 and Online Learning and Teaching

The past year's disruptions and rapid changes by the unprecedented spread of the COVID-19 pandemic have transformed the higher education landscape. As such, the dynamics of online education, across different contexts during the pandemic, has received a considerable scholarly focus in the higher education literature to date [1–4]. The fast-paced move into the online dimensions of blended learning and the widespread adoption of digital technologies for course redesigns and pedagogical transformation have engendered significant challenges for both students and the academic community [4,5]. Gamage, de Silva, and Gunawardhana [1] discuss how the COVID-19 pandemic, and the increased use of learning technologies to support online course delivery, have posed challenges to academic integrity management and assessment security. A more recent study investigated the experience of online teaching during the COVID-19 lockdown in the UK, as well as the opportunities and challenges associated with the online mode of course delivery [4]. The study found that focusing on pedagogy should be prioritised over focusing on technology following the emergency transition to distance learning. This further highlighted the importance of challenging and exceeding fixed pedagogies to enhance the productive capacities of resilient and adaptive approaches to online teaching and remote learning [3]. In another UK-based survey, a large number of academic respondents from various disciplines and positions debated critically about the dark side of the rapid digital transformation, whereas only a small group of optimistic academics articulated the capacities and viewed the pandemic as an opportunity to deliberate its impacts on higher education [2]. Evidence for these impacts includes "exceeding the tokenism of pedagogic credentialism" (p. 636)—i.e., embracing higher education as a participatory and socially immersive learning experience [2]. These discussions have extensively contributed to the understanding of the impacts of emergency use and integration of online, and other types of digitalised learning, and teaching on the role of university instructors and post-pandemic higher education. Nevertheless, far less scholarly attention has been devoted to the role the technology-enabled learning, teaching, feedback, and assessment can play in students' perceptions and learning experiences.

2.4. Urban Design and Teaching Research Methods and Techniques

Urban design is an area of study in progress, cutting across multiple intersecting disciplines such as Urban Planning, Architecture, Geography, Urban Studies, and Social Sciences, to name a few. Since its establishment as an academic discipline, the primary focus of its education has been on design studio teaching and theory subjects and, further, on urban design research methods. A sophisticated understanding of urban design research methods and techniques can enable a more informed approach to design intervention. Undertaking what is known as "research-based" or "evidence-based" design intervention relies on a nuanced understanding of research methods, which can most effectively inform urban analysis and design practice.

Urban design thinking is essentially multi-disciplinary and, as such, addressing any research questions is geared to informed selection and analysis of case studies, as well as looking hard at cities [31], and using multiple scales and methods of analysis [32]. Teaching research methods and techniques offers a key medium in urban design pedagogy, assisting individual learners to critically observe, understand, explore, and analyse cities [4]. It is then critical for students to articulate rigorous and non-reductionist methodological frameworks for urban design investigations. This is to say that there is no single research method that explains the multi-disciplinary and multi-scalar conceptual frameworks in urban design thinking [33,34]. In this pursuit, the best urban design research methods

teaching inspires learning about various relationships, liaisons, and capacities of urbanity. There has been a limited scholarly focus on developing practical pedagogical frameworks, based on multiple urban design research methods, which can become effective in a state of uncertainty such as the COVID-19 pandemic. In this paper, we study students' perception and learning experience of online teaching and learning environment in the Research Methods and Techniques subject in the MA Urban Design postgraduate programme at Cardiff University amid the COVID-19 in the UK. This subject enables individual learners to develop methodological understanding and critical thinking in relation to the less empirically explored questions of urban design [4,32] and to how cities work in relation to sociality and spatiality, as well as expression and materiality [35,36]. We carried out an online survey (discussed in more detail in the next section) on students' perceptions of online learning and teaching activities, based on their experience during the subject delivery period in the 2020–2021 academic year.

3. Methods

The present study is exploratory in nature and adopts a single case study approach [37] to diagnose and describe processes by observing their developments and contextual impacts [38]. Timmons and Cairns [6] have addressed the importance of case study, in the context of education research, as a key method for instructors to encounter a range of experiences that can train and prepare them to more effectively cope with various situations. For the delivery of the Research Methods and Techniques subject, we chose the blended online delivery mode—what has been referred to as "blended online learning environment design model" [39]. The article was initially written after the completion of the subject assessment and student evaluation in July–August 2021.

3.1. Survey Design

The online survey was designed to collect information on students' perception of online learning and teaching activities, based on their experience in the Research Methods and Techniques subject, in the 2020–2021 academic year. Students' perspectives were deemed as important to the learning and teaching community, and the questions in the online survey were designed to help us understand students' learning experience and perception of the online mode of delivery, particularly in relation to the capacities and challenges of online learning, teaching, assessment and formative feedback, and digital platforms. To this end, the online survey was designed and disseminated using the Google Forms survey platform. When the participants commenced the survey, they were provided with information about the research project aim and were notified that their participation in the online survey was entirely voluntary, anonymous, and would, in no way, impact their subject assessment. The students were also informed of their rights to withdraw from the online survey at any stage. This research project received ethics approval from the Welsh School of Architecture Ethics Committee at Cardiff University. Students were also notified that all their responses would be kept confidential in accordance with the ethical considerations. Participants did not need to answer any or all questions, and they could also decide not to take part in the online survey at any point. The first question collected information about relevant demographic information (i.e., gender). This was followed by closed-ended questions—Likert Scale questions (i.e., strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, strongly disagree)—designed to explore respondents' experience and perception of the online mode of delivery. Finally, respondents were asked to share any other comments that were not covered in the previous questions of the survey.

3.2. Survey Dissemination

After being thoroughly tested to ensure accuracy, the online survey questions were shared with the Welsh School of Architecture Ethics Officer. In the light of some comments and recommendations regarding the clarity of the survey questions and the functionality

of the online survey as a whole, we updated the related questions before the survey was disseminated to the students. The target population for this survey was about 82 MA Urban Design students at Cardiff University in the 2020–2021 academic year. The link to the online survey was distributed utilising the announcement page on Learning Central (LC) online platform—Cardiff University's primary virtual learning and teaching environment. In addition, students were sent multiple emails with relevant information and a link to the online survey. Students were also reminded of their participation in the online survey in the live online lecture and small-group reading seminars by the subject leader and tutors. Students had the opportunity to respond to the survey that was active online for about 40 days. The survey gathered N = 28 responses from students, and the respondents were evenly representative between females and males, with 50% (N = 14) female and 50% (N = 14) male respondents.

3.3. Case Study

The Research Methods and Techniques subject was delivered online using a mix of synchronous and asynchronous learning and teaching activities. Table 1 shows how the subject was delivered online in relation to the key themes of learning and teaching activities, assessment and feedback, and digital platforms. Table 2 shows the student responses in relation to the survey questions (N = 28).

Table 1. The Research Methods and Techniques subject online mode of delivery.

			Delivery Mode
Learning and teaching activities	Lecture		Online and often synchronous with subject leader/invited guest lecturers with supplementary asynchronous online material (e.g., recorded lectures)
	Small-Group Reading Seminar		Live online synchronous reading seminars with tutors
	Discussion Session		Live online synchronous discussion sessions with the subject leader
Assessment and formative feedback	Formative Feedback	Sessional oral feedback	Live online during synchronous lectures and discussion sessions by the subject leader with supplementary asynchronous online material
		Interim review sessions	Online parallel sessions with the format of individual student presentations followed by feedback from critics
	Summative Assessment		100% research proposal (2000-word); Electronic submission online; Written feedback online using a consistent structure
Digital platforms	Synchronous		Zoom (e.g., live online sessions)
	Asynchronous		Learning Central (e.g., weekly module maps, reading lists)

Table 2. Survey Questions (Q1–Q18) with responses (N = 28).

Survey Questions	Response (%)
Q1. What is your gender?	50% Female 50% Male
Q2. The use of the weekly module maps has been helpful for your learning experience.	32.1% Strongly agree 64.3% Somewhat agree 3.6% Neither agree nor disagree 0% Somewhat disagree 0% Strongly disagree
Q3. Interim presentation and live online formative feedback will be helpful for your learning experience.	42.9% Strongly agree 50% Somewhat agree 7.1% Neither agree nor disagree 0% Somewhat disagree 0% Strongly disagree
Q4. Students attending live online sessions should be expected to switch on their cameras for the duration of the session.	21.4% Strongly agree 28.6% Somewhat agree 39.3% Neither agree nor disagree 10.7% Somewhat disagree Strongly disagree
Q5. Switched on cameras will be helpful for your learning experience during the live online lecture sessions.	22.2% Strongly agree 40.7% Somewhat agree 25.9% Neither agree nor disagree 11.1% Somewhat disagree 0% Strongly disagree
Q6. Switched on cameras will be helpful for your learning experience during the live online reading seminars.	42.9% Strongly agree 32.1% Somewhat agree 21.4% Neither agree nor disagree 3.6% Somewhat disagree 0% Strongly disagree
Q7. Switched on cameras will be helpful for your learning experience during the live online discussion sessions.	50% Strongly agree 28.6% Somewhat agree 21.4% Neither agree nor disagree 0% Somewhat disagree 0% Strongly disagree
Q8. Your computer and the technology you used are good enough for online learning and teaching.	39.3% Strongly agree 39.3% Somewhat agree 10.7% Neither agree nor disagree 10.7% Somewhat disagree 0% Strongly disagree
Q9. You have had access to fast and stable internet connection.	21.4% Strongly agree 53.6% Somewhat agree 10.7% Neither agree nor disagree 14.3% Somewhat disagree 0% Strongly disagree
Q10. Your accommodation/home environment has been appropriate for online learning and teaching.	35.7% Strongly agree 32.1% Somewhat agree 21.4% Neither agree nor disagree 10.7% Somewhat disagree 0% Strongly disagree
Q11. How satisfied were you with the quality of the online learning and teaching in this module?	35.7% Very satisfied 42.9% Somewhat satisfied 17.9% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 3.6% Very dissatisfied

Table 2. *Cont.*

Survey Questions	Response (%)
Q12. How satisfied are you with the live online delivery of the lectures?	32.1% Very satisfied 50% Somewhat satisfied 7.1% Neither satisfied nor dissatisfied 7.1% Somewhat dissatisfied 3.6% Very dissatisfied
Q13. How satisfied are you with your interaction with the module leader in the live online discussion sessions?	37% Very satisfied 51.9% Somewhat satisfied 3.7% Neither satisfied nor dissatisfied 7.4% Somewhat dissatisfied 0% Very dissatisfied
Q14. How satisfied are you with the live online reading seminars?	32.1% Very satisfied 50% Somewhat satisfied 7.1% Neither satisfied nor dissatisfied 7.1% Somewhat dissatisfied 3.6% Very dissatisfied
Q15. How satisfied are you with your interaction with the tutors in the live online reading seminars?	42.9% Very satisfied 42.9% Somewhat satisfied 3.6% Neither satisfied nor dissatisfied 7.1% Somewhat dissatisfied 3.6% Very dissatisfied
Q16. How satisfied are you with your interaction with the other students in the live online reading seminars?	10.7% Very satisfied 35.7% Somewhat satisfied 25% Neither satisfied nor dissatisfied 14.3% Somewhat dissatisfied 14.3% Very dissatisfied
Q17. Attending live online lectures will be more helpful than watching pre-recorded lectures.	42.9% Strongly agree 39.3% Somewhat agree 14.3% Neither agree nor disagree 3.6% Somewhat disagree 0% Strongly disagree
Q18. Please share any other comments that have not been covered in the previous questions.	*"Pre-recorded Lecture were very helpful. I did feel that interaction in some cases was more in online session rather than face to face sessions. However, many students (with cameras off) were sidelined in the online sessions due to non participation."* *"...only 2/3 students talk in the seminar reading sessions"* *"PLEASE let us back to the in-person class as much as u can..."* *"There's a tendency for monologue rather than dialogue, even with question and discussion part of zoom meetings, which reduces engagement."* *"Because of pandemic majority of modules (lectures and seminars) became online. However, I strongly believe that having face-to-face lectures and seminars (especially seminar) will be more productive if they will be held offline."*

4. Analysis

4.1. Learning and Teaching Activities

The subject was delivered through an online mode of delivery, incorporating a mix of synchronous and asynchronous learning and teaching activities and materials. A range of urban design methods was introduced in lectures/guest lectures and further discussed live online in small-group reading seminars. The academic content of the subject was primarily delivered via a series of lectures and guest lectures. These lectures presented the core knowledge that learners required to develop their individual research proposals.

Online lectures and invited guest lectures were primarily synchronous, using Zoom as the main online platform. In addition, some asynchronous pre-recorded lectures about literature search and annotation, library resources, research ethics, unfair practice, and referencing conventions were made accessible via the Learning Central online platform. As Table 1 shows, in addition to lectures and small-group reading seminars, live online weekly discussion sessions were designed to further support students and address possible questions. A weekly drop-in session was also allocated for informal discussions and possible questions to support individual learners throughout the process. All live online sessions took place over Zoom during the teaching weeks of the subject. A considerable number of students (78.6%) were satisfied with the quality of the online learning and teaching in this subject. Nevertheless, a small number of respondents (3.6%) were dissatisfied with the online learning and teaching activities. More particularly, the satisfaction rate among our respondents was 88.9% for the live online delivery of the discussion sessions and 82.1% for the live online delivery of the lectures and reading seminars. For the majority of our respondents (82.2%), attending live online lectures was more helpful than watching pre-recorded lectures. Only 3.6% of students were somewhat against this viewpoint. In their specific comments, students found live online lecture recordings quite helpful for their learning experience. The idea of recording the live online lectures, and making them available on Learning Central, facilitated asynchronous learning and enabled students to review lecture materials at their own time and pace.

The possibility to interact with the subject leader in the live online weekly discussion sessions was perceived as high, with 88.9% satisfaction rate among students. Using Zoom for such live online sessions provided individual learners with opportunities to use a mix of text-based and oral communications with their subject leader. Several reticent learners seemed to be more comfortable communicating through a textual, rather than oral, medium. This has also been evidenced in student comments where live online sessions in this subject have been perceived as more interactive compared to face-to-face sessions in their other subjects. While the satisfaction rate was significantly high (85.8%) regarding students' interaction with their tutors in the live online reading seminars, it was relatively low (46.4%) regarding students' interactions with other students in the same live online seminars (i.e., with 28.6% dissatisfaction rate). According to some student comments, facilitating synchronous communication through effective interaction among diverse peers has been quite challenging:

> *"There's a tendency for monologue rather than dialogue, even with question and discussion part of zoom meetings, which reduces engagement."*

> *"... many students (with cameras off) were sidelined in the online sessions due to non-participation."*

In addition to the core learning and teaching material of the subject, "Weekly Module Maps" (WMMs) were developed to provide students with an overview of the key learning and teaching activities, in relation to indicative time commitments per week, and outlining where the related material is located on Learning Central. The key takeaways of the learning activities and the ways they were related to the assessment criteria and learning outcomes of the subject were further specified. The WMMs were made accessible on Learning Central prior to the commencement of the subject, so individual learners could navigate through the subject schedule outline, content, and the associated learning and teaching activities. Students were offered the opportunity to plan as appropriate and to reflect on their learning experience and progress, particularly in relation to the learning activities and outcomes. We also mapped the primary learning and teaching activities, using consistent colour codes across the relevant documents of the subject, to enhance the readability of the WMMs. The importance of WMMs for students learning experience was also highlighted by many survey respondents (96.4%).

4.2. Assessment and Feedback

The subject incorporated a mix of formative feedback and summative assessment. The summative assessment, in this subject, included a 2000-word written research proposal attracting 100% of the total mark. The design of the summative assessment aimed at enabling constructive alignment with the related learning outcomes and activities. A detailed coursework brief document called "Assessment Proforma" was provided to identify and communicate the key information, such as learning outcomes, mode, and type of assessment, length and duration of the assessment, percentage contribution to subject mark, marking criteria, submission date, moderator, marking team, and feedback return date and method. It also provided detailed instructions regarding the choice of potential supervisors (for the following dissertation subject) in alignment with each supervisor's research expertise, research proposal structure, formatting, and referencing conventions. Such specific and structured instructions could support individual learners in developing their research proposals for summative assessment and enable a degree of fairness and consistency in their assessment.

Formative feedback allowed subject tutors to gauge students' learning progress through synchronous interim review sessions. These innovative interim review sessions were designed and implemented in the last teaching week of the subject to provide students with equal opportunities to individually present a copy of their work-in-progress research proposals and receive focused and timely feedback from internal/external critics. The critical role of such interim review sessions, and their capacity to feed forward, in the context of urban design education have been discussed elsewhere [40]. As such, students could most effectively develop their research proposals for summative assessment. Furthermore, the provided formative feedback was aligned with the assessment criteria identified and communicated in the Assessment Proforma. In addition to interim review sessions, live synchronous lectures, discussions sessions, and small-group reading seminars offered learners the opportunity to receive sessional oral feedback from both their instructors and peers (particularly in reading seminars). According to the survey results, 92.9% of the respondents thought live online formative feedback and interim reviews were useful for their learning experience. Examples of the related individual comments are as the following:

"...interim presentations were very helpful."

"Feedbacks are timely."

4.3. Digital Platforms

As previously noted, Learning Central and Zoom were the primary digital learning and teaching platforms used in the online delivery of this subject. We identified some of the capacities and limitations of both these digital platforms for the online delivery of the subject. Learning Central was used as the key environment to facilitate asynchronous teaching and learning, whereas Zoom enabled various synchronous teaching and learning activities. Subject materials, including schedule outline, recorded lectures, lecture slides, reading lists, assessment brief, and other supporting documents and links, were made available on Learning Central to facilitate asynchronous learning. As such, individual learners could access and review the primary learning materials almost anywhere, anytime, and at their own pace. This is supported by the survey results that only 3.6% did not seem to be satisfied with the quality of the online learning and teaching in this subject, although 10.7% and 14.3% of survey respondents, respectively, noted their lack of good computer and technology as well as limited access to a fast and stable internet connection. All live online sessions took place over Zoom during the subject's teaching weeks. Unlike the Learning Central platform, the use of Zoom for live online sessions (lectures, discussion sessions, and reading seminars) offered students opportunities to use a mix of oral and text-based communications. More particularly, many respondents (82.2%) perceived live online lectures via Zoom as more helpful for their learning experience than watching pre-recorded lectures. Using cameras in online platforms to facilitate learning and enable

social interaction has been a burgeoning challenge [3]. While using Zoom could enable the visibility of all the attendees with open cameras simultaneously during synchronous teaching and learning, only 50% of respondents thought students attending live online sessions should be expected to switch on their cameras for the duration of the session. Nevertheless, it is notable that respondents generally thought switched-on cameras would be helpful for their learning experience—i.e., 62.9% during the live online lecture sessions, 75% during the live online reading seminars, and 78.6% during the live online discussion sessions.

5. Discussion and Conclusions

The extent to which higher education transformations have taken root and will persist into the post-pandemic future remains a key question, particularly considering the surging need for developing and implementing adaptive teaching, learning environments, and incorporating innovative remote technologies and digital networks into course designs. At stake is the role of academia to remain reflective on its practices that will be important for shaping the future of learning and teaching in higher education. Adoption of online, blended, and hybrid models for course delivery, according to the ebbs and flows of the pandemic, has arguably accelerated the evolution of higher education. As such, the higher education sector has probably become somewhat inventive in creating a diverse spectrum of new course models to cope with such a challenging situation. Understanding and gauging students' perceptions and learning experiences are deemed as crucial in the processes of integrating online and in-person forms of course delivery, as well as implementing blended learning [41]. In the following, we will discuss our findings associated with the capacities and challenges of online learning and teaching with a particular focus on students' perception and experience of digital technology.

The use of digital technologies to enable and sustain communication and collaboration among fellow students has been viewed as a key challenge linked to the blended online mode of delivery. These issues were glaringly exposed by the pandemic and particularly came to the fore in the context of urban design education and pedagogy, which aim to help students develop interpersonal, communication, and teamwork skills through sharing ideas, exchanging information, and peer learning. This resonates with the idea that learner-learner communication and collaboration are crucial to effective small-group discussion and interactions in higher education environments [42]. The results from the student survey show that, while live online reading seminars enabled student-tutor interaction in small groups (with an overall satisfaction rate of 86%), it fell short in facilitating online synchronous communication through effective interaction between diverse students and their peers (with about 29% dissatisfaction rate). This partly supports the argument that, unlike face-to-face learning environments, online courses are less likely to offer students the opportunity to engage with their peers and develop close associations with each other [9,43]. As such, students cannot effectively develop core professional qualities such as interactivity, interpersonal, and practical skills which can, in turn, constrain their capacity to build a strong learning community [16]. Nevertheless, according to the survey results, live online discussion sessions were perceived as more effective, offering students a rich virtual setting in which they could raise and discuss questions using oral and/or textual means of communication in real time (synchronously). It is important to note that such synchronous discussion sessions are not without challenges. For instance, teaching staff are expected to manage multiple verbal cues and increased demands on time while keeping track of live non-verbal queries in the chat box and responding to them [3,44].

Students' capacity to effectively engage in online courses is subject to the accessibility of the internet as well as new, high-quality, regularly updated technological resources and tools necessary to handle the demands of their online coursework [3,43]. The importance placed on the value of this, for students' learning experience, is further supported by the survey results, as 14.3% of the respondents did not seem to have access to a fast and stable internet connection, and 10.7% of the respondents disagreed that the computer and the technology they used were good enough for online learning and teaching. To partly

address this challenge, the teaching staff used a mix of synchronous and asynchronous learning materials in the blended online delivery of the subject to provide opportunities for different individual learners. It is nevertheless crucial to note that providing equal access to appropriate hardware and infrastructure needs to be addressed, which otherwise can have further negative impacts on those students who are likely to become less involved with teaching and learning activities. It is also critical to address this challenge before focusing on developing technological literacy skills among students. In the post COVID-19 era, there is likely to be a surge of demand for pedagogically sound and adaptive learning environments, as well as innovations in learning technology and design. As such, those higher education institutions investing in integrating more educational experts and digital learning designers will be more competent to strategically (re)design their curriculums and improve capacity and manoeuvrability within the broader area of digitalised educational landscape [5]. It is, however, worthy to note that any decisions about learning technologies should not be prioritised over the development and design of educational content and the learning objectives [44].

While designing and running synchronous interim review sessions were considerably resource-intensive, the value of such critique sessions to receive formative feedback was acknowledged by the majority of the students (about 93% of the respondents). The value of clear and timely feedback has been previously outlined in relevant higher education studies [45]. According to Sadler [46], timely formative feedback can help students reflect on their performance and progress. It is important to note that there has been limited research exploring the capacities of formative feedback and assessment in the context of urban design pedagogy and education. Reflecting on the performance and progress being made in relation to urban design, learning activities and assignments can be crucial for feeding forward with a focus on the key points that need to be addressed moving forward, so students can effectively develop their projects before the summative assessment [40].

Maintaining non-verbal communication, such as eye contact, is a key part of the learning process in higher education. Nevertheless, it has been a critical challenge for online courses to facilitate a degree of such non-verbal communication and enable learning as a social act using digital technology [3]. Whilst many participants highlighted the importance of switched-on cameras for their learning experience, particularly in the live online small-group reading seminars and discussion sessions, only 50% of the respondents reported that students attending live online sessions should be expected to switch on their cameras for the duration of the session. In other words, a certain number of students prefer not to be expected to switch on their cameras and to be seen by their tutors or other students during synchronous learning and teaching. This is a significant finding, as there has been a limited scholarly focus on this in previous research. We argue that individual learners agree with the impact of eye contact on their virtual learning experience, but only as long as this is aligned with their rights to see others, including their peers and instructors, rather than reciprocal rights to be seen. We further found that many respondents (82.2%) perceived live online lectures (via Zoom) as more helpful for their learning experience than watching pre-recorded lectures. This is also a key finding that can effectively inform the development and adaptation of teaching and learning frameworks in the post COVID-19 era.

We conclude by pointing to some of the related limitations and future research directions. The methodology of this study involved survey research, which often includes limitations, particularly when it comes to exploring the perceptions and experiences of participants. While the study used multiple approaches to encourage online survey participation among the postgraduate students, the response rate remained relatively low. It is important to note that there is no claim here regarding the representativeness of this sample of participants or its adequacy. We would argue, however, that this kind of research on perceptions and learning experiences of postgraduate students in relation to blended online modes of delivery, particularly in the midst of the adaptation of the higher education sector, is both rare and much needed. Following the significant findings of this study, the discussions regarding eye contact and non-verbal communication in a virtual learning

experience, along with the questions of rights to see and to be seen among learners and educators, can be explored further in future research on blended online course designs.

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