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The role and impact of relying on digital technologies in contemporary legal education: an empirical study

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Abstract:

This paper critically evaluates the role and impact of relying upon digital technologies to deliver legal education within Higher Education Institutions (HEIs). HEIs now use and rely on digital technologies as a key component of their delivery of teaching and learning. However, despite this, many students do not have digital access. Therefore, there is the risk that some students become digitally excluded and thus unable to (fully) participate and engage with their learning. While HEIs had to rely exclusively on this delivery method during the global COVID-19 pandemic, many have now moved to a hybrid or blended approach to teaching and learning, retaining many of the digital provisions used during the pandemic. The paper seeks to investigate the risk of digital exclusion: its causes, nature, and effects.

To do this, we engage in qualitative and quantitative research to examine whether providing students with a tablet computer affects students' perception of the learning environment, student satisfaction, student performance and attainment, and removes barriers to learning owing to digital exclusion. We critically examine our findings. Notably, we offer tangible and practical recommendations to providers and teachers of legal education to ensure that all students have digital access to promote a more inclusive and supportive learning environment for students.

Keywords: Legal education; digital technologies; digital access; digital exclusion; student equity.

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Introduction

The landscape and provision of legal education within Higher Education Institutions (HEIs) have changed substantially over recent years.[1] In particular, systemic changes at HEIs mean that HEIs now use and rely upon digital technologies as a key component of their delivery of teaching and learning. Consequently, digital participation by students is now an *obligation*, not a choice. However, with this development comes the risk that some students become digitally excluded and thus unable to (fully) participate and engage with their learning. It is our view that it is the responsibility of HEIs to ensure that there is equity of learning for *all* students. Therefore, in the context of digital participation, this means a commitment to ensuring that all students have digital access in order to complete their studies satisfactorily.

The academic literature and governmental policy reports that discuss digital technologies within HE have typically focused on either specific technology as pedagogic tools (e.g., Virtual Learning Environments (VLEs)) or digital access/learning in the context of, and in response to, the global COVID-19 pandemic. Unfortunately, little within the pedagogic discourse critically examines the role and impact of using and relying upon digital technologies to deliver legal education from an access perspective. This is what this paper seeks to do.

This paper uses qualitative and quantitative research to examine the implications of embedding digital technologies in legal education. In doing so, we offer tangible and practical recommendations to providers and teachers of legal education to ensure that *all* students have digital access to promote a more inclusive and supportive learning environment for students. To do this, the paper is divided into five parts. First, we evaluate the status quo and implications of contemporary legal education. Second, we introduce our research study; we conducted a study with 42 final-year law students at the University of Leicester to determine whether providing students with a tablet computer affects students' perception of the learning environment, student satisfaction, student performance and attainment, and removes barriers to learning owing to digital exclusion. Third, we outline how we modified the teaching materials on the chosen module (Bioethics) to integrate a varied digital diet throughout the students' learning journey. Fourth, we critically

[1] Throughout this paper we use 'HEIs' and 'providers' interchangeably.

examine the results of our study. In the final section, we combine our findings to offer our recommendations to help ensure that *all* students have equity of learning.

Contemporary legal education

Until recently, legal education in England and Wales, and the rest of the world, could be described (and criticised) as generally being overly 'traditional'. Law schools tended to place an overreliance on analogue materials to deliver their teaching and learning. However, in England and Wales at least, gone are the days when students would attend lectures physically sat in a lecture theatre with nothing more than a notepad and pen, studying with only print textbooks, law reports, and journal articles loaned from the library, and sitting examinations sat in an exam hall for three to four hours with no reference materials, save from perhaps a statue book.[2]

This no longer represents an accurate depiction of the current landscape of contemporary legal education. We now live in a digital world, and as such, there has been a growing tendency to expect students reading law to engage with digital technology in nearly all aspects of their learning.[3] Furthermore, due to the measures imposed by governments worldwide in response to the COVID-19 pandemic, the trajectory towards digital learning was unnaturally accelerated. Moreover, evidence suggests a desire across the higher education ecosystem to capitalise on opportunities offered by digital teaching and learning.[4] It is for this reason that this topic remains worthy of continued discussion and debate.

During the pandemic, HEIs had to resort to digital technologies and online platforms exclusively to enable staff and students to continue their day-to-day activities.[5] Consequently, lockdowns and restrictions caused by the pandemic

[2] See David I C Thomson's prescient book, *Law School 2.0: Legal Education for a Digital Age* (LexisNexis, 2009). For criticism that, in the context of Australian legal education, there is a systemic failing to equip graduates to be digitally literate, see K Galloway, 'A rationale and framework for digital literacies in legal education' (2017) 27 (1) *Legal Education Review* 1.
[3] M Pinto and C Leite, 'Digital technologies in support of students learning in Higher Education' (2020) 37 *Digital Education Review* 343.
[4] D Alton et al, 'A tech-tonic shift: the complex dance of technology-enabled-learning and academic identity work in higher education' (2024) *Studies in Higher Education* 1.
[5] R Watermeyer et al, 'COVID-19 and digital disruption in UK universities: afflictions and affordances of emergency online migration' (2021) 81 *Higher Education* 623

exacerbated the digitisation of HE.[6] Many of those technological changes are here to stay and affect everyone, disproportionally affecting those who do not have reliable and consistent access to technology.[7] Because of this, digital participation in HE is now an obligation. From when a student enrols on their programme of study to their graduation, and for most stages in between, HEIs require students to engage with digital technology. This is because teaching events (lectures and tutorials), learning materials, and assessments are increasingly online.[8] Thus, those without proper access to technology suffer a significant disadvantage.[9]

In the UK, the potential for disadvantage was acknowledged by the government at an early stage during the pandemic. The Secretary of State for Education commissioned a review by the Office for Students (OfS) into digital teaching and learning in HEIs in the context of the rapid shift to scaling up online delivery during the pandemic.[10] One of the principal objectives of the review was to examine the relationship between 'digital poverty' and students' digital teaching and learning experience'. For the review, a student has 'digital access' if they have 'appropriate hardware, appropriate software, reliable access to the internet, robust technical infrastructure, a trained teacher or instructor and an appropriate study space'.[11]

Findings by the OfS were that 18% of students did not have access to appropriate hardware, 71% of students did not have access to a quiet study

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[6] Watermeyer (n 5) 624.
[7] K Allman, 'UK Digital Poverty Evidence Review 2022' (*Digital Poverty Alliance*, 2022) www.digitalpovertyalliance.org/wp-content/uploads/2022/06/UK-Digital-Poverty-Evidence-Review-2022-v1.0-compressed.pdf accessed 05 May 2023. (Hereafter *Digital Poverty Alliance*).
[8] For a discussion of online assessment in law see D Bansal, 'Open book examinations: modifying pedagogical practices for effective teaching and learning' (2022) 56 *The Law Teacher* 354.
[9] J Butcher and G Curry, 'Digital poverty as a barrier to access' (2022) 24(2) *Widening Participation and Lifelong Learning* 180; *Digital Poverty Alliance* (n 7) 36.
[10] Office for Students, 'Digital teaching and learning in English higher education during the coronavirus pandemic: Call for Evidence' (*Office for Students*, 2020) 3 https://www.officeforstudents.org.uk/publications/digital-teaching-and-learning-in-english-higher-education-during-the-coronavirus-pandemic-call-for-evidence/ accessed 05 May 2023.
[11] M Barber, 'Gravity assist: Propelling higher education towards a brighter future' (*Office for Students*, February 2021) 111 <https://ofslivefs.blob.core.windows.net/files/Gravity%20assist/Gravity-assist-DTL-finalforweb.pdf> accessed 05 May 2023. (Hereafter, Gravity)

space, 56% lacked access to appropriate online course materials,[12] and 30% of students did not have adequate internet access during the pandemic.[13] These findings are crucial because students need access to equipment, technology infrastructure, and a space to engage in digital teaching and learning; however, during the pandemic, many students did not have such access.[14] Those affected students could not access the 'digital infrastructure', negatively impacting their learning experience. Consequently, of all the components necessary to achieve successful digital teaching and learning within HE,[15] ensuring digital access is imperative.[16]

While many HEIs implemented several short-term measures to ensure students had digital access during the pandemic, a sustainable solution to digital access needs to be built in a long-term strategic way. This is because there is a problematic assumption that HE students do not suffer from 'digital exclusion'.[17] This is of fundamental importance; we must look beyond the assumption that young people are 'digital natives' and unaffected by digital exclusion.[18] Moreover, the data from our study (discussed below) explicitly refutes this assumption. The picture is also nuanced, with exclusion based on disability, income, and self-confidence.[19] Thus, if HEIs do not adequately respond to this issue, digital exclusion will maintain, reinforce, and perpetuate socio-economic inequalities in HE.[20]

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[12] Office for Students, OfS, '"Digital poverty' risks leaving students behind' (*Office for Students*, 2020) <https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/digital-poverty-risks-leaving-students-behind/> accessed 07 June 2023.
[13] *Gravity* (n 11) 10, 65.
[14] *Gravity* (n 11) 65-66.
[15] The components are redesign pedagogy, curriculum, and assessment; ensure digital access; build digital skills; harness technology effectively; embed inclusion and plan strategically. See *Gravity* (n 11) 9.
[16] *Gravity* (n 11) 3.
[17] The term 'digital exclusion' is used throughout this paper. In our view, a student suffers from digital exclusion if they do not have elements of the definition of 'digital access'.
[18] E Helsper and R Eynon, 'Digital natives: where is the evidence?' (2010) 36(3) *British Educational Research Journal* 517.
[19] *Digital Poverty Alliance* (n 7) 21.
[20] The British Academy, 'Understanding digital poverty and inequality in the UK' (November 2022) <https://www.thebritishacademy.ac.uk/documents/4428/Executive_Summary_Briefing_Understanding_Digital_Poverty_and_Inequality_in_the_UK.pdf> accessed 05 May 2023; L Robinson et al, 'Digital inequalities and why they matter (2015) 18(5) *Information, Communication & Society* 570.

As we noted at the outset, the HE learning landscape has changed. In particular, post-pandemic HE has yet to see a wholesale return to the status quo. Many HEIs have adopted a hybrid or blended approach to teaching and learning, retaining varying degrees of digital learning and teaching provisions.[21] It is arguable, given HEIs have retained a degree of digital learning and teaching provisions, that issues and concerns borne out of the pandemic may be ongoing, with many of the 'socio-technological inequalities' continuing to be visible amongst student populations.[22] We acknowledge that much of the academic literature and policy reports discussed above concern our jurisdiction of England and Wales. However, there is evidence that instances of digital exclusion similarly affect the international HE community more broadly.[23] It is therefore arguable that challenges to digital access are not country- or geographically-specific, though the nature and causes of challenges to digital access may be.[24] Some have been critical of stakeholders in HE for ignoring digital exclusion and the structural injustice it represents based on neoliberal conceptions of education.[25] To resolve this, it is our view that HEIs should place emphasis on the concept of *equity*, that all students, irrespective of their background, have digital access to succeed in their programme of study.[26] In this paper, we suggest how HEIs could realise this. Our aim is that this paper, particularly the recommendations contained herein, will benefit and be of interest to the international community more broadly. Principally, to act as a catalyst for other law schools to investigate their own assumptions and implications of relying on digital technologies within legal education.

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[21] E De Nito et al, 'E-learning experiences in tertiary education: patterns and trends in research over the last 20 years' (2023) 48(4) *Studies in Higher Education* 595, 611.
[22] D Z Belluigi et al, 'Deeply and deliciously unsettled'? Mis-reading discourses of equity in the early stages of Covid19' (2022) *Higher Education* 2.
[23] O Zawacki-Ritcher, 'The current state and impact of COVID-19 on digital higher education in Germany' (2021) *Human Behaviour & Emergency Technology* 221; S Cesco et al, 'Higher Education in the First Year of COVID-19: Thoughts and Perspectives for the Future' (2021) 10(3) *International Journal of Higher Education* 286-287; E Diez-Gutierrez & K Gajardo-Espinoza, 'Online assessment in higher education during Spanish confinement by Covid-19: The view of students' (2021) 18(5) *Journal of University Teaching & Learning Practice* 18.
[24] M E Addadzi-Koom, 'A survey on e-learning experiences of law students during Covid-19 in Ghana' (2023) 57(1) *The Law Teacher* 38; KA Soomro et al, 'Digital divide among higher education faculty' (2020) 17 *International Journal of educational Technology in Higher Education*.
[25] Belluigi (n 22) 2.
[26] J Willems, H Farley, and C Campbell, 'The increasing significance of digital equity in higher education: An introduction to the Digital Equity Special Issue (Editorial)' (2019) 35(6) *Australasian Journal of Educational Technology* 1.

Project aims and methodology

For the reasons outlined above, we engaged in qualitative and quantitative research to evaluate the effects of digital exclusion within law curricula and understand how law schools can promote a more inclusive and supportive learning environment for students. To explore these issues, we designed a study that assessed whether (1) providing students with a tablet computer affects students' perception of the learning environment, student satisfaction, student performance and attainment, and (2) removes barriers to learning owing to digital exclusion.

To achieve this, we (a) secured internal funding from our HEI to provide all students enrolled on a final-year LLB Law module at the University of Leicester with a tablet computer upon the commencement of the module, (b) invited students to complete two anonymous questionnaires, and to participate in focus groups to share their experiences of the module and tablet initiative, and (c) modified the teaching materials on that module to integrate a varied digital diet throughout the students' learning journey.

The module that we selected to pilot this initiative was Bioethics. It is an optional final-year module on the LLB Law curriculum at Leicester Law School, which typically enrols thirty to forty students annually. The module runs for one semester, with teaching delivered through lectures and workshops. For these reasons, we determined that it would be an ideal candidate for this study – the module size and mode of delivery allowed for greater flexibility for modifying pedagogical practices and including in-class digital formative learning opportunities, which we further detail in section three below.

One of the principal motivations for choosing Bioethics to conduct this study was to ensure that *all* students could receive a tablet computer and participate in the study. This was an essential consideration for us since we wanted all students on the module, regardless of whether they participated in the study, to receive a tablet to ensure that there is no loss or learning for any student on the module, which is, in our view, an essential equity, diversity and inclusion (EDI) commitment. We could not have achieved this had we implemented the study in a larger compulsory core module due to the limited internal funding allocated to teaching development studies. Therefore, conducting this study in the future with a first-year core module would be beneficial for several reasons: to increase sample size, investigate issues unique to large-group teaching,

obtain information from students before they develop their preferred study methods, and to 'catch' those students who might have discontinued by the third year because of the aforementioned challenges associated with digital exclusion. This would allow for a detailed comparative analysis of the impact of digital technologies on small optional modules *and* larger compulsory modules. We discuss the institutional resource implications of mitigating digital exclusion in our reflections and recommendations section at the end of the paper, particularly in light of the challenging financial circumstances facing HEIs.

For the study, we procured HUAWEI MatePad T10 tablets. The tablets were purchased for £126.00 per unit. For the 43 students enrolled on the module and four academic staff, the total cost of the devices was £5992.00. The rationale for purchasing this device over others was primarily three-fold: its platform utilises the Android 10 operating system (OS) for the greatest compatibility with other devices on campus, it has a large full-size display (9.7") to allow students to use the device as a standalone device, and its relatively low cost. We reflect on the suitability of this (and other similar) device(s) towards the end of this paper.

The methodology adopted for this study was a mixed-methods approach, gathering data through questionnaires and focus groups. Ethical approval was sought and cleared by our institution.[27] Two questionnaires were given to students; one before the distribution of the tablets and one after students participated in the project. Between the pre-tablet questionnaire and the post-tablet deployment questionnaire/focus groups, there was a period of nine weeks.[28] This was intentional to allow students to reflect on and consider the impact the tablets and digital activities had on their learning experience.

Participation in the study was both optional and anonymous. Students were informed about the project in their first lecture, and those students that wished to participate signed consent and participation forms. Both questionnaires were handed out during workshops. We used paper questionnaires rather than online surveys since these generally generate higher response rates.[29] The response

[27] Ethics reference number: 37295-db434-ss/ll:law.
[28] J Bourner, M Hughes and T Bourner, 'First-year Undergraduate Experiences of Group Project Work' (2001) 26(1) *Assessment and Evaluation in HE* 22.
[29] D Nulty, 'The Adequacy of Response Rates to Online and Paper Surveys: What Can Be Done' (2008) 33 *Assessment & Evaluation in HE* 301.

rate for the pre-tablet questionnaires was 98% (n=42) and 63% (n=27) for the post-tablet questionnaires. The completion rate decreased for the post-tablet questionnaires because attendance during the final teaching event was low.

The focus groups were implemented to explore issues relating to digital access at a deeper and richer level than the questionnaires. They allowed students to discuss topics/issues we had not considered/included within the questionnaires.[30] The focus groups were conducted in two timetabled one-hour workshop sessions, with 23 students in attendance. Recordings were taken with the permission of all present, and the transcripts were analysed using a Braun and Clarke thematic analysis.[31] The focus groups were structured using questions displayed on PowerPoint slides. These prompted students to discuss their experiences of digital access/exclusion, the module's teaching and learning, and their general experiences of digital technologies while reading law in HE. The themes arising from these focus groups, along with the questionnaire data, are analysed in section five.

Before discussing the results of the study, in the next section, we explain *how* the teaching practices and pedagogy on the module were modified to integrate in-class digital learning activities throughout the students' learning journey. We think this is imperative to understand and contextualise the data obtained.

Bioethics: a case study

In this section, we outline how we integrated the project into the module and embedded various digital learning activities. In doing so, we present and evaluate (a) how we modified the pre-existing learning activities to accommodate digital learning using the tablets provided, (b) the software and platforms chosen for the learning activities, (c) the benefits and disbenefits of using technological learning aids, and (d) the barriers that we faced. Though a control group would have been beneficial, the module was redesigned along

[30] M Denscombe, The Good Research guide for Small-Scale Social Research Projects (OUP 2007) 179-183.
[31] V Braun and V Clarke 'Using Thematic analysis in Psychology' (2006) 3 *Qualitative Research in Psychology* 77.

with providing students with a tablet.[32] This was to make full use of the digital learning technology to investigate the impact of relying upon digital technologies to deliver legal education, and whether systemic issues affected individual experiences of digital exclusion.

All of the teaching events for this module, including when the digital activities were employed, were conducted in-person. As part of the project's logistics, a two-hour workshop was scheduled at the start of the module to introduce students to the project, its aims, and the implications it would have on their teaching and learning. The workshop was designed for students to see value in the project, facilitating student engagement, and in the process, encouraging learning through using the tablet.[33] In addition to introducing students to Bioethics, the module's learning objectives and assessment components, this introductory session also aimed to ensure that students were course-literate about Bioethics, given the wide variety of students' prior learning experiences in the classroom, both pre-and during their law degree.[34] Following this introduction, informed consent and participation forms were distributed and signed by student participants. For those who agreed to participate, we then distributed the pre-tablet questionnaires. The tablet computers were then distributed to all students.

There were already several digital elements to the module, including online reading lists, lecture recordings, and utilisation of the VLE. However, we also created some additional bespoke activities to maximise students' usage of the tablets. Here we outline these learning activities, along with some reflections as to their efficacy and suitability.

The first digital learning activities were delivered in the second substantive topic concerning 'moral status'. Moral status considers to whom obligations are owed, why we have obligations to some entities and not others, and which

[32] If a follow-up study were to be conducted, we would suggest the introduction of a control group to further analyse and review the efficacy of providing a tablet or device to students. Such a control group would be able to provide a more accurate picture with regard to any elements of bias within the study. Such a group would allow, for example, for random selection of the particular groups, and randomisation of the deployment of pre- and post-intervention questionnaires.
[33] J Biggs and C Tang, *Teaching for Quality Learning at University* (4th edn, McGraw-Hill 2011) 34-35.
[34] T Haggis, "Pedagogies for Diversity: Retaining Critical Challenge Amidst Fears of 'Dumbing Down'" (2006) 31(5) *Studies in Higher Education* 521.

entities do/not have moral rights.[35] Two learning activities were implemented within the tutorial on moral status (tutorial two). This comprised of a polling activity in Microsoft Teams and a Padlet activity which asked students to rank various entities according to their differing degrees of moral status, and note their principles involved in this ranking.[36]

Both platforms were considered appropriate for students and teachers due to the few barriers to entry and simplicity of each platform relative to other platforms licenced by our institution (e.g., TopHat). For students, these barriers include the additional time required to download and sign on using University credentials. For teachers, whilst TopHat provides visually elegant learning solutions, the functions needed from an online learning platform to design activities to facilitate learner completion of the learning objectives meant that Microsoft Teams and Padlet were more time-efficient options for designing and delivering the learning activities.[37] Although using Kahoot was explored, institutional licencing issues prevented us from using this. Such licencing and time-cost issues are important considerations for teachers to bear in mind; they are more technical and logistical and should be considered during the early planning stages of a module/project. Such issues also have the potential to undermine important aspects of teacher autonomy in the creation of learning tasks. As we have highlighted above, key to 'digital access' is that students have access to the software to engage with all aspects of course content effectively. Thus, students must have access to the proper digital infrastructure. However, this also raises issues of appropriate hardware, software, and infrastructure allocation at an *institutional* level, which may impact *individual* students at a module level.

Before the tutorial, these learning activities were shared via a link on our institution's VLE, Blackboard (BB), and email. The polling activity in Teams consisted of seven questions. The polling activity was designed this way for three main reasons. The first was to allow students to reflect on their initial intuitions regarding the relative importance of different candidate properties for moral status.[38] Second, polling in Microsoft Teams allows for a variety of

[35] T L Beauchamp and J F Childress, *Principles of Biomedical Ethics* (8th edn, OUP 2019) 65.
[36] A Padlet is a virtual collaborative bulletin board.
[37] The time-intense nature of designing high-quality, activity-oriented digital learning is acknowledged in *Gravity* (n 11) 108.
[38] Biggs and Tang (n 33) 26-27; D A Kolb, *Experiential learning: experience as the source of learning and development* (Prentice-Hall 1984) 21.

ways in which to collate and display responses to students in a visually appealing way to catalyse debate within the class. For example, it shows the number of responses provided, the average time taken to complete the question, and a series of pie charts to collate responses.[39] Third, the activity was designed to provoke curiosity; therefore, speed of access to polling and results was vital.

The Padlet was designed to facilitate discussion of the main reflective question in the second hour of the tutorial. Students, having conceptualised the theories of species membership, sentience, and personhood in assigning moral status, were invited to employ their abstract conceptualisations of moral status to determine which entities matter morally.[40] Issues of moral status also arise in discussions concerning abortion,[41] assisted dying,[42] and the value of life.[43] Students were asked to rank a series of entities according to their level of moral status, including non-morally relevant beings.

Reflecting on the experience of delivering this in the classroom, the Padlet activity ranking the moral status of different entities was successful. All groups could rank at least eight of the entities in question. The Padlet clearly displayed, on one screen, each group's ranking. Therefore, similarities and differences in the rankings of entities could be explored in the learning session.[44] The exercise conducted using this software provided the opportunity for a qualitatively richer learning experience. It allowed students to consider their peers' ranking and reasoning whilst concurrently constructing and reflecting on their own ranking and reasoning. Consequently, the Padlet provided an opportunity to foster a sense of a learning community. The Padlet also meant students had a link to this learning activity available immediately, rather than having to upload photographs of handwritten lists (for example) after the tutorial. Finally, student rankings of which entities should be rescued in a prior task undertaken in the previous tutorial, whereby entities are trapped in a cave with a working

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[39] For a detailed learning activity based on the multisensory understanding of objects, see L Morgan, 'Understanding Dworkin through art: object-based learning and law' (2018) 52(1) *The Law Teacher* 53.

[40] For the importance of a base of interconnected knowledge as a characteristic of a rich teaching and learning context, see Biggs and Tang (n 33) 67-68.

[41] See J Finnis, 'Abortion and Healthcare Ethics' in R Gillon (ed) *Principles of Healthcare Ethics* (Wiley 1994) 547-557.

[42] See S W Smith, End of Life Decisions in Medical Care (CUP 2011) Ch 2.

[43] See J Keown, 'Restoring Moral and Intellectual Shape to the Law after *Bland*' (1997) 113 *LQR* 481.

[44] Biggs and Tang (n 33) 68-69; J Hattie, *Visible Learning For Teachers* (Routledge 2012) 100-107.

lift that is likely to fail before all can be rescued, had been captured on another Padlet. Student groups had stayed the same from the previous tutorial to this moral status tutorial, so it was possible to examine the differences in rankings *within* groups. It was then possible to ask student groups to reflect on *why* such variation in moral status had occurred from one week to the next. This provided another opportunity for students to reconstruct their knowledge by connecting old and new knowledge to bring further opportunities to reflect and bear their subjective experiences (of learning and reflection) inside and outside both learning sessions.[45]

The second learning activity was designed and delivered in the theories of autonomy, beneficence, and paternalism tutorial (tutorial three). This topic marked the transition from foundational considerations within Bioethics to more specific ethical concepts and principles. The learning activity consisted of a Padlet, whereby students were invited to submit their responses to a series of vignettes. The vignettes were designed to introduce students to a structured process through which they can reflect, analyse, and evaluate ethical problem questions.[46] Specifically, the vignettes invited students to consider whether the decisions in the vignettes are autonomous and whether the proposed paternalistic interventions are ethically justified.

The structured process of answering ethical problem questions uses Beauchamp and Childress's method for justifying and resolving moral conflict in ethical dilemmas.[47] Reflecting on the relative experiences of this Padlet exercise compared to the moral status Padlet exercise, this exercise could have been more successful. There are two main reasons for this. First, the level of detail provided in each section of answering the problem question varied *within* and *between* groups. This meant that certain sections had to be filled in during discussions. The Padlet was set up so answers could be provided anonymously, albeit within groups. For certain groups, this appeared to lower barriers to the discussion; there seemed to have been less concern about needing to develop or elaborate on a point if asked. However, overall, the Padlet was information-heavy and less accessible than the moral status Padlet. Second, the less accessible nature of the autonomy Padlet also meant it was harder to quickly

[45] Biggs and Tang (n 33) 67; Kolb (n 38) 36-38.
[46] Ethical problem questions (case studies) are a common method to teach and learn about bioethics. See RM Veatch, AM Haddad & DC English, *Case Studies in Biomedical Ethics: Decision Making, Principles and Cases* (2nd edn, OUP 2014).
[47] Beauchamp and Childress (n 35) 80-82.

identify similarities in reasoning throughout the vignettes, as was possible with the moral status Padlet.[48]

The final learning activities were designed and delivered in the abortion tutorial (tutorial five). This topic considered the moral status of the foetus, the interests of the pregnant person, and whether and how a balance should be struck when the two interests come into conflict. Students were invited to determine whether the current English and Welsh legal position strikes an ethically acceptable balance and whether changes could be made to the Abortion Act 1967 in light of the material covered on the moral permissibility of abortion. To facilitate this, students were divided into groups and asked to revise the English and Welsh legal framework, using the Irish legal position to draw a comparative analysis.

Each group had access to a Google Document. This document contained section 1 of the Abortion Act 1967 and sections 9-12 of the Health (Regulation of Termination of Pregnancy) Act 2018 (Irish Act). This latter Irish Act was introduced during the abortion lecture to highlight how comparative legislation works in practice, is differently framed, and the language used. Each group had editing permissions with their Google Documents. Google Documents was considered an appropriate tool to use in this instance, given that the licence is free. This presented one less barrier for teachers and students.[49] As noted above, Android 10 OS is the platform of the tablets used as part of the project, meaning that Google Documents was pre-loaded on the device.

Reflecting on the delivery of this learning exercise, Google Documents had benefits and disbenefits. It was possible to see the editing history of the sections of the document while ensuring the anonymity of students editing it. The editing history clarified which sections of the Abortion Act had been revised and if similar language had been used from the Irish legal framework, which in one instance had been. This also meant it was possible to investigate the ethical and conceptual underpinnings of any revisions made to the Abortion Act. Anonymity was particularly beneficial for an ethically sensitive topic and ensured that the focus remained on this being a group submission. However, the comparison *between* groups regarding the changes to the Abortion Act 1967

[48] For further discussion as to the benefits of deliberate practice, see Hattie (n 44) 108-110.
[49] BJ Jutte et al, 'Zooming in on Education: An Empirical Study on Digital Platforms and Copyright in the United Kingdom, Italy, and the Netherlands' (2022) 13(2) *European Journal of Law and Technology* 15-16.

was more complicated than with Padlet; different windows had to be navigated, and not all information could be displayed simultaneously. Substantively, the activity also threw into sharp relief different perceptions regarding the distinctions between law and ethics, in terms of how they are different collections of norms, with a much greater emphasis on the institutional nature of the former collection of norms, as well as the different actions which are morally permissible or impermissible, and which conduct should be subject to legal regulation.[50]

The purpose of this section has been to explain the types of in-class digital learning activities that students engaged in with their tablets on this module. This, we hope, helps to provide a contextual backdrop against which the data from the questionnaires and focus groups can be interpreted and understood. Having explained these learning activities, we now move to discuss the results that we obtained in this study.

Results

This section discusses and evaluates the results of pre- and post-tablet deployment questionnaires and student focus groups.

Results: Pre-tablet Data

98% of students completed this questionnaire in their introductory lecture at the start of the module. The following provides a breakdown of the key questions and results.

Digital access:

The first question, comprised of five parts, explored the extent to which students had access to digital provisions necessary for their studies *before* the tablets were distributed (see *Figure 1*). The question used a 5-point Likert scale, where 1 indicated '*almost always',* and 5 indicated *'never'*. The results show that while students have access to appropriate hardware, software, and internet access, many do not have sufficient technical support (46%), and some only have access to an appropriate study space sometimes (21%). These results

[50] See D Boonin, *A Defence of Abortion* (CUP 2002) Ch 1.

clearly illustrate that many of the students who participated in this study would not, by the OfS' definition, have 'digital access' for differing reasons.

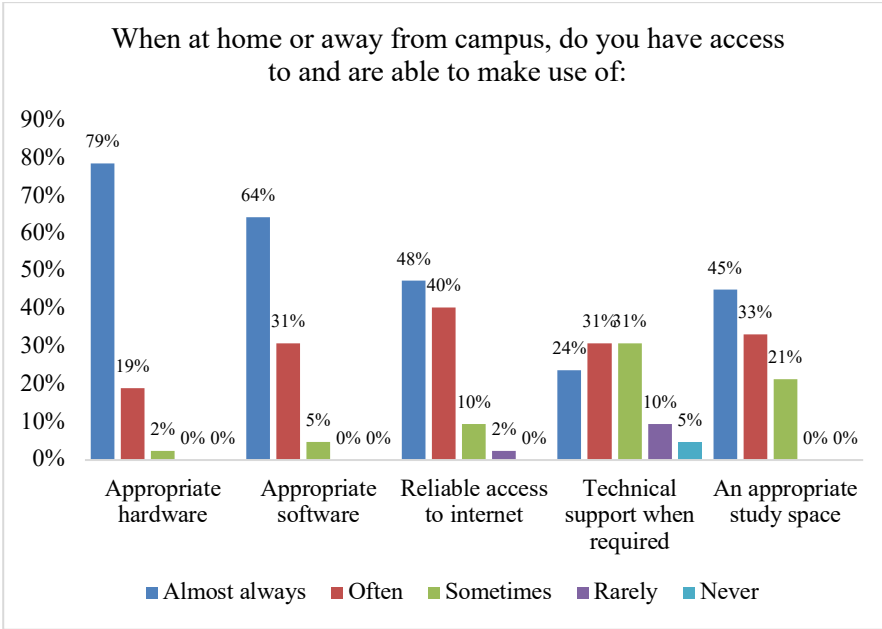

Figure 1

Tablet deployment:

Questions 2-6 sought to evaluate how students felt about receiving a tablet and the impact that it *might* have on their learning and teaching. Interestingly, all students already owned personal electronic devices for their university studies (Q2). However, upon reflection, it would have been beneficial to enquire what *type* of device they owned – i.e., a PC, laptop, tablet, or mobile phone, and how *suitable* it is for their studies. This would help determine whether the hardware is 'appropriate' for their studies. If this study were replicated, we would recommend that these questions and definitions of terms be included. We recognise that had we asked these revised questions, students' responses to Q1 regarding whether they had access to 'appropriate hardware' might have been different.

98% of students were 'very happy' or 'somewhat happy' about being given a tablet (Q3), and 95% were 'very comfortable' or 'comfortable' using a tablet computer without any training (Q4). Most students also said that being

provided with a tablet would positively affect/improve their digital skills (Q5) (see *Figure 2*). However, many students were sceptical regarding the *extent* to which the tablet provided and planned digital learning activities would positively affect their confidence during the module (Q6), with 40% being either 'neutral' or 'negative'.

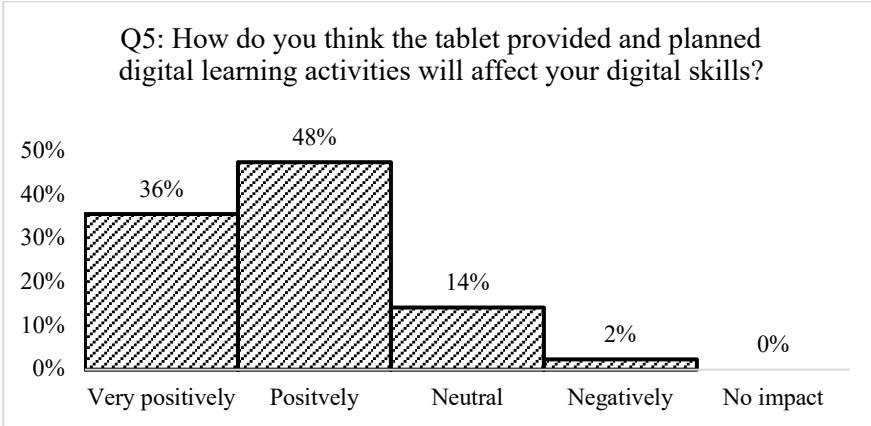

Figure 2

Digital learning at university:

Questions 7-9 evaluated the extent to which students relied on digital technologies for their studies, and what digital technologies *help* with. Unsurprisingly, all students said they had to engage with digital learning at university (Q7). This has been primarily positive, with only 10% of students reporting a negative experience with the digital provisions offered (Q8). Q9 evaluated the extent to which digital technology *helped* with their learning at university, and students responded overwhelmingly positively (see *Figure 3*).

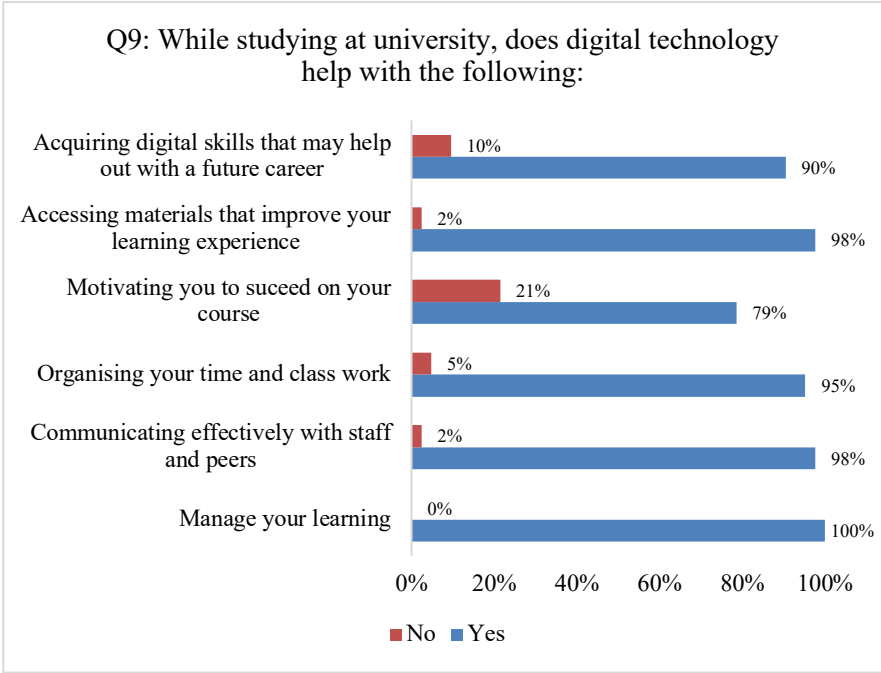

Figure 3

Perceptions of the project:

The remaining questions were focused on assessing the extent to which students thought the tablet initiative was positive, and how it might impact the experience and delivery of the module. Nearly all students (90%) thought that being provided with a tablet would meet their basic technological needs to succeed in the module (Q10). Similarly, most students (93%) also thought that the planned digital activities in lectures and tutorials would help improve their digital technology literacy for their future profession (Q11). Pleasingly, nearly all students thought that the tablet initiative made the module more inclusive (95%) and innovative (100%).

Results: Post-tablet Data

In total, 63% of students took part in the post-tablet survey.

Tablet usage:

One of the primary objectives of this study was to find out *how* students used their tablets in terms of their studies and non-study-related activities. Therefore, questions were asked to explore their experience using a 5-point Likert scale where 1 indicated '*almost always*', and 5 indicated '*never'*. *Figure 4* shows the results below.

The results show that students did not use the tablet frequently during their studies on the module. This was also confirmed during the student focus groups. However, when students did use their tablet, it was principally for using internet search engines to find information relating to the module (70%), doing non-module work (e.g., games and streaming services) (67%), reading proscribed module reading (45%), and watching or listening to lecture recordings (52%).

The data revealed that the majority of students rarely or never used the tablet for downloading module materials (74%), taking down notes during lectures and tutorials (78%), storing materials (71%) and retrieving materials (66%), interacting with their peers on social media (82%), emailing university staff (66%), completing assessments (100%), checking assessment grades (89%), nor participating in discussion boards (85%).

	Almost always	Often	Sometimes	Rarely	Never
Downloading module materials.	0%	11%	15%	37%	37%
Taking down notes during lectures and tutorials.	0%	11%	11%	30%	48%
Storing module-related materials.	0%	7%	22%	30%	41%
Retrieving stored module-related materials.	0%	11%	22%	33%	33%
Interacting on social networking sites	4%	11%	4%	26%	56%

with other students on the course.					
Doing non-module related work (e.g., Netflix and games).	4%	26%	37%	19%	15%
Emailing University staff.	0%	22%	11%	22%	44%
To complete an assessment.	0%	0%	0%	22%	44%
Check assessment grades.	0%	0%	11%	22%	78%
Watching or listening to lecture recordings.	19%	7%	26%	11%	37%
Using internet search engines to find information relating to the module.	0%	26%	44%	11%	19%
Participating in discussion boards on Blackboard.	0%	4%	11%	22%	63%
Reading prescribed module reading.	11%	19%	15%	15%	41%

Figure 4

Tablet experience:

In addition to surveying students to ascertain how they used their tablets, we also wanted to explore their *experience* using the tablet throughout the module. Therefore, questions were asked to investigate their experience using a 4-point Likert scale where 1 indicated '*strongly agree*', and 4 indicated '*strongly disagree*'. Students could also answer '*not applicable*' to these questions. *Figure 5* shows the results below.

Students responded positively in several areas. The data shows that the tablet increased collaboration (56%), helped with their research (41%), increased their independence (48%), and improved their flexibility in learning (56%).

Students also expressed their negative experiences with using the tablet. The areas that students did not engage with the tablet positively are that it was difficult to take notes with the tablet (74%), students were already accustomed to another device (74%), find the tablet complicated to use (59%), prefer to study with another device (97%), are not enthusiastic about learning with their tablet (67%), and still needed to visit the library for their tutorials and assessments (55%).

That there were mixed experiences and usages is evidenced by the split regarding the helpfulness and usefulness of using tablets for teaching and learning. This was similarly reported in Q5, which asked whether, because of the tablets, students could engage more with their studies than before. As with the data detailed in *Figure 5*, students responded divisively (48% yes; 52% no).

	Strongly agree	Agree	Disagree	Strongly disagree	Not applicable
I find learning with a tablet very helpful	4%	48%	22%	15%	11%
The use of a tablet has reduced my cost of printing module materials	7%	22%	30%	19%	22%
The tablet helps me do my tutorial and assessment preparation effectively	7%	26%	26%	22%	19%
The tablet has increased my collaboration with my peers and lecturers	0%	56%	7%	19%	19%
I find it difficult to take notes with my tablet	22%	52%	11%	7%	7%
I'd rather play games and use social networking	11%	37%	26%	15%	11%

sites on my tablet than study					
I have grown accustomed to using the tablet computer for my studies	0%	19%	37%	37%	7%
I am able to complete my tutorial preparation and assessments efficiently using the tablet	0%	15%	41%	33%	11%
I am able to better meet my module deadlines with my tablet	7%	15%	26%	41%	11%
The tablet helps me in my research	11%	30%	22%	26%	11%
My tablet helps me to study independently	7%	41%	19%	22%	11%
The tablet allows for flexible access to online resources for my study	4%	48%	19%	22%	7%
With a tablet, I do not need to go to the library to do my tutorial preparation and research	0%	30%	33%	22%	15%
The tablet allows me the flexibility to learn anytime, anywhere	4%	48%	19%	26%	4%
I find it easy to take notes during lectures with my tablet as it allows flexible annotation of lecture notes	0%	22%	22%	44%	11%
I find the tablet complicated to use	11%	48%	22%	7%	11%
I rarely use my tablet for my studies	19%	48%	22%	7%	4%

I am enthusiastic about learning with my tablet	0%	26%	52%	15%	7%
I prefer to study with another device (e.g., laptop) than my tablet	67%	30%	0%	0%	4%
I am not convinced about the usefulness of tablets in my studies	19%	22%	26%	11%	22%

Figure 5

We also asked students to complete four open-ended questions. Q3 asked students to list the most constructive uses of their tablets for learning on the module. The common themes arising from the responses were – watching lectures, completing the required reading, using the tablet as a secondary device (for reading/watching lectures), participating in collaborative exercises in class, and increased flexibility in learning.

Q4 asked students what activities they could do with their tablet that they could not do before. Given that many students already have their own electronic devices, the responses here were limited. However, some students commented that they enjoyed using the device in class (e.g., with Padlet activities) and for easier access to reading.

Q5 evaluated the extent to which students engaged with their studies *because* of the tablet initiative. While some students responded positively, this was mainly linked to in-class activities, collaboration, and icebreakers. However, students were critical of the *specific* tablet provided. Many students commented that they did not use the tablet fully because it was slow, inefficient for note-taking, and incompatible with their devices (different OS). In many cases, these comments were duplicated in Q6, where students were able to provide additional comments or suggestions on the tablet initiative. While many students appreciated using the device in class, and for Bioethics specifically, and as a secondary screen/device, the consensus was that the device needed to be more highly specified to enable students to use the tablet as their sole device for their teaching and learning. Several students also commented that the initiative would have been better implemented with first-year students, who have not yet established individual study preferences and styles.

Results: Focus groups

As indicated above, students on the module were divided into two groups corresponding with their workshop teaching groups. We used two of the timetabled workshop sessions to conduct our focus groups, which ran towards the end of the semester once teaching had finished. The purpose of the focus groups was to, much like the questionnaires, establish whether providing students with a tablet computer affected students' perception of the learning environment, student satisfaction, student performance and attainment, and removed barriers to learning owing to digital exclusion. The benefits of using focus groups as a data-gathering method are well documented, including allowing for more instinctive, detailed, and rich answers. Since students had studied together on the module, the discussions were comfortable, interactive, peer-group conversations.[51] The aim was to uncover issues we had not considered when designing the project.

We asked students six questions about the project, followed by an open-ended/general question. These were displayed on a large monitor using a PowerPoint presentation, and the sessions were recorded with the permission of all those present. These questions were:

(a) How do you think digital inequality affects student inclusivity and success while studying at university?

(b) Besides this tablet initiative, does the university appropriately accommodate students without appropriate access to hardware and software for their studies?

(c) Explain how you used the tablet to assist in your learning of the module. What features of the tablet engage you the most? Can you provide some examples?

(d) Do you think modules should include digital learning within lectures and tutorials as we incorporated in Bioethics?

(e) Have you encountered any problems that have affected the usage of the tablet? E.g., issues relating to hardware and software? What are the challenges faced in using the tablet on and off campus?

(f) In what ways do you use the tablet when you are off campus?

[51] D Morgan, Focus Groups as a Qualitative Research (London, 1988) 77.

(g) Do you have any other comments or suggestions you would like to share?

Following an analysis of the focus groups, the main themes that emerged relate to access to (a) appropriate equipment, (b) technical support, (c) digital learning activities, and (d) appropriate study spaces. We consider these in more detail below.

5.3.a. Access to equipment

The results of the post-tablet questionnaire revealed that all students owned a personal electronic device for their studies prior to this project. In both focus groups, students vocalised the importance of having appropriate access to digital technologies to succeed in their studies. This is principally because law schools have transitioned from delivering their teaching and learning using analogue materials to a stage where most materials (if not all) are online. As one of our students commented:

> All our books are online, lectures are online, and articles are online. So, if you do not have access to devices, I feel like you will be at a disadvantage.

However, while owning or having access to appropriate equipment can help "bridge inequalities", as one student commented, it is often not enough in and of itself. Devices need to be maintained and charged frequently, and students need access to a data plan or WI-FI for devices to be of utility. Moreover, devices must be compatible with hardware and software, which can present an issue with older/obsolete models. Moreover, even if compatible, learning may be negatively affected if the device is slow. Importantly, these considerations cannot be resolved by simply distributing devices to students; the other elements of digital access must also be present. As such, ingrained and systemic inequalities serve as roadblocks and barriers to equity of learning. Inequality may stem from (1) the differing resources (financial and technological) that students have access to, (2) the assumption, erroneously made, that students *do* have the latest devices for their learning, and (3) the lack of provision and help for students from their HEI when it turns out that the premise in (2) is untrue. This was explicitly commented on within the focus groups. One student, who described their device as being 'older', explained the stress and anxiety of using a slow device, particularly for assessments:

> Exams are not in person; [I had] a mini panic attack [while submitting assessments] because my computer is slow, and [my assessments] are getting submitted way later than they should.

During both focus groups, it transpired that while students were grateful for receiving a tablet to help with their studies, the *type* and *quality* of the tablet supplied could have been better. Students made a variety of comments to this effect:

> I think they went for the cheapest tablets they could get and, therefore, they don't work. They crashed on Blackboard, and on anything really. So, I used it for candy crush, to be honest. And that's it. It is not useful for work. I wouldn't bother [giving students this tablet], or I would bother with a more expensive tablet.

Despite these comments, some students used the tablet, even if it was not their main device:

> I would use it for reading. I would have it next to me while typing; as a second screen, it really works.

Indeed, for one student, providing them with a tablet resulted in a tangible and positive change:

> I associated my tablet with reading. Instead of associating my phone with reading. I have everything else on my phone and I will be distracted by it. But the tablet is only for reading so I focus on that. [There were no] notifications to distract me. The tablet is a 'quality of life' improvement.

Overall, despite initial satisfaction, students reflected that the tablet deployment would have been more beneficial if (a) the *type* and *quality* of the device were improved, (b) a keyboard was provided, and (c) if it was introduced at an earlier stage. On this final point, one student commented:

> [This] wasn't the best cohort to give [the tablets] to because we are all in our final year. We all gone through what [learning style] works best for us. [Your final year] is not the time when you switch up to try new things.

These results, coupled with the questionnaire data, illustrate the significant importance of accessing appropriate hardware for students to succeed on their course. Therefore, law schools cannot assume that students come to university with reliable and appropriate access to hardware. Or, that during their programme of study, their hardware (if they do have access) will *continue* to be reliable and appropriate from year to year. Recent studies have found that many students only have access to a smartphone, which makes watching lecture recordings, reading learning materials, and completing assessments difficult.[52] Additionally, for students living in their familial home or privately rented student accommodation, reliable access to home broadband is similarly problematic, with many students relying on mobile phone internet connectivity.[53] All of these issues become compounded for those students from low-income households.[54]

5.3.b Technical support.

A prominent theme that arose during the focus groups pertained to the availability of technical support from the University. In particular, the comments related to the reliability of the WIFI and technical support while on campus. Regarding the WIFI on campus (Eduroam), one student commented that:

> The WIFI on campus sucks sometimes. So, if you do not have proper WIFI at home, you come to school, and the WIFI doesn't always work properly. The reading you need or the lecture you want to watch cannot be accessed.

Students had similar comments regarding the availability of technical support too:

> I didn't have WIFI on my computer for two months. For September and October. I kept taking my computer to IT, and they were running diagnosis checks, but nothing was working. During that period, I was hot-spotting during class

[52] Nominet Social Impact, 'Digital Youth Index' (2021) < https://digitalyouthindex.uk/wp-content/uploads/2021/12/Nominet-Digital-Youth-Index-report-2021.pdf> accessed 05 June 2023. (Hereafter Nominet)
[53] Ofcom, 'Adults' Media Use and Attitudes report 2022' <https://www.ofcom.org.uk/__data/assets/pdf_file/0020/234362/adults-media-use-and-attitudes-report-2022.pdf> accessed 05 June 2023.
[54] Nominet (n 52) 17.

> and could not go into Blackboard or other platforms. It was so annoying!

However, since this student's device was personal, not one loaned/provided by the institution, the options available to the technical support department will likely be limited if the problem is with hardware.

Where students did not have access to their own device for their studies, some students commented that there were frequently no laptops available for loan via the library (a service offered at the University of Leicester on a short-loan basis). This is unsurprising given the number of students enrolled at the University. While there are frequently libraries and other learning spaces within HEIs where students can access a desktop computer, many students undertake employment and/or caring responsibilities alongside their learning, meaning that the flexibility of a laptop or tablet is an attractive proposition and may provide an explanation as to why library or campus-based study is increasingly not practical for many students.

Additionally, some of the comments made by students supported the claim that not all students are 'digital natives' who need little to no technical support. In particular, students explained that they would have liked to have received explicit guidance within induction or introductory lectures regarding the technical support available. While this information *is* available to students, it is almost exclusively online. Thus, *finding* such information is problematic if you do not have digital access, which only serves as a barrier to resolving digital exclusion.

5.3.c. Digital activities for digital learning

Students also used the focus groups as an opportunity to discuss their experience of the digital learning activities that were used in Bioethics. The overall perception was that students found the digital activities beneficial to their learning. The comments from students were that they helped to foster a community feel, and enabled students who were less confident to speak openly in class to share their ideas in a constructive and safe learning environment, making group work more enjoyable for all students. Some of the comments from students were:

> I liked the digital interactions; I think they are great for learning because many people don't like to raise their hands and participate. If you give students the option to type their answers, there will be greater interaction with the students.

> Padlet generated different discussions [between the assigned groups], and since you can see it afterwards, it does not get mixed up with your notes.

However, unsurprisingly, not all students thought that digital learning activities offered significant and tangible benefits over more 'traditional' and analogue teaching methods. For example, one student said that:

> I feel like it's more interactive when it's verbal rather than all being on a screen.

Nonetheless, it was felt amongst some students that in larger cohorts (e.g., core/compulsory modules), digital learning activities would be a valuable teaching and learning aid for students *and* teachers. One student said:

> I think [digital teaching tools] are also helpful for teachers because they can see and check students' answers in real-time, [and review material] if the entire class is getting those questions incorrect. [Teachers might think] "maybe this is something I need to discuss more and go over and see why everybody is getting it wrong".

The comment above evidences that digital learning aids can effectively provide frequent and informal formative assessments for students to check and monitor their learning progress. Online multiple-choice questions (MCQs) are an effective way of doing this in-class.[55] Moreover, for students in England and Wales who desire to qualify as a solicitor, MCQs offer some preparation for students completing the Solicitors Qualifying Exam, since SQE1 is examined solely through MCQs. The feedback in focus groups was that:

[55] S Whittaker & T Olcay, 'Multiple-choice questionnaire assessments: do they have a role in assessing law students?' (2022) 56(3) *The Law Teacher* 335.

> MCQs help as you can self-assess. And it's nicer that way because you know if your answer was right or wrong while in class.

> MCQs are helpful, [and they] give us an insight into what the SQE assessments will be like.

5.3.d. Study spaces to engage with (digital) learning.

One of the key findings from the OfS's report was that many students suffered negatively when libraries, cafes, and other alternative study spaces closed during the pandemic.[56] Students had to continue their studies in their homes, many of which did not provide individual and private study spaces, and some did not have reliable internet access, providing roadblocks to their learning.[57] Following the easing of lockdowns and restrictions, many students still struggle to find appropriate places to study. Moreover, research shows that nearly half of all young people (45%) rely on other ways to connect to the internet instead of through home broadband (or laptop/ desktop computer).[58] Our students reported similar concerns:

> Students have problems with their WIFI in their accommodation. If they need to get work done, they have to go to the closest coffee shop to get work done. They are forced to go and study in those environments when they would prefer not to do so.

> In the library, the WIFI is problematic if it is not early in the morning. And you need your own device if you want to use the quiet study spaces, so I have given up on using the library.

These responses, coupled with the data captured from the questionnaires, explicitly evidences that if students do not have reliable and consistent internet access, the space that they occupy is not an adequate *learning* space. This has the unfortunate consequence of forcing students to seek alternative spaces to conduct their learning, which may be uncomfortable, noisy, and costly.

[56] Gravity (n 11) 67
[57] *Gravity* (n 11) 67.
[58] Nominet (n 52) 26.

Previously, teaching and learning at HE was predominantly analogue, and this was not a prerequisite for learning.

5.3.e. Other findings

In addition to the findings discussed above, we allowed students during the focus groups to discuss and raise any other issues they thought were important. Many of these final comments related to two things – (a) a desire to retain *some* analogue materials in their teaching and learning and (b) that HEIs should be proactively seeking to minimise, and eventually resolve, digital exclusion. We consider both in turn.

It is clear from the focus groups that students expressed a desire to retain *analogue* learning materials. While students enjoyed digital learning activities and technologies, they said there needed to be *more* analogue options to support their learning. For instance, students noted that, given the large number of students at the University, there are frequently not enough print copies of the essential/recommended textbooks in the library for short- and long-term loans. Many HEIs subscribe to online learning portals that provide unlimited digital access to textbooks and other materials. These resources are expensive for HEIs, and although it means that all students *can* access them online, there is likely a disinvestment in print texts. However, in addition to some students having difficulty accessing these resources because of digital exclusion, some prefer analogue materials to learn:

> I prefer reading a [physical] book to reading it on my laptop. For Bioethics, there were six copies available in the library; I wanted one, but no more physical copies were left. And if I didn't have my laptop, I wouldn't have that book. That is why [online textbooks] can exclude students.

Moreover, while students were conscious of the environmental benefits of online learning resources, and that mass printing materials is not environmentally sustainable, students nonetheless associated print textbooks, journals, and law reports with in-depth learning. They associated these analogue materials with a quieter and undistracted way of learning, since they would not see or hear any notifications on their devices while learning with paper copies. Indeed, the academic literature on this point demonstrates that most students *prefer* reading print text and are more engaged when their

learning material is in this form.[59] However, we recognise that online learning resources that contain textbooks etc., are now the norm within HEIs, especially within England and Wales.[60] This is despite studies showing that many students obtain a deeper understanding of the material when reading print and analogue materials compared to reading the same resources online.[61] Our students offered similar comments echoing these concerns:

> Digital is making me blind. I am used to taking notes, highlighting, and underlining. That is a physical process. Reading is part of that learning journey, and when it is in paper form, it is very much hands-on. It helps.

> I think the option [of having learning materials in a physical format] should be there. Some people prefer physical copies of the PowerPoint slides and law reports. But many students do not even get the help to print material. We do not know how or where to print things.

In addition to expressing a desire for analogue materials, many students felt that it was the responsibility of the University to help minimise and resolve digital exclusion for students. For example, students felt that HEIs should ensure that students had digital access prior to and during their programme of study. Moreover, they were of the opinion that, were necessary, HEIs should provide appropriate devices to students, included within their tuition fees, that they can use for the duration of their studies.

> Universities should offer devices to students once they are accepted [onto their programme of study] if they need it. The University holds data about its students, and they know if they are from a disadvantaged background, so should ensure they have a device.

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[59] P Delgado et al, 'Don't throw away your printed books: a meta-analysis on the effects of reading media on reading comprehension' (2018) 25 *Educational Research Review* 23, 24.
[60] H Hargreaves, S Robin and E Caldwell, 'Student perceptions of reading digital texts for university study' (2022) 24 *Journal of Learning Development in Higher Education*. Doi:10.47408/jldhe-vi24.817
[61] G Ben-Yehudah and Y Eshet-Alkalai, 'Print versus digital reading comprehension tests: does the congruency of study and test medium matter?' (2021) 52(1) *British Journal of Educational Technology* 426, 428.

> Students should not come to university unprepared; at the point of admission, students should be told that a device is a necessity.

Reflections

This paper has critically evaluated the role and impact of digital technologies within legal education. More specifically, it has sought to elucidate the importance of reflecting, in a student-centric manner, on the implications of the obligations to participate digitally in HE. In our discussions, we have observed an important asymmetry. On the one hand, *any* impact upon the elements of digital access affects students' learning. However, the *solutions* to digital exclusion are interconnected. Therefore, providers should proactively assess their students' digital access on an individual basis to develop personalised action plans to mitigate any issues identified. However, digital access should not only be investigated *before* students arrive but frequently re-evaluated, allowing students to inform providers of changes to their digital access. Given the importance that digital technology plays in HE, in this final section, we offer several recommendations for providers and teachers to improve the learning experiences of students in HE.

Looking first at what providers can/should do to mitigate digital exclusion, we offer three provider-level recommendations:

(1) that providers commit to ensuring that *all* students have digital access while enrolled on their programme of study;

(2) that providers are transparent to prospective and incoming students before their programme of study commences regarding what digital equipment will be needed to complete their studies successfully;

(3) where students cannot meet these minimum digital requirements, providers should offer personalised, iterative approaches to resolving and mitigating digital exclusion in a constructive and supportive manner.

If providers adhered to these recommendations, HE would be an equitable, collaborative, and supportive environment for students to reach their potential, irrespective of their socioeconomic background or personal hardship. To expand on these recommendations, an overarching commitment to ensuring that *all* students have digital access is imperative in ensuring that students are not digitally excluded, enabling them to engage with and thrive in their

teaching and learning. In practical terms, this means that students have (a) appropriate hardware, (b) appropriate software, (c) robust technical infrastructure, (d) reliable access to the internet, (e) trained teachers, and (f) appropriate study spaces.

We acknowledge that providers can only ensure that students have digital access when they are physically on campus. It would be too onerous, and truthfully impossible, to try and ensure that students *always* have digital access on *and* off campus. Many providers likely meet *most* of these definitional elements, particularly (b) through (f). Unfortunately, as the academic literature, policy reports, and our research study illustrates, students become digitally excluded if *any* definitional elements are missing. In particular, our research shows that the element of digital access that many students do not have reliable and consistent access to is (a) appropriate hardware,[62] even when on campus, and this is where providers should place their immediate attention. This is because digital learning is now a constituent part of HE, such that hardware is needed for practically all aspects of students' learning, meaning that fixed-study spaces with access to appropriate hardware only solves *some* of the problems identified within this article; a portable device is now a necessity to *fully* engage within their teaching and learning.

Consequently, to ensure that providers meet recommendation (1), providers should include within students' tuition fees appropriate hardware for students upon the commencement of their programme of study, either in the form of a laptop computer or tablet computer (with keyboard), that is of the specification required for that programme.

This approach has tangible benefits for providers, teachers, and students. It ensures true equity of learning; that all students, irrespective of their background, are given the necessary tools to succeed in their studies. It also gives teachers the knowledge and confidence that all students can actively participate in and engage with their course/module learning resources without disadvantaging any student.

Suppose this recommendation is too ambitious/costly for providers. In that case, providers should ensure that all students who are unable to

[62] To reiterate, 'appropriate hardware' means hardware that allows students to access all course content effectively and is of the specification required to ensure that students are not disadvantaged in relation to their peers.

obtain/purchase appropriate hardware themselves, and therefore fail to meet minimum digital requirements, should be appropriately supported by their provider. Thus, providers should offer personalised, iterative approaches to resolving and mitigating digital exclusion; the pre- and post-data results overtly support this. In doing so, providers should be transparent to prospective and incoming students before their programme of study commences regarding what digital equipment will be needed to complete their studies successfully. This transparency will enable students to self-evaluate their circumstances; if they are, at any point during their studies, unable to meet these minimum digital requirements, HEIs must provide resources authentically and constructively to avoid any (perceived) stigma from students without access and not discourage them from notifying their provider of their exclusion.

Providers can be proactive in this regard and use, for example, contextual data and information from students' UCAS applications to reach out to students who may need additional support.[63] This might include self-declared information regarding (say) care system experience to enable providers to reach out for consultation into a student's digital learning needs. This approach would be similar to the process of contextual admissions used at HEIs, whereby contextual information and data can be used to assess an application for admission in light of, for example, a student's socio-economic background and geo-demographic data such as school code, and/or postcode. This may also help investigate if assistive software is needed should a student disclose an impairment on their application. It is also understood that this may not capture an entire cohort, given that applications may come through channels other than the UCAS system. Of course, any support offered should be available to *all* students at any point throughout their programme of study.

However, it is our view that drawing a line of 'hardship' between those suffering from such hardship, meaning they warrant/qualify for provider-level support, and those expected to purchase their own hardware is inherently problematic. Moreover, if students are expected to explain/apply why they suffer from such hardship, this may deter them from vocalising their digital exclusion. For this reason, and to further promote and embed a genuine commitment to EDI, we believe *all* students should be provided with appropriate hardware when they join.

[63] UCAS, the Universities and Colleges Admissions Service, is an independent charity, and the UK's shared admissions service for HE.

Alternatively, HEIs could offer interest-free loans to students (e.g., through a University Loan Fund) to enable students to purchase appropriate hardware necessary for their programme of study. However, the disbenefit of this approach is that students will have to start repaying the loan after an agreed term, even if they cannot do so. Consequently, defaulting on an unsecured loan will have significant negative implications for students (who are now graduates), such as poor credit scores, further perpetuating and embedding the entrenched socio-economic inequalities discussed throughout this paper. Instead of HEIs providing student loans, Student Finance England (or jurisdictional equivalent) could provide specialist finance to facilitate the purchase of appropriate hardware. The benefit of this approach is that graduates repay the 'loan' through income taxation, which is only triggered once graduates earn a specified minimum annual income.[64] The benefit of a 'graduate tax' system is that it can help prevent a HE market where students choose what to study based on their ability to pay. It can also ensure that high-earning graduates subsidise lower-earning graduates.

The authors would like to acknowledge that these final suggestions are far from ideal; they place the burden on (disadvantaged) students to absorb additional debt (or loss of income through taxation) to participate, engage, and, therefore, succeed in their programme of study. For these reasons and those outlined above, we are of the view that HEIs should be ultimately responsible for absorbing these costs, just in the same way that they are responsible for financing physical resources (e.g., campus lecture theatres, libraries, study spaces) and human resources (academic, professional, and support staff). Indeed, digital exclusion is, nonetheless, something HEIs will *have* to respond to. Institutions will be exposed to growing environmental expectations that no student is digitally excluded and that HEIs should assist in the provision of these resources. Succeeding in satisfying such expectations may lend legitimacy to the HEI's commitment to mitigating digital exclusion, which may benefit HEIs in the long term; resources for mitigating digital exclusion may

[64] At the time of writing, in November 2024, the repayment threshold for student loans in England, Northern Ireland, and Wales is £27,295 per year. For Scottish students, the threshold is £25,000. Once a graduate earns above the repayment threshold, they repay 9% of their gross income above the threshold.

then become more readily available through initiatives with other public and private organisations.[65]

Teacher-level recommendations

We offer the following teacher-level recommendations:

(1) that academic teaching staff should include a diverse range of digital learning tools to enhance the learning experience;

(2) co-create digital learning materials with students to provide engaging and collaborative learning experiences;

(3) consider those students with poor/reduced digital access when designing digital teaching and learning materials;

Digital technologies provide many possibilities for teachers in HE to enhance their teaching and learning practices.[66] However, there is also a danger that teachers use and rely upon analogue teaching methods within a digital environment. For instance, if teachers reproduce their learning materials in a digital format (e.g., handouts and presentations) and make them available online, the VLE becomes an online information/document repository and nothing more. However, VLEs *should* be social spaces where students interact with teachers, become co-creators of their learning, enrich classroom activities, and integrate heterogeneous technologies and pedagogical approaches.[67] As evidenced by the data from this study, the students surveyed were overwhelmingly positive regarding including embedded digital learning tools to aid their learning in and outside of the classroom (e.g., using Padlet, Google Docs, MS Teams polls etc.). Teachers should embrace this move to digital learning and embed such practices into their learning, especially within a discipline like law where there is a tendency to place an overreliance on traditional learning methods.[68] That is not to say that all learning should be digital; our students were vocal in requesting that a mixed diet be incorporated

[65] Saskia Köpsell and Simon Oertel, 'Digitalization attempts in higher education: the role of imprinting and the effect of business departments' (2024) Studies in Higher Education 1.
[66] S McKenzie et al, 'A team-teaching approach for blended learning: an experiment' (2022) 47(4) Studies in Higher Education 860-861; De Nito (n 21) 595; Pinto and Leite (n 3) 343.
[67] McKenzie (n 66) 871-872.
[68] A W Shavers, 'The Impact of Technology on Legal Education' (2001) 51(3) *Journal of Legal Education* 409.

into their learning, utilising *both* digital and analogue learning materials. However, this recommendation is subject to the following caveats.

First, teachers should co-create digital learning materials with their students where possible to provide engaging and collaborative learning experiences.[69] The idea of engaging 'students as partners' to co-create the curriculum has been commended for promoting more active and deeper engagement for both teachers and students in the learning and teaching experience.[70] The practice facilitates an open dialogue between teachers and students about meaningful best practices, redistributes classroom power dynamics, and empowers students to actively participate in pedagogical decision-making.[71] Despite support for this practice within the pedagogical and academic literature, research suggests it is not yet widespread.[72] This is likely because of the increased time and effort for all parties to meaningfully co-create the curriculum, including logistical problems regarding potentially asynchronous opportunities and times for teachers and students to engage in meaningful co-creation,[73] and that this practice challenges entrenched power dynamics as well as institutional structures and processes within HE.[74] Notwithstanding these barriers, empirical research illustrates that when students co-create learning materials, there is an increased sense of enjoyment and community in class.[75] While not all aspects of a student's curriculum need to be co-created, doing so with digital and in-class learning activities is a meaningful way to improve the student learning experience, which can be done without re-designing the programme. For example, teachers could work with students to decide (a) the

[69] McKenzie (n 66) 860. For the importance of reflecting teaching as it relates to improved teaching practice, see Biggs & Tang (n 33) 45-51. Co-creation can take many forms; for example, in-class formative exercises can be used to shape lesson plans.
[70] T Lubicz-Nawrocka, 'From Partnership to Self-Authorship: The Benefits of Co-Creation of the Curriculum' (2018) 2(1) *International Journal for Students as Partners* 47, 48.
[71] C Bovill, A Cook-Sather, P Felten and others, 'Addressing potential challenges in co-creating learning and teaching: Overcoming resistance, navigating institutional norms and ensuring inclusivity in student-staff partnerships (2016) 71(2) *Higher Education* 195.
[72] T Lubicz-Nawrocka, 'From Partnership to Self-Authorship: The Benefits of Co-Creation of the Curriculum' (2018) 2(1) *International Journal for Students as Partners* 47, 49.
[73] See: A Cook-Sather, C Bovill, and P Felten, Engaging Students as Partners in Learning and Teaching: A Guide for Faculty (Jossey-Bass, 2014).
[74] A Brew, 'Integrating research and teaching: Understanding excellence' in A Skelton (ed) *International perspective on teaching excellence in higher education: Improving knowledge and practice* (Routledge, 2007) 77.
[75] T Lubicz-Nawrocka and C Bovill, 'Do students experience transformation through co-creating curriculum in higher education?' (2023) 28)7 *Teaching in Higher Education* 1744.

area or topic that they would like to focus on within a particular teaching event, (b) the type of activity, and (c) the (digital) learning tool to be used. Had we followed this advice, we suspect this would have mitigated some of the issues faced in this study.[76]

Secondly, when designing learning and teaching materials, teachers need to consider the extent to which their provider supports digital access. If providers do not support *all* their students with digital access, then teachers need to have regard for those students in their classroom who might have poor/reduced digital access. For example, asynchronous alternatives could be made available for students with bad internet connections. As is demonstrated by the focus group comments, it may be the case that internet connectivity problems are not restricted to off-campus sites; WIFI connectivity problems may afflict students *on campus*, too.[77] However, the issue of poor connectivity on campus becomes more complex when planning synchronous and asynchronous learning materials for forthcoming academic years. This is because the timetabling of learning sessions may not appropriately fit with the planning cycle of learning materials. Therefore, if the responsibility is on teachers to understand the strength of connectivity in specific spaces and plan their synchronous and asynchronous materials appropriately, modules and courses must be timetabled sufficiently in advance of the academic year to provide an appropriate lead-in time for academics to plan for synchronous and asynchronous activities on-campus, as well as off-campus. As a small, final practical point, this also reiterates that teachers should upload all recorded materials in a timely fashion to ensure the inclusion of students with poor connectivity off-campus.

This is why our provider-level recommendations are so important. If providers do not follow these (or similar) recommendations to prevent digital exclusion, then teachers cannot, in good conscience, ask their students to participate

[76] We consider this to be the case as it would have allowed for a quantitative change in learning, in allowing students to spend more time on relevant tasks, as well as a qualitative change in learning, in making meaning of the learning activity, through reflection and sharing of experiences as to (a) how students learn best with digital technologies, and (b) how this may have applied to the particular module. See A Kirkwood and L Price, 'Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? A critical literature review' (2013) 39(1) *Learning, Media and Technology* 6, 16-17.

[77] One solution currently implemented in our institution is to provide clear signage highlighting the strength of WIFI connectivity in that particular space on campus; students can then plan their learning activities appropriately or find spaces with good connectivity.

digitally. Consequently, our project clearly illustrates the need to build learning and procure technology around digital access currently available to students.[78]

Conclusion

This paper has reflected on some of the implications of contemporary legal education. More specifically, the implications caused by relying on digital technologies as a fundamental and obligatory component of how HEIs deliver their teaching and learning. It has shown that while there are many benefits to moving away from 'traditional' and analogue legal education, there are also dangers. In particular, some students might be/or become digitally excluded, resulting in an inequitable learning (and social) experience. It is our view that HEIs should commit to ensuring that *all* students have digital access during their programme of study. To do this, we have offered several pragmatic and practical recommendations at the provider level. If implemented, these would make strides in the right direction to ensure equity of learning. However, these changes are unlikely to be wholesale and immediate. Therefore, we have also offered several teacher-level recommendations that can be implemented to mitigate digital exclusion, which can and should be implemented with regard to their HEI's approach to digital exclusion. In summary, unless HEIs proactively resolve to ensure that all students have digital access, they will continue to maintain and reinforce social-economic inequalities within HE.

[78] *Gravity* (n 11) 23.