Editorial: Learning/Technology

Paul Maharg

Routledge
Taylor & Francis Group

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techne is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. *Techne* belongs to bringing-forth, to *poiesis*; it is something poetic.[1]

Learning/technology

Over a decade ago the Editorial for the last special issue of *The Law Teacher* on the subject of legal education and technology described new wireless and learning environments, and finished with a question:

School children […] will be coming through to our undergraduate law courses in a couple of years, and we need to provide similarly sophisticated and converged learning environments. Are we ready for them?[2]

This special issue is not the answer, because perhaps it was the wrong question – or maybe a question was the wrong syntax. For technology is not a question, and neither is it an answer to any question. It is quite simply the condition that we find ourselves in, and always have. Indeed it is scarcely possible to think of learning without technology, or vice versa, or learning coming about without some form of technology being part of the experience. That fused relationship, the phenomenology of which is explored in this special issue, is a relationship I shall describe as "learning/technology".

And there seems to be ever more to interpret and use in legal education when we consider the current field of learning/technology: innovation is ceaseless. Three brief examples reveal the scale of innovation which, I would hazard a guess, will continue to be developed in the next decade:

(1) In the last few years we have witnessed remarkable advances in what might be termed the mobilisation of our culture – mobile devices and software applications built around most of our daily activities, allied to data collection on a global, massive scale. Always-on and mobile are

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[1]M. Heidegger, "The Question Concerning Technology", in D.F. Krell (ed.), *Martin Heidegger: Basic Writings* (London, Routledge & Kegan Paul, 1978), p. 294.
[2]P. Maharg and A. Muntjewerff, "Editorial" (2005) 39 *Law Teacher* 1, 8.

now becoming the norm, and their cultures will affect every aspect of legal learning.

(2) Advances in what might appear to be more exotic algorithmic applications will be of direct use in learning/technology. The blockchain, for instance, often associated with the cryptocurrency Bitcoin, is in its essence a distributed ledger that is a record of all transactions made using the ledger. It is an application that can be used for financial instruments, payment systems,[3] contracts, voting systems, identity systems, and utility asset management (electricity, water, etc).[4] It could, with other applications, become the infrastructure for a law school.

(3) If exocortices are no longer below the horizon of possibility, and the concept is already with us in terms of brain–computer interfaces (BCIs) such as Emotiv Systems' Insight device, then the cybernetic exocortex will have a significant effect on educational and professional legal skills and will transform personal learning. When they are allied with sophisticated communications interfaces, of which Amazon's Echo is merely a precursor, there is the possibility to create a much more dialogic legal education tutor than before.[5]

Above all, since the last special issue on law and technology we have seen the massive growth of the digital social media revolution. How might it look if we made serious efforts to develop digital academic and professional social learning? We can learn much from sophisticated sites such as Spotify, a music streaming service. Once you sign up to Spotify its algorithms get to work and begin to notice what you like, and send you recommendations. There is a Now feature that will recommend items based on your habits at a particular time of day. You can browse millions of items online or many hundreds of radio

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[3]Such as payments to artists and musicians over the web – see [No author], "Imogen Heap on Blockchain Technology and the Future of the Music Industry", *The Guardian*, 7 October 2015. Available at http://www.theguardian.com/membership/video/2015/oct/07/imogen-heap-block chain-technology-future-music-industry-video (accessed 8 October 2015). For a general introduction to blockchain, see [No author], "The Trust Machine. The Technology Behind Bitcoin Could Transform How the Economy Works", *The Economist*. Available at http://www.economist.com/news/leaders/21677198-technology-behind-bitcoin-could-transform-how-economy-works-trust-machine (accessed 31 October 2015).

[4]Indeed in the iterations that the company Ethereum are managing, it could be used for almost any purpose. See Ethereum, https://www.ethereum.org (accessed 1 August 2015).

[5]An exocortex is a wearable or implanted computer that augments our brain and its cognitive processes. See https://emotiv.com (accessed 21 October 2015). It is interesting to note that unlike other consumer-oriented producers of BCIs, Emotiv have introduced software development kits or SDKs in order to stimulate the development of BCI apps. There are already open-source BCIs – see http://openbci.com (accessed 21 October 2015). For a video of a 3D printed robotic hand controlled by EMG signals from an Ultracortex headset on a developer's scalp, see https://www.youtube.com/watch?v=Za5lJfxYxWg (accessed 18 February 2016). These examples are also reasons to extend legal education inquiry into new disciplinary domains – biosocial science for instance, or evolutionary psychology.

stations classified according to genre, and keep a record of your activity – who you are following, who follows you, what you chat about. It helps you find friends and helps others to follow what you make public online. It picks up on what you have stored offline in iTunes. You can share your playlists, listen to those of others, organise playlists into folders and subfolders. A playlist becomes an art work – it allows you to manage the streams and blocks of sound for effect, to compare or contrast one arrangement with another (e.g. create a theme and variations structure for instance), to arrange artists or how to match playlist to occasion. And if you tire of the bubble called me, the app will send you a Discover Weekly playlist with new artists and albums.

Imagine this were created for our students' learning. In place of tracks and albums there are journal articles, chapters, reports and books. Artists are authors. A tutor posts up a basic playlist, and this is collaboratively added to by the class. There is discussion of the ways the items relate to each other. Some research management apps are close to this, but are highly proprietorial, and do not open up the possibilities of presenting textual argument in different ways (unless tied to the platform for commercial reasons, of course). In Spotify, Touch Preview gives a quick overview of each item (like a mini abstract), combining audio (for preview) and visual (for navigation). And note how the working culture in Spotify's organisation was shaped in order to create this and other apps that are the core of its business:

> Spotify has a long history of spitting out new and interesting features from week-long hackathons. It tells its employees to forget their normal jobs, tackle a problem and solve it in a creative way. The Top Tracks feature that debuted last month was born of a hackathon and now, thanks to another week of blowing off of their regular responsibilities, the company has Touch Preview: a feature designed to aid in the lost art of music discovery.[6]

Imagine an open architecture where students can, interdisciplinarily, engage in such creativity, adapting and making tools in this way. We are not so far from Heidegger's fusing of *techne* and *poiesis*, surely?

Imagine, because that's all most of us can do at present, for a variety of reasons, and the future for such intense innovation is not looking good. With significant exceptions (some of which are described in this issue) our ability to develop pedagogic experiments into systemic innovation is poor; and law schools (mirroring HE generally) are slow to develop new curricula that exploit digital innovation. The reasons for this are well known – bureaucratic processes, slow decision cycles, competing demands on staff, unclear lines of responsibility for curriculum change (compare Spotify's method of creating functionality, above, to your last

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[6]T. O'Brien, "Spotify's Touch Preview Lets You Sample New Songs Quickly", *Engadget*, 22 January 2015. Available at http://www.engadget.com/2015/01/22/spotifys-touch-preview/ (accessed 22 March 2015).

departmental meeting or workshop).[7] A succinct answer to the question posed at the end of the last special issue's Editorial, then, would have to be in the negative: we were not ready a decade ago, and prospectively, on present performance, we don't look like we're ever going to be ready. We are lagging ever further behind the marvellous uses of data exchange in everyday objects all around us – in satnav devices, sports and health devices, in our vehicles, in our household devices, even in our bike locks.[8]

Learning/technology research data

Worse still, we now know even less about what our law schools are doing as regards learning/technology and innovation than we did a decade ago. Maharg commented recently on the current lack of information, comparing it to the three BILETA reports in the 1990s that gave researchers a sense of the field, gave law teachers interested in technology ideas that were cutting edge in other law schools, allowed regulators to appreciate what teachers and students were doing, and reassured the public that legal education was indeed not just about analogue learning and assessment when the world was turning digital.[9] But since the last of them, we have had very little information. The National Student Survey (NSS), proving yet again Goodhart's Law that when a measure becomes a target it ceases to be a good measure, gives us little useful data in this regard.[10] Instead of the NSS and its "fact-totems" we need thoughtful, insightful data, perhaps along the lines of the Law School Survey of Student Engagement (LSSSE) in the USA.[11] We also need more information on the cultures, practices and effectiveness of technologies in our law schools.

Not only are we in danger of not knowing what is happening in the present. We are also losing the past. There is no central record of technologies in use in legal curricula. We seem to care so little about the history of learning/

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[7]See R. Johnson and P. Bird, *Supporting Responsive Curricula Project. Baseline Report* (JISC, 2009). Available at http://www.jisc.ac.uk/media/documents/programmes/curriculumdesign/srcbaselinere portv1.0.doc (accessed 26 August 2014).

[8]See Skylock, http://www.skylock.cc (accessed 2 February 2015). It should be noted that corporate publishers such as Pearson have been making significant attempts to capture the online digital markets in higher education, creating online for-profit platforms as well as publishing blended content, in online and printed texts. In addition, their journal research pricing practices are causing concern for both our libraries and our institutions.

[9]P. Maharg, "Shared Space: Regulation, Technology and Legal Education in a Global Context" (2015) 6 *European Journal of Law and Technology*. Available at http://ejlt.org/article/view/425 (accessed 3 October 2015).

[10]The data that the NSS produces is overwhelmingly shadowed by its use in league tables. The problematic consequences of this for the future of innovation in HE has been pointed out by others.
[11]For fact-totems and the NSS, see D. Sabri, "Student Evaluations of Teaching as 'Fact-Totems': The Case of the UK National Student Survey" (2013) 18(4) *Sociological Research Online* 15. Available at http://www.socresonline.org.uk/18/4/15.html (accessed 2 October 2015). Cocksedge and Taylor argued against generic data produced by NSS, and for disciplinary-specific instruments and data (in their case, medical education) – see S.T. Cocksedge and D.C.M. Taylor, "The National Student Survey: Is It Just a Bad DREEM?" (2013) 35 *Medical Teacher* e1638. For information on LSSSE see http://lssse.indiana.edu (accessed 2 November 2015).

technology that we do not organise the recording and archiving of its history. Even worse, we do not analyse the research that is already there, in meta-reviews and systematic reviews, for ourselves and others to read.[12]

Other disciplines are more professional about the organisation of their work. In medical education, should we be interested in the history and state-of-the-art in educational technology, there are ample resources to understand the field and how it has developed. There are whole-nation studies, such as the one carried out over 15 years ago in Finland, that take a variety of research approaches from whole-nation surveys to the archaeological equivalent of "post-holing" that is, testing the ground in specific studies of universities.[13] On the problematic issue of student knowledge and use of digital technologies, an influential study of student knowledge and use of scholarly digital tools in Australia of over 2000 students entering HE[14] was accompanied in medical education by an almost immediate line of studies beginning with the substantial semi-structured online questionnaire survey of 3000 medical students and 3000 qualified medical practitioners (consultants, general practitioners and doctors in training) in the UK on the British Medical Association's membership database, while other researchers developed the literature further.[15] The issue of digital technology use in education exercised a working group of medical educators and physicians sufficiently for them to come together as part of an international faculty development conference in February 2010 to discuss the changing role of instructional technologies and make important recommendations for supporting faculty in using these technologies in medical education.[16] Following this were more detailed studies of student use of applications such as YouTube and video games.[17]

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[12]I can find only one example of a systematic summary of research on learning/technology in legal education in the past four decades: P. Maharg and E. Nicol, "Simulation and Technology in Legal Education: A Systematic Review and Future Research Programme", in R. Grimes, E. Phillips and C. Strevens (eds), *Legal Education: Simulation in Theory and Practice* (Aldershot, Ashgate Publishing, Emerging Legal Education series, 2014), 17. Compare with the statistically much more sophisticated results in D.A. Cook, P.J. Erwin and M.M. Triola, "Computerized Virtual Patients in Health Professions Education: A Systematic Review and Meta-Analysis (2010) 85 *Academic Medicine* 1589. It is commonly said of systematic analyses and meta-reviews that they are only as good as the articles reviewed. We ended our review with recommendations for data collection in future empirical studies on the subject.

[13]V. Slotte, M. Wangel and K. Lonka, "Information Technology in Medical Education: A Nationwide Project on the Opportunities of the New Technology" (2001) 35 *Medical Education* 990.

[14]G.E. Kennedy, T.S Judd, A. Churchward, K. Gray and K.L. Krause, "First Year Students' Experiences with Technology: Are They Really Digital Natives?" (2008) 24 *Australasian Journal of Educational Technology* 108.

[15]See J. Sandars and S. Schroter, "Web 2.0 Technologies for Undergraduate and Postgraduate Medical Education: An Online Survey" (2007) 83 *Postgraduate Medical Journal* 759. For development of the literature, see C. DiLullo, P. McGee and R.M. Kriebel, "Demystifying the Millennial Student: A Reassessment in Measures of Character and Engagement in Professional Education" (2011) 4 *Anatomical Sciences Education* 214.

[16]B. Robin, S.G. McNeil, D.A. Cook, K.L. Agarwal and G.R. Singhal, "Preparing for the Changing Role of Instructional Technologies in Medical Education" (2011) 86 *Academic Medicine* 435. And note that medical educators and physicians came together to discuss and publish on the issue of learning/ technology in the discipline.

[17]See for example J.M. Farnan, J.A.M. Paro, J. Higa, J. Edelson and V.M. Arora, "The YouTube Generation: Implications for Medical Professionalism" (2008) 51 *Perspectives in Biology and Medicine* 517.

The results from these and many more studies on technology use were summarised in systematic summaries (e.g. on social media use) and guides for staff.[18] It is worthwhile pausing to consider the last item by Ellaway and Masters. It is one of a series of Guides published by AMEE, the Association for Medical Education in Europe. AMEE is an international organisation, drawing on expertise globally, and this is reflected in the authorship of the Guides, currently 98 in total.[19] Guide 32 focuses on learning, teaching and assessment in e-learning. Guide 33, by the same authors, deals with technology, management and design in e-learning. The role of AMEE is crucial in providing the infrastructure to publish the Guides, and in producing other publications such as Best Evidence Medical Education (BEME) Reviews (described as the "highest-standard, peer-reviewed reports of evidence available relating to medical and health professions education").[20] It also hosts an international conference, and publishes a journal, *Medical Education*, now in its 38th year, and published *12* times annually. In all this, AMEE works closely with students, medical educators, physicians, medical scientists, regulators and others. And AMEE is not the only such organisation in medical education – others exist doing similar activities.

Compare our infrastructure in legal education in these isles. There is nothing remotely of the size or effectiveness of AMEE. The only organisation to come near it in scale was the UK Centre for Legal Education at Warwick (UKCLE), but with a significantly different funding model from AMEE, and sadly defunct since 2011. There are of course major differentials in the funding of medical and legal education, but the comparison shows how much we can learn from medical education, and how we might set about organising our own disciplinary research. In 2013 the Legal Education and Training Review noted the state of research organisation and argued, in Recommendation 25, for a collective effort to improve the situation – a call that to date has been ignored by academics and regulators.[21] The result can only be a worsening of the quality of our research in the long term, and a worsening, too, of the situation for empirical research in legal education, along the lines described by the Nuffield Report on empirical socio-legal research.[22]

We need to improve the situation; and so this special issue Editorial calls for academic and professional bodies and groups that are nationally and internationally active in legal education to begin the process of developing and

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[18]C.C. Cheston, T.E. Flickinger and M.S. Chisholm, "Social Media Use in Medical Education: A Systematic Review" (2013) 88 *Academic Medicine* 893; R. Ellaway and K. Masters, "AMEE Guide 32: E-Learning in Medical Education Part 1: Learning, Teaching and Assessment" (2008) 30 *Medical Teacher* 455.
[19]See http://www.amee.org/publications/amee-guides (accessed 18 February 2016).
[20]See http://www.bemecollaboration.org/ (accessed 22 September 2015).
[21]J. Webb, J. Ching, P. Maharg, A. Sherr, *Setting Standards. The Future of Legal Services Education and Training Regulation in England and Wales* (SRA, BSB, IPS, 2013), xviii.
[22]See H. Genn, M. Partington and S. Wheeler, *Law in the Real World: Improving Our Understanding of How Law Works. Final Report and Recommendations* (London, The Nuffield Foundation, 2006).

organising research infrastructures for learning/technology and its dissemination to the communities interested in and affected by legal education.

Article summaries

Legal educational discourse is crowded with metaphors and metonymies to explain what we do with technology. "Multimedia", "e-tutorials", "learning management system", "online learning", even "technology" itself are terms that define how we may (mis-)perceive our current practices. They reveal how we can (mis-)interpret the history of learning/technology – how we sometimes de-historicise it, and thus misunderstand the remarkable development and uses of technologies in earlier societies and cultures. In the process, we can mistake what is happening to our own cultures of learning/technologies now; and our future is thus more difficult to interpret and shape. In our articles in this special issue we seek to clarify the issues we see as important to the present and future of learning/technology, but also to reveal significant genealogical lines in the past that affect us today.[23]

Emily Allbon focuses on how multi-disciplines are essential to the new roles that information literacy places within the law school. Arguing against the position that digital technologies make us reliant upon them and less able to think for ourselves, she takes the view that literacies and meta-literacies are essential to our understanding of how to use new technologies. As a case study, she analyses the power of the visual in legal search and notes in conclusion three areas for development: academics working with librarians, visual legal learning, and the necessity to link learning/technology with what is happening beyond law school.

Kris Greaves explores a new field for legal education research, namely the emergent methods for "computer-aided qualitative data analysis of social media". There are concerns about the collection, analysis and use of quantitative data on education in the UK, particularly given our experiences of NSS league tables and the stated intention of the Teaching Excellence Framework Green Paper to "provide a state-sanctioned view of teaching 'excellence'".[24] Kris however focuses on the close relationship between qualitative data in social media and learning and gives two examples – the first involving analysis of social media discussions of topics or events, and the second focused on

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[23]The peer review processes used for this special issue are the same as those used for the last special issue a decade ago, and described in detail at N. Duncan and P. Maharg, "Black Box, Pandora's Box or Virtual Toolbox? An Experiment in a Journal's Transparent Peer Review on the Web" (2007) 21 *International Review of Law, Computers & Technology* 109.

[24]For the TEF Green Paper, see "Higher Education: Teaching Excellence, Social Mobility and Student Choice". Available at https://www.gov.uk/government/consultations/higher-education-teaching-excellence-social-mobility-and-student-choice (accessed 20 November 2015). See also Academics Anonymous, "Our Obsession with Metrics Turns Academics into Data Drones", *The Guardian*, 27 November 2015. Available at http://www.theguardian.com/higher-education-network/2015/nov/27/our-obsession-with-metrics-turns-academics-into-data-drones (accessed 25 November 2015).

analysis of legal educators' scholarly communications. Given the situation out-lined above regarding the need for further scholarship and better organisation in learning/technology, as well as the immensity of the digital data ocean we inhabit, sophisticated qualitative data analysis is an important step for us to take.

Craig Newbery-Jones explores game-based digital technologies, and speci-fically video games. In a wide-ranging article that takes in much of the recent research on the subject, and building on the work of other scholars and splicing pedagogic scholarship with that on video games, he argues that such games can become "an engaging method for phenomenological experimentation with abstract conceptions of justice and ethical responsibility to encourage a greater understanding of these values". His article holds promise for almost every level of legal education in the law school and beyond. As well as theoretical analysis there are practical discussions of the part that games can play to enhance learning of ethics and justice.

Dan Jackson's article focuses on how new technology tools can be designed such that they are responsive to evolving human needs. He argues that one successful approach is to integrate technology instruction with training in human-centred design approaches. His article explores what human-centred design actually involves. He begins with an outline of the developing state of technology education in US law schools, noting that if current trends are maintained, "by the end of this decade a solid majority of American law schools will include technology instruction in their curricula". To this he adds instruction on human-centred design principles and approaches, and in the final section of his article he gives examples of the approach and projects he advocates from the NuLawLab at Northeastern University Law School, Boston.

Craig Collins' article by contrast focuses on the past to springboard us into an alternative future. It is a reflection on narrative and identity, and makes a plea for new methods and new curricula to embody new technologies. He traces the effects of Ramist philosophies of education within legal educational culture, and argues for their abandonment in fresh approaches to curriculum design. These include curricula that are designed to frame "a journey of personal transformation" operating at both the level of curricula and segments of learning. He suggests a story interface or narrative arc approach to educa-tional design, rather than merely moving online the conventional Ramist/text-book curriculum model.

Paul Maharg takes an instance of what is often taken as commercial and technological change, namely disintermediation, and shows how its presence in legal curricula, hitherto unregarded, poses serious issues for the future of the learning/technology relationship. He takes two case studies, namely open access learning and legal research, shows the effects of disintermediation in each and considers both the challenges and the opportunities each presents to legal educators.

There are many cross-cutting themes. Maharg and Collins reach back to the pre-modern history of technology and legal education that has something to say to us today. The concepts of simulation and proxy, at the core of Newbery-Jones' article, depend on active participation, which also is at the core of Allbon's and Jackson's approaches. Jackson's emphasis on the creativity that we require to design into the legal curriculum is echoed in almost all the articles in one way or another, and in the organic creative growth described by Collins in particular. Both Jackson and Newbery-Jones focus specifically on the use of digital games in legal education. Allbon and Maharg both deal with textual, digital and visual literacies, emphasising different aspects of their use. Data and its use, the focus of Greaves' article, appear in most others. All authors are of one mind, that learning/technology could contribute much more in our current curricula. All show how interdisciplinarity is essential for the fusion of learning/technology, and in many ways how that improvement could be effected by our collaboration with each other, with students, regulators, funders and many others.

The articles are but a snapshot of corners of the vast and growing field of learning/technology, and the processes by which *techne* and *poiesis* may bring each other forth. This special issue's Editorial therefore does not end by asking its readers a question. Instead it invites you to comment upon and ask your own questions – of the pieces here and what they suggest to you; to think creatively about your experiences of learning/technology in your lives; to reflect on your identity as digital beings. On publication date we shall release a public forum for debate at http://paulmaharg.com, and we shall be ready for your comments and questions. Should the experiment take off, we will consider publishing the forum as a unique internet publication, under the aegis of the PEARL (Profession, Education and Regulation in Law) Centre's PEARL Press imprint.[25] Over to you …

Disclosure statement
No potential conflict of interest was reported by the author.

Paul Maharg
*Professor of Law, The Australian
National University College of Law, Canberra, Australia;
Professor of Law, Nottingham Law School, Nottingham
Trent University Law School, Nottingham, UK*

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[25]See https://pearl.law.anu.edu.au (accessed 20 November 2015).