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A RATIONALE AND FRAMEWORK FOR DIGITAL LITERACIES IN LEGAL EDUCATION

KATE GALLOWAY*

I INTRODUCTION

Assessments of the fitness for purpose of legal education are many and varied. Both broad and specific reviews have been frequently undertaken in the context of higher education, admission requirements and professional standards, and national productivity.¹ Additionally there have been influential projects on matters that inform the way in which legal education is designed. Within the academy, work on internationalisation of the curriculum² for example, has provoked discussion internationally.³ In the higher education context, education

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¹ In Australia, see, eg, Law Admissions Consultative Committee, 'Review of Academic Requirements for Admission to the Legal Profession' (Review, Council of Chief Justices, 2015) <<https://www.lawcouncil.asn.au/resources/law-admissions-consultative-committee/review-of-academic-requirements>>; Productivity Commission, 'Access to Justice Arrangements' (Inquiry Report No 72, Productivity Commission, 5 September 2014) <<https://www.pc.gov.au/inquiries/completed/access-justice/report/access-justice-volume2.pdf>>; Council of Australian Governments, 'COAG National Legal Profession Reforms: Report on Key Issues and Amendments Made to the National Law Since December 2010' (Report, Council of Australian Governments, 2010) <http://www.justice.nsw.gov.au/Documents/LPR_Documents/pdf/NLPR_Report_key_amendments_LegalProfessionNationalLaw_since_Dec2010.pdf>; Richard Johnstone and Sumitra Vignaendra, 'Learning Outcomes and Curriculum Development in Law' (Report, Australian Universities Teaching Committee, January 2003); Australian Law Reform Commission, *Managing Justice: A Review of the Federal Civil Justice System*, Report No 89 (2000); Consultative Committee of State and Territorial Law Admitting Authorities, *Uniform Admission Requirements: Discussion Paper and Recommendations*, Discussion Paper (1992) resulting in the *Uniform Admission Rules* (1993); Dennis Pearce, Enid Campbell and Don Harding, 'Australian Law Schools: A Discipline Assessment for the Commonwealth Tertiary Education Commission' (Report, Commonwealth Tertiary Education Commission, 1987).

² Duncan Bentley et al, 'Internationalising the Australian Law Curriculum for Enhanced Global Legal Education and Practice' (Final Report, Curtin University, 2012) <<http://www.olt.gov.au/project-internationalising-australian-law-curriculum-enhanced-global-legal-education-and-practice-20>>.

³ Christopher Gane and Robin Hui Huang (eds), *Legal Education in the Global Context: Opportunities and Challenges* (Routledge, 2016).

for sustainability⁴ and Indigenous perspectives⁵ has resonance for legal education. Likewise, the profession is increasingly grappling with issues such as wellness and resilience,⁶ and gender,⁷ each of which flow on to legal education. The contemporary contexts facing legal education, however, do not stop here.

The premise on which this article is based is that Australian legal education, as a system, fails to equip graduates to engage in a society increasingly mediated by digital technologies.⁸ Such a society represents the ‘broader context of the law’ and to navigate it as a law graduate requires particular professional skills, knowledge and attitudes.⁹ If this is the case, then an evaluation of legal education generally is likely to reveal that it is not fit for this purpose, despite the innovation occurring in individual instances. While celebrating such practice, this article instead argues for a whole of curriculum, or immersion, approach to digital literacies, and considers digital technologies a ‘broader context’ of the law.

Despite persistent criticism¹⁰ that the law curriculum has regressed with the neoliberal turn, there is evidence to suggest an increasing awareness of broader contexts of the law.¹¹ This term is used in the Discipline Standards for Law¹² as part of the threshold learning outcome (‘TLO’) on discipline knowledge expected of graduates.¹³ While the Discipline Standards themselves may be regarded as representing the problem of managerialism,¹⁴ their inclusion of these

⁴ Geoff Scott et al, ‘Turnaround Leadership for Sustainability in Higher Education’ (Final Report, University of Western Sydney, 2012) <<http://www.olt.gov.au/project-turnaround-leadership-sustainability-higher-education-2011>>.

⁵ Larissa Behrendt et al, ‘Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People’ (Final Report, Department of Education and Training, July 2012).

⁶ See Wellness Network for Law, *Wellness for Law* <<http://wellnessforlaw.com/>> arising out of the ALTC Fellowship of Rachael Field.

⁷ Urbis Pty Ltd, ‘National Attrition and Re-Engagement Study (NARS) Report’ (Report, Law Council of Australia, 2014) <<https://www.lawcouncil.asn.au/policy-agenda/advancing-the-profession/equal-opportunities-in-the-law/national-report-on-attrition-and-re-engagement>>.

⁸ See, eg, Lee Rainie and Barry Wellman, *Networked: The New Social Operating System* (MIT Press, 2012).

⁹ See, eg, Richard Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future* (Oxford, 2013).

¹⁰ Margaret Thornton and Lucinda Shannon, ‘“Selling the Dream”: Law School Branding and the Illusion of Choice’ (2013) 23 *Legal Education Review* 249; Margaret Thornton, ‘Inhabiting the Neoliberal University’ (2013) 38 *Alternative Law Journal* 72.

¹¹ Alex Steel, *Good Practice Guide (Bachelor of Laws): Law in Broader Contexts* (Australian Learning and Teaching Council, 2013).

¹² Sally Kift, Mark Israel and Rachael Field, *Bachelor of Laws Learning and Teaching Academic Standards Statement* (Australian Learning and Teaching Council, 2010).

¹³ ‘In the language of the Australian Qualifications Framework (AQF), the TLOs represent what a Bachelor of Laws graduate is expected “to know, understand and be able to do as a result of learning”.’ Ibid 1.

¹⁴ See, eg, the critique generally in Frank Carrigan, ‘They Make a Desert and Call It Peace’ (2013) 23 *Legal Education Review* 313; Joachim Dietrich, ‘Law Threshold

broader contexts may also represent a positive sign of mainstream challenge to the ‘old days’ of rigid and decontextualised doctrine.¹⁵

Broader contexts draw together a variety of themes and issues reflected in legal education and offer the opportunity for a more critical and engaging learning experience resulting in a more rounded graduate.¹⁶ There is, of course, no real limit to the broader contexts of the law. The recent remote and regional legal education project¹⁷ is one example that moves beyond higher profile thematic approaches but which addresses contemporary issues within the profession.¹⁸

This article proposes a further broader context of the law: that of digital technologies. Understanding and engaging with digital technologies as a broader context requires digital literacies. While there are a number of respected advocates of law and technology and legal education,¹⁹ there appears to be little engagement in Australian literature with digital literacies as an organising concept for legal education. This article seeks to grapple with this idea, proposing a broad framework.

The first part of this article seeks to interpret digital literacies in the context of legal education. It views both what digital literacies might mean in a higher education context, and how technologies are shaping the nature of lawyers’ work. It becomes clear that digital literacies are of central concern to a re-imagined legal education as preparation for contemporary and future legal practice, and informed citizenship. Further, if law graduates require digital literacies, then so too do legal academics. This article therefore proposes a framework within which to design an immersion law curriculum at a ‘macro’ (whole of course) level, to assist legal academics to understand how to embed digital literacies systematically within the curriculum.

The broad platform suggested in this article is a modest starting point from which to understand digital contexts of law and in turn, to establish the need to develop graduates’ digital literacies in legal contexts, through immersion of digital contexts within legal education.

Lowers the Bar’, *The Australian* (Sydney), 30 March 2011 <<http://www.theaustralian.com.au/higher-education/opinion-analysis/law-threshold-lowers-the-bar/story-e6frgcko-1226030258554>>.

¹⁵ Gabrielle Appleby, Peter Burdon and Alexander Reilly, ‘Critical Thinking in Legal Education: Our Journey’ (2013) 23 *Legal Education Review* 345.

¹⁶ Kate Galloway, ‘Refreshed in the Tropics: Developing Curriculum Using a Thematic Lens’ (2011) 4 *Journal of the Australasian Law Teachers Association* 119.

¹⁷ Rural and Regional Legal Education Network, *Rethinking Law Project* <<http://web.archive.org/web/20141229172603/http://rrlen.net.au/rethinking-law-project/>>; Amanda Kennedy et al, ‘Educating Law Students for Rural and Regional Legal Practice: Embedding Place Consciousness in Law Curricula’ (2014) 24 *Legal Education Review* 6.

¹⁸ Law Council of Australia, *Rural, Regional and Remote Areas Lawyers* <<https://www.lawcouncil.asn.au/policy-agenda/advancing-the-profession/rural--regional-and-remote-areas-lawyers>>.

¹⁹ See, eg, Richard Susskind, *The Future of Law: Facing the Challenges of Information Technology* (Oxford, 1998); David I C Thomson, *Law School 2.0: Legal Education for a Digital Age* (LexisNexis, 2009).

The rapid and exponential rise of digital technologies²⁰ is already affecting every aspect of the law²¹ and, consequently, legal education.²² It is starting to become apparent that the transformation of the discipline within these new contexts will require new skills and knowledge. Because of the likely magnitude of change facing law in digital contexts, this article goes no further than articulating the challenge for legal education, and a possible framework in response. It is suggested that the framework provides scope for exploring the suggested components in greater depth. This includes comprehending the effect of digital technologies on the law, on legal practice, and on the structure of legal education. The first step however, is to understand the notion of digital literacies in legal education.

II DIGITAL LITERACIES IN LEGAL EDUCATION

Digital literacies are familiar in the higher education context, although beyond the specialist educational field of multiliteracies, the term has evolved fairly organically. Originally educational discourse was concerned with literacy (singular) alone, in its narrowest sense indicating a capacity for appropriate written communication and comprehension skills in an academic context.²³ Learning and teaching scholarship has however increasingly adopted the plural, ‘literacies’, to represent ‘an expanded concept of literacy that emphasises the diversity of social and cultural practices that are covered by the term’.²⁴ Literacies can therefore be academic,²⁵ professional,²⁶

²⁰ See, eg, Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress and Prosperity in a Time of Brilliant Technologies* (W W Norton, 2014); Gerd Leonhard, *Technology vs. Humanity: The Coming Clash between Man and Machine* (Fast Future, 2016).

²¹ See Kate Galloway, *Text to Bits: Beyond the Revolution in Law and Lawyering* (2 October 2016) SSRN <<https://ssrn.com/abstract=2879220>>.

²² See, eg, Law Society of England and Wales, ‘The Future of Legal Services’ (Report, Law Society of England and Wales, 28 January 2016); Michele R Pistone and Michael B Horn, ‘Disrupting Law School: How Disruptive Innovation Will Revolutionize the Legal World’ (Report, Clayton Christensen Institute, 15 March 2016); Law Society of England and Wales, ‘Capturing Technological Innovation in Legal Services’ (Report, Law Society of England and Wales, 25 January 2017); Law Society of New South Wales, ‘Flip: Future of Law and Innovation in the Profession’ (Report, Law Society of New South Wales, 2017). For analysis of the Law Society of New South Wales Report, see Kate Galloway, ‘“Add Tech and Stir” is No Recipe for Innovation’ on Kate Galloway, *Katgallow* (7 April 2017) <<https://katgalloway.net/2017/04/07/add-tech-and-stir-is-no-recipe-for-innovation/>>.

²³ For an overview of the development of ‘a pedagogy of multiliteracies’, see Bill Cope and Mary Kalantzis, ‘“Multiliteracies”: New Literacies, New Learning’ (2009) 4 *Pedagogies: An International Journal* 164.

²⁴ Robin Goodfellow, ‘Literacy, Literacies and the Digital in Higher Education’ (2011) 16 *Teaching in Higher Education* 131, 133.

²⁵ See, eg, Mary R Lea and Brian Street, ‘Writing as Academic Literacies: Understanding Textual Practices in Higher Education’ in Christopher N Candlin and Ken Hyland (eds), *Writing: Texts, Processes and Practices* (Routledge, 1999) 62; C Jacobs, ‘Academic Literacies and the Question of Knowledge’ (2013) 47(2) *Journal for Language Teaching* 127.

visual,²⁷ learning,²⁸ and emotional²⁹ — they encompass a wide variety of communication practices.³⁰

The idea of ‘digital’ too has evolved in the higher education context. In prior iterations, ‘digital’ (notably in the case of learning) has been described as “computer” (-based, -assisted and -mediated), “online”, “networked”, “web-based” and the now ubiquitous “e”.³¹ The context for literacies is thus increasingly broad. Goodfellow, for example, describes digital literacies as conflating ‘a number of “literacies of the digital”, including information and communications technology (ICT) literacy, technology literacy, information literacy, media literacy, visual literacy and communications literacy’.³² The discussion in this article is based upon this more expansive view of digital literacies.

In terms of ICT literacy, scholarship in teaching and learning has paid particular attention to improving student learning and the student experience through blended learning, online courses and integrated social media.³³ While arguably a part of developing students’ digital literacies involves incorporating digital technologies in teaching, the focus here is broader. Of particular interest is developing students’ skills in the adept and appropriate use of digital technologies in the context of the law, rather than using technology simply as a gateway to discipline knowledge and skills.

²⁶ See, eg, Doreen Starke-Meyerring, ‘Meeting the Challenges of Globalization: A Framework for Global Literacies in Professional Communication Programs’ (2005) 19 *Journal of Business and Technical Communication* 468; Catherine A Lemmer, ‘A View From the Flip Side: Using the “Inverted Classroom” to Enhance the Legal Information Literacy of the International LL.M. Student’ (2013) 105 *Law Librarian Journal* 461.

²⁷ Paul Messaris, *Visual Literacy: Image, Mind, and Reality* (Westview, 1994); Ron Bleed, ‘Visual Literacy in Higher Education’ (Web Seminar Paper, Educause Learning Initiative, 2005) 1.

²⁸ Goodfellow, above n 24.

²⁹ Erica Burman, ‘Beyond “Emotional Literacy” in Feminist and Educational Research’ (2009) 35 *British Educational Research Journal* 137; also referred to as emotional intelligence: Lorraine Dacre Pool and Peter Sewell, ‘The Key to Employability: Developing a Practical Model of Graduate Employability’ (2007) 49 *Education + Training* 277.

³⁰ See discussion in Doug Belshaw, *The Essential Elements of Digital Literacies* (2014) ch 2 <<http://digitalliteraci.es>>.

³¹ Ibid 131.

³² Ibid 133.

³³ As a sample, see Mark Pearson, ‘Blended Learning and Instructional Scaffolding in a Media Law Course’ on Mark Pearson, *Journlaw* (31 March 2014); Linda Weiser Friedman and Hershey H Friedman, ‘Using Social Media Technologies to Enhance Online Learning’ (2013) 10(1) *Journal of Educators Online* <<http://eric.ed.gov/?id=EJ1004891>>; Gráinne Conole and Panagiota Alevizou, ‘A Literature Review of the Use of Web 2.0 Tools in Higher Education’ (Report, Higher Education Academy, August 2010) <<https://www.heacademy.ac.uk/knowledge-hub/literature-review-use-web-20-tools-higher-education>>; Sue Franklin and Mary Peat, ‘Managing Change: The Use of Mixed Delivery Modes to Increase Learning Opportunities’ (2001) 17 *Australian Journal of Educational Technology* 37. See also discussion in Stephen Colbran and Anthony Gilding, ‘E-Learning in Australian Law Schools’ (2013) 23 *Legal Education Review* 201.

Adapting these ideas, this article suggests that assuring law graduates' digital literacies means that they are competent in professional, social, cultural and personal communication practices appropriately utilising a variety of digital media and technologies. The suggestion here is that this competency supports digital knowledge, skills and attitudes particular to the law itself. Together these ideas represent essential skills, knowledge and attitudes for a society mediated by digital technologies. The following sections highlight the way in which digital literacies are relevant in the context of legal education.

A Learning Technologies for Law Students

In a recent survey of Australian Law Associate Deans, Colbran and Gilding sought to identify the extent to which Australian law schools have embraced e-learning, and how technology was affecting teaching practices.³⁴ The study reveals widespread use of learning management systems, though significant differences exist as to the uptake of digital technologies within them. As might be expected, the survey finds a wealth of innovation in the use of digital tools in legal education that supplement what might be described as 'traditional' educational practices — on-campus, face-to-face instruction. This is likely to reflect the state of higher education more broadly.³⁵

In contrast to Colbran and Gilding's study, the emphasis in this section is on the rationale for engaging law students in learning technologies as an integral part of developing students' digital literacies. This relates to the deliberate integration of learning technologies to achieve skills, knowledge and attitudes relevant to the law itself.

Maharg for example mounts an argument for using digital technologies to support law student learning.³⁶ Similarly, Thomson provides examples and a compelling rationale for the integration of digital technologies in the law curriculum to 'better prepare law students now for the practice of law tomorrow'.³⁷ Both suggest that learning technologies themselves provide a means of practising the skills and attitudes expected of the law graduate. In a contemporary context, these skills and attitudes include fluency in the manipulation of digital technologies, and adaptability as the interface of technology changes.

³⁴ Colbran and Gilding, above n 33. The study is based on self-reporting by Associate Deans, and implicitly assumes that Associate Deans would be familiar with the deployment of technology within their law school.

³⁵ For an overview of the impact of technology in higher education, see Monika Akbar, 'Digital Technology Shaping Teaching Practices in Higher Education' (2016) 3(1) *Frontiers in ICT* <<http://journal.frontiersin.org/article/10.3389/fict.2016.00001/full>>.

³⁶ Paul Maharg, *Transforming Legal Education: Learning and Teaching the Law in the Early Twenty-First Century* (Ashgate, 2007).

³⁷ Thomson, above n 19.

This argument largely rests on the fact that technologies increasingly offer law students learning contexts that reflect ‘real world’ or authentic experiences.³⁸ It is worth noting, for example, the rise in the US of an enhanced casebook, and the possibilities that digital texts offer for law student learning. Aligned with the arguments of Maharg and Thomson, the use of an e-book, an interactive digital text fully linked to the Internet (by embedding links known as hyperlinking), offers students a rich experience replete with both doctrine and ‘real world’ examples. The e-book can potentially provide the opportunity for student engagement in text, video, visual information, sharing with others through annotation, and viewing — and even using — forms and precedents alongside extracts of cases and statutes, as well as expert commentary.³⁹ While these tools are a gateway to learning the law, they also embody the skills of manipulating digital information that equip the graduate to engage effectively in the digital realm.

The enhanced casebook is already a reality. Harvard Law School has developed H2O, ‘a web-based platform for creating, editing, organizing, consuming, and sharing open course materials’.⁴⁰ Additionally, the Centre for Computer Assisted Legal Instruction (‘CALI’) in the US offers through e-Langdell, its publishing arm, free digital casebooks for legal education. These books are ‘open access’, affording a licence to academics at member institutions to freely use and adapt the works.⁴¹ The concept of ‘open access’ is itself representative of an ideological commitment to preserving the free availability of information, including scholarly works.⁴² Legal academics using H2O and e-Langdell are therefore already themselves modelling digital literacies desirable in law graduates, through crowdsourcing — the collective digital sourcing of publicly available information⁴³ — open access, and the application of digital tools in the context of the law.

³⁸ Des Butler, ‘*Second Life* Machinima Enhancing the Learning of Law: Lessons from Successful Endeavours’ (2012) 28 *Australasian Journal of Educational Technology* 383; Anne Hewitt and Bernadette Richards, ‘Using Online Role Play to Transform the Student Experience — A Stepping Stone to Professional Life?’ (Paper presented at the Education Research Group of Adelaide Conference, University of Adelaide, 28–30 September 2011).

³⁹ See the case studies in Edward Rubin (ed), *Legal Education in the Digital Age* (Cambridge, 2012). For an example of e-books designed as a student guide, see, eg, Kate Galloway *Land Law and Sustainability* (2015) <<https://itunes.apple.com/us/book/land-law-sustainability/id1034677116?mt=11>>; Kate Galloway, *Mining Resources Law and Governance* (2016) <<https://itunes.apple.com/us/book/mining-resources/id1133057080?mt=11>>.

⁴⁰ Harvard Library Lab, *H2O, Adaptable Digital Textbooks* (2012) <<http://osc.hul.harvard.edu/liblab/projects/h2o-adaptable-digital-textbooks>>.

⁴¹ Centre for Computer-Assisted Legal Instruction, *About eLangdell* <<http://www.cali.org/elangdell/about>>.

⁴² See, eg, Peter Suber, *Guide to the Open Access Movement* (2004) <<https://legacy.earlham.edu/~peters/fos/guide.htm>>.

⁴³ See, eg, the discussion on group decision-making in Cass Sunstein, *Infotopia* (Oxford, 2006); Don Tapscott and Anthony D Williams, *Wikinomics: How Mass Collaboration Changes Everything* (Portfolio, 2006).

For some, the fully hyperlinked e-book might call into question the very nature of reading. Hyperlinking allows the reader to navigate not only within a text, but outside it and through diverse media. It therefore avoids the need to engage in reading in a linear way through the author's predetermined narrative — in the way one might engage deeply with a reported judicial decision. Maharg however points out that centuries-old illuminated texts with their *glossa* provide a precedent for both visual representations of text as well as annotations, akin to the hyperlink.⁴⁴ This example of an historical shift in textual representation and the skills required to make meaning of text, highlights the contextual nature of literacy itself. It demonstrates the importance of moving beyond our understanding of literacies in a conventional sense, and appreciating the literacies required to engage with the law as it is increasingly represented. It may even encourage student reading, through presentation of a more engaging text.⁴⁵

A contemporary digital casebook or equivalent, including through effective use of the learning management system, offers a means of authentic learning — learning through engaging in the real world — via inclusion of documents and other artefacts of practice. Additionally, using this method students have access not only to documents but to the digital tools now available for processing and manipulating the information in them.⁴⁶ These tools are relevant not only for learning, but also for legal practice.

B Technologies for Legal Practice

In addition to digital learning technologies that might translate into discipline specific skills, there is a variety of digital tools that have been applied to the more specific management and measurement of information. This field is known as informatics. Informatics has specific application to research generally, through the field of altmetrics, which measures the reach and impact of research.⁴⁷ Specific to law however, legal informatics is the 'theory and practice of computable law, ie, of cooperation/symbiosis between humans and machines in legal problem-solving'.⁴⁸

Legal informatics represents a revolution in the collection, analysis, presentation, storage, and interpretation of information. It is relevant in a variety of legal domains including litigation, compliance,

⁴⁴ Maharg, above n 36, 128-9.

⁴⁵ Liesel Spencer and Elen Seymour, 'Reading Law: Motivating Digital Natives to "Do the Reading"' (2013) 23 *Legal Education Review* 177.

⁴⁶ See, eg, the way in which a land law course integrates online forms into teaching, in Cathy Sherry, 'Teaching Land Law: An Essay' (2016) 25 *Australian Property Law Journal* 129.

⁴⁷ Mark Fenner, 'Altmetrics and Other Novel Measures for Scientific Impact' in Sönke Bartling and Sascha Friesike (eds), *Opening Science — The Book* (Springer, 2014).

⁴⁸ Giovanni Sartor and Enrico Francesconi, 'Legal Informatics and Legal Concepts' (Paper presented at the Eurovoc Conference, Luxembourg, 18-19 November 2010); Abdul Paliwala, 'A History of Legal Informatics: An Introduction to the Special Issue' (2010) 1(1) *European Journal of Law and Technology*.

planning, interviewing, negotiation, governance and policy making, as well as legal education.⁴⁹ The field itself is interdisciplinary, but for the end-user legal academic, their student, or the legal practitioner, it can be more simply understood. It forms the basis of ‘big data’⁵⁰ and artificial intelligence, which facilitate legal research, and problem solving including legal prediction⁵¹ and decision-making.⁵² Document management systems in legal practice, familiar now for decades, and e-discovery are two small and perhaps better-known sub-fields of legal informatics.

It is arguable that a law graduate should understand the disciplines and methodologies that support legal informatics, to prepare them to select technologies fit for purpose. Further, lawyers must have the ability to critically analyse the implications of the deployment of such technologies — particularly where they may replace the work of the (human) lawyer altogether.⁵³ Susskind for example, argues persuasively that lawyers will need to be involved in how these tools are built.⁵⁴ He predicts an increasing call for lawyers with IT qualifications.

Research from the US indicates that before 2005⁵⁵ there was little collaborative research between information scholars and lawyers although there has been a strong push since then.⁵⁶ There is also a growing discussion about the need for lawyers to know how to code.⁵⁷

⁴⁹ Robert Richards, ‘Legal Informatics Research Today: Implications for Legal Prediction, 3D Printing, and eDiscovery’ (Paper presented at the Conference on Innovation and Communications Law, Penn State University, 16 May 2013) <<http://www.slideshare.net/richards1000/legal-informatics-research-today-implications-for-legal-prediction-3d-printing-ediscovery>>.

⁵⁰ For a brief explanation of big data, see Kate Galloway, ‘Big Data: A Case Study of Disruption and Government Power’ (2017) 42 *Alternative Law Journal* (forthcoming).

⁵¹ Daniel Martin Katz, ‘Quantitative Legal Prediction — Or — How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry’ (2013) 62 *Emory Law Journal* 909.

⁵² Marc Lauritsen, *A Decision Space for Legal Service Delivery* (February 2013) Harvard Journal of Law and Technology Occasional Paper Series <<http://jolt.law.harvard.edu/assets/misc/Lauritsen-DecisionSpace.pdf>>.

⁵³ For example, the UK High Court of Justice had to examine whether an e-discovery program complied with the Court Rules before it could be accepted into the litigation process: *Pyrrho Investments Ltd v MWB Property Ltd* [2016] EWHC 256 (Ch). Predictive coding in e-discovery was subsequently approved in Australia for the first time in *McConnell Dowell Constructors (Aust) Pty Ltd v Santam Ltd [No 1]* [2016] VSC 734. Brynjolfsson and McAfee point out that ‘as data get cheaper, the bottleneck increasingly is the ability to interpret and use data’: above, n 20. This general statement will apply also to lawyers.

⁵⁴ Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future*, above n 9.

⁵⁵ Christopher L Hinson, ‘Legal Informatics: Opportunities for Information Science’ (2005) 46 *Journal of Education for Library and Information Science* 134; Robert Richards, ‘Context and Legal Informatics Research’ on *Voxpopuli* (1 June 2010) <<http://Blog.Law.Cornell.Edu/Voxpop/Tag/Legal-Informatics/>>.

⁵⁶ A cross section of this activity can be seen on Robert C Richards, *Legal Informatics Blog* <<https://legalinformatics.wordpress.com/>>.

⁵⁷ See, eg, David Colarusso, ‘Hello, World! Should Attorneys Learn to Code?’ on *Lawyerist.com* (25 August 2016) <<https://lawyerist.com/124089/hello-world-attorneys-learn-code/>>.

While there is a spectrum of views on this,⁵⁸ as technologies become more widely integrated into the legal workplace, graduate lawyers will need to know how to deploy them, and to read and interpret the outputs. The issue is how to engage law students in understanding this field at the very least as end users, if not as developers.

For the student of law there are two important aspects of legal informatics presented here. The first is knowledge about the proliferation of automated information systems within the fabric of the law, and the second is the non-textual representation of legal data in contemporary legal research databases and beyond.⁵⁹ These issues go to the heart of the nature of legal practice — to problem solving itself — and to the re-imagined role of legal education.

Discovery is one area of legal work that increasingly relies on a suite of digital technologies — to the extent that the application of technologies to the discovery process is now referred to as ‘e-discovery’. The increasing use of technologies in civil procedure will potentially sideline the traditional model of litigation lawyering in favour of specialist e-discovery practitioners. This calls into question the foundation of our ‘coherent body of discipline knowledge’, which in Australia includes the law of evidence and civil procedure.⁶⁰ For the future of the content of legal education this raises the question as to whether these areas will become specialties in themselves, better suited to an elective subject. Further, if we continue to teach a legacy model of law — such as discovery or conveyancing without their digital iterations — we need to ask whether such subjects remain central to discipline knowledge.

The increasingly visual representation of data likewise encompasses a need to develop law graduates’ visual literacies. In one example of this, informatics offers stunning images of differently sized and coloured networked bubbles to depict the frequency and relevance of cited cases.⁶¹ Visual representation of database search results is quite different from the linear text-based approach of the majority of existing search platforms. Interpreting these results requires interpretation skills beyond the traditional text-centric skills currently the focus of legal education.

Additionally, Sherwin argues that in the practice of law itself ‘seeing is not believing’.⁶² The increasing use of visual materials not

⁵⁸ Jason Krause, ‘Does Learning to Code Make You a Better Lawyer?’, *American Bar Association Journal* (online), 1 September 2016 <http://www.abajournal.com/magazine/article/lawyer_learning_code_zvenyach_ohm>.

⁵⁹ Sun-Yuan Kung, ‘Visualization of Big Data’ (Paper presented at the International Conference on Cognitive Informatics & Cognitive Computing, Tsinghua University, 6-8 July 2015).

⁶⁰ The ‘Priestley 11’, see *Legal Profession Uniform Admission Rules 2015* (NSW) sch 1.

⁶¹ See for example the visual representation of case law in Justcite, *Features* <<https://www.justcite.com/Features>>.

⁶² Richard K Sherwin, *Visualizing Law in the Age of the Digital Baroque: Arabesques and Entanglements* (Routledge, 2011). See also Peter Tillers, ‘Introduction:

only in everyday life but in the law, requires a re-thinking of our capacity to use, interpret and understand a visual narrative.⁶³ It is, of course, digital technologies that make visual resources so readily available both in legal education and in the courtroom. The role of narrative and the positioning of the viewer are essential aspects of literacy that go far beyond the textual world of the traditional lawyer — and the traditional law degree. Visual literacies not only raise questions of comprehension, but also of ethics. The practitioner called upon to use visual evidence in a court, for example, needs to understand the potential for manipulation of the visual in the same way that advocacy arguably equips the lawyer to manipulate language.⁶⁴

In the context of teaching, the now ubiquitous PowerPoint initially facilitated the easy and widespread use of visual aids to learning. The failure of the academy (and industry more widely) in the effective use of PowerPoint⁶⁵ as a visual tool is captured in the cliché ‘death by PowerPoint’ and stories told by audience members exposed to vast slabs of tiny text lit up on a huge screen behind a presenter who diligently reads from the display. For legal educators, a text-based ‘visual’ aid may also represent the discipline’s own preference for text. Lecturers who continue to use text-rich visual aids are failing to take advantage of an opportunity to develop students’ visual literacy, as a component of digital literacies more broadly.

Digital technologies provide access to diverse means of communication beyond text. In this vein, Hagan’s work that finds that non-lawyers want more visualisation of law, which they see as better communication,⁶⁶ rendering the law more accessible to non-expert audiences.⁶⁷ Access to the law is relevant for private practice, for government, and for community advocacy and education.⁶⁸ It is therefore the role of legal education to prepare law graduates to

Visualizing Evidence and Inference in Legal Settings’ (2007) 6 *Law, Probability and Risk* 1.

⁶³ For a discussion of the use of graphics in legal writing, see Tania Leiman, ‘Where are the Graphics? Communicating Legal Ideas Effectively Using Images and Symbols’ (2016) 26 *Legal Education Review* (in press).

⁶⁴ Outlined, eg, in Donna Cooper, ‘Representing Clients From Courtroom to Mediation Settings: Switching Hats Between Adversarial Advocacy and Dispute Resolution Advocacy’ (2014) 25 *Australasian Journal of Dispute Resolution* 150.

⁶⁵ Garr Reynolds, *Presentation Zen* (New Riders, 2nd ed, 2011).

⁶⁶ Margaret Hagan, ‘Law for Normal People’ on *Open Law Lab* (6 May 2014) <<http://www.Openlawlab.Com/2014/06/05/Law-Normal-People/>>. See also Helena Haapio and Stefania Passera, ‘Visual Law: What Lawyers Need to Learn from Information Designers’ on *Voxpopulii* (15 May 2013) <<http://blog.law.cornell.edu/voxpopp/2013/05/15/visual-law-what-lawyers-need-to-learn-from-information-designers/>>.

⁶⁷ TLO 5(a) provides that a graduate lawyer will be able to ‘communicate in ways that are effective, appropriate and persuasive for legal and non-legal audiences’. See Kift, Israel and Field, above n 12.

⁶⁸ Serena Manzoli, ‘Beautiful Law: How Design and Visualisation Can Make Law Simpler, Useful and Even Fascinating’ on *Legal Futures* (26 January 2015) <<https://www.legalfutures.co.uk/features/beautiful-law-design-visualisation-can-make-law-simpler-useful-even-fascinating>>.

communicate in diverse ways, including graphically.⁶⁹ If law students are not exposed to a more diverse array of visual tools integrated into teaching they will be denied the opportunity to develop critical analytical, communication, and interpretational skills in a visual context.

C Law as Technology

Digital literacies go beyond skills, into the realm of knowledge. In the context of legal informatics for example, it is difficult to separate the technology from its application. Thus e-discovery relies on complex computer programs to process reams of information in preparation for litigation. This raises questions about the integrity of the process for legal proceedings, and how the information is to be validly presented and shared — questions relevant to the parties and to the courts themselves. Significant technological advances will therefore inevitably result in changes to substantive law, as evidenced through recent court decisions on the application of technologies in litigation process,⁷⁰ and accommodation of e-conveyancing processes in land titles legislation.⁷¹ Understanding the processes and potential of digital technologies is a necessary condition to appreciating the effect of technology on both the text of the law and its operation. Technologies have become the context within which the law operates and developing law students' digital literacies are the key to appreciating those contexts, which extend beyond the specific application of specific technologies such as occurs in e-discovery and e-conveyancing.

The translation of copyright into the digital realm, for example, has proved problematic, along with contemporary cultural representation in 'sampling', sharing and personalising of cultural objects,⁷² as well as open source and its relationship to copyright.⁷³

⁶⁹ As argued also by Leiman, above n 63.

⁷⁰ See, eg, *Pyrrho Investments Ltd v MWB Property Ltd* [2016] EWHC 256 (Ch); *McConnell Dowell Constructors (Aust) Pty Ltd v Santam Ltd [No 1]* [2016] VSC 734.

⁷¹ This has occurred through the *Electronic Conveyancing National Law*, a cooperative scheme enacted in each state and territory except the ACT. See *Electronic Conveyancing (Adoption of National Law) Act 2012* (NSW); *Electronic Conveyancing (Adoption of National Law) Act 2013* (Vic); *Electronic Conveyancing National Law (Queensland) Act 2013* (Qld); *Electronic Conveyancing Act 2014* (WA); *Electronic Conveyancing National Law (South Australia) Act 2013* (SA); *Electronic Conveyancing (Adoption of National Law) Act 2013* (Tas); *Electronic Conveyancing (National Uniform Legislation) Act 2013* (NT).

⁷² See, eg, Andrew Prescott et al, 'Intellectual Property and Impact' (Paper presented at the Digital Humanities Congress, University of Sheffield, 4-6 September 2014); Peter S Menell, 'Governance of Intellectual Resources and Disintegration of Intellectual Property in the Digital Age' (2011) 26 *Berkeley Technology Law Journal* 1523.

⁷³ Lawrence Lessig, F Scott Kieff and G Marcus Cole, 'Federalist Society's Intellectual Property Practice Group and Its Stanford Law School Chapter Present a

Debates surrounding Australia's proposed entry into the Trans Pacific Partnership have highlighted the intersection of economics (trade), sovereignty (and global power), culture and property.⁷⁴ Without an understanding of the role of digital technologies, it is difficult to engage in the fullest context of these debates.

This is illustrated also in the context of proposals for regulation of the World Wide Web, which has occupied the minds of lawmakers in the US for some time. Proponents of an unregulated Internet support what is known as 'net neutrality' — that governance of the internet be left unregulated to permit evolution, and open to all.⁷⁵ Their debates with lawmakers on the issue of regulation highlight lawmakers' limited capacity to understand the legal and social implications of government proposals to regulate.⁷⁶ Further, that neutrality might also be described as an ideological position is relevant in critically analysing the law's role in Internet regulation.⁷⁷ To critically engage in such legal debates presupposes an understanding of the regulatory environment necessary for technologies to continue to develop and to remain accessible.

Digital contexts also challenge the lawyer's taxonomy of sub-disciplines, traversing any one discrete area. Many law schools, for example, teach a subject called 'e-commerce'. Yet such a field is not simply 'contract law via the computer', or an online version of commercial law. E-commerce encompasses questions of intellectual property, privacy and free speech, consumer protection, fraud and criminal enforcement, public policy, financial regulation, taxation and even sustainability.⁷⁸ For law and policy in this area to keep ahead of these developments requires law graduates to understand what is at

Debate on Open Source and Intellectual Property Rights' (2008) 3 *University of Massachusetts Law Review* 83.

⁷⁴ Although there is now little likelihood of the trade agreement going ahead since the election of President Trump, the debate has raised questions that will continue as long as globalization continues.

Conor Duffy, 'Donald Trump Signs Executive Order Withdrawing US from Trans-Pacific Partnership', *ABC News* (online), 24 January 2017 <<http://www.abc.net.au/news/2017-01-24/trump-withdraws-from-tpp/8206356>>.

See, eg, Sean M Flynn et al, 'The U.S. Proposal for an Intellectual Property Chapter in the Trans-Pacific Partnership Agreement' (2012) 28 *American University International Law Review* 105; Thomas A Faunce and Ruth Townsend, 'The Trans-Pacific Partnership Agreement: Challenges for Australian Health and Medicine Policies' (2011) 194 *Medicine and the Law* 83.

⁷⁵ Lawrence Lessig, 'Open Code and Open Societies: Values of Internet Governance' (1999) 74 *Chicago-Kent Law Review* 1405, 1419.

⁷⁶ See also Susan Sell, 'Revenge of the "Nerds": Collective Action against Intellectual Property Maximalism in the Global Information Age' (2013) 15 *International Studies Review* 67.

⁷⁷ See an overview of competing discourses in Christine Quail and Christine Larabie, 'Net Neutrality: Media Discourses and Public Perception' (2010) 3(1) *Global Media Journal* 31.

⁷⁸ For an overview of all these issues, see, eg, Efraim Turban et al, *E-Commerce: Regulatory, Ethical and Social Environments* (Springer, 2014). Contrast this complex discipline area with the description of e-commerce in Michael Priestley and Marilyn Stretton, 'E-Commerce Across Australia' (E-Brief, Parliamentary Library, Parliament of Australia, 2001).

stake. In related developments, privacy and government surveillance have been put into stark relief in the contemporary debates in Australia over data retention and the inability of the Commonwealth Attorney-General and Australian security agencies themselves to explain what it is they seek to retain and the rationale for that.⁷⁹ For a society to engage fully in an appropriately regulated digital environment requires lawmakers to be sufficiently digitally literate to make and explain the law.

E-commerce law is offered as an elective in many law courses, but in Australia tends to be taught at a postgraduate level. In any event, it is not part of the core law curriculum despite representing immersion in digital contexts that challenge existing conceptions of substantive law. It is one example of the broad impact of digital technologies on the law, but the need for legal education to consider how it might develop students' digital literacies goes beyond a specific subject such as e-commerce or technology law. It is likely that all substantive areas of law will change significantly because of the digital contexts of their application, requiring a re-think of the goals of legal education. Because of the breadth of transformation, single technology-based subjects will not be sufficient to develop digital literacies.

The substance and the processes of the law were born in a paper-based era, when the text of the law was itself available only to the lawyer. The law reflects, as David Harvey points out, an analogue or paper-based understanding of information and relationships.⁸⁰ However this no longer represents social and economic life⁸¹ and we need to develop a new understanding of the law and its information processes.

These spheres of thought — learning technologies, practice technologies and technology law — can be drawn together to develop a coherent discipline-specific and overarching rationale for digital literacies to inform the law curriculum. It can be seen as a lens through which to develop knowledge, skills and attributes central to the discipline even within the existing regulated structure of legal education.

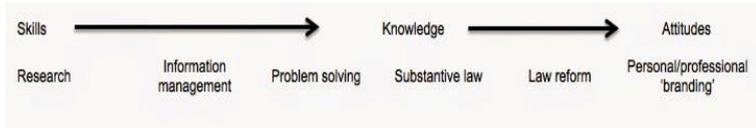
⁷⁹ ABC Television, 'Brandis Interview Puts Government on Back Foot', *Insiders*, 10 August 2014 (Barrie Cassidy) <<http://www.abc.net.au/insiders/content/2014/s4064410.htm>>. See also comments by the Deputy Commissioner of the Australian Federal Police in Lia Timson, 'Metadata Retention: "Those with Nothing to Hide Have Nothing to Fear"', Says Australian Federal Police Assistant Commissioner Tim Morris', *Sydney Morning Herald* (online), 22 February 2015 <<http://www.smh.com.au/digital-life/digital-life-news/metadata-retention-those-with-nothing-to-hide-have-nothing-to-fear-says-australian-federal-police-assistant-commissioner-tim-morris-20150222-13ljzi.html>>.

⁸⁰ David Harvey, 'Collisions in the Digital Paradigm II - Recorded Law' on *IT Country Justice* (20 January 2014) <<https://theitcountryjustice.wordpress.com/2014/01/20/collisions-in-the-digital-paradigm-ii-recorded-law/>>. See more recently, David Harvey, *Collisions in the Digital Paradigm: Law and Rule Making in the Internet Age* (Hart, 2017).

⁸¹ See Rainie and Wellman, above n 8.

III DIGITAL DOMAINS FOR LEGAL EDUCATION

Using this foundation of, and rationale for, digital literacies in the context of law, the task becomes one of explaining their representation within the knowledge, skills and attitudes at the core of the discipline of law. The aim is to develop a curriculum within which the contexts of digital technologies are embedded within teaching and learning. For the purposes of curriculum design, this can be represented in six domains.



Each of these domains involves understanding the nature of digital communication and information, and how to manipulate information within legal contexts, where digitally mediated society is one of those contexts. In addressing the broader digital context of the law, digital literacies include an ability to critically analyse the effect of digital technologies on both the law and society, and to develop appropriate solutions to legal problems in those contexts, using appropriate tools. Digital literacies include critical thinking, effective communication, ethical dispositions and self-management as well as discipline knowledge. The concept of digital literacies thus encompasses various TLOs.⁸²

A Research

There is an extensive literature on the nature of digital research in law.⁸³ The question remains as to the extent to which this is effectively integrated into the law curriculum. A recent US survey of graduate lawyers, for example, revealed that they spent nearly three quarters of their time at work on a digital device.⁸⁴ A significant proportion of this time was spent on digital research using a variety of sources. Some 56

⁸² See Kift, Israel and Field, above n 12.

⁸³ Also called 'information literacy.' See, eg, *Biall Legal Information Literacy Statement* (2012) <<http://www.biall.org.uk/pages/biall-legal-information-literacy-statement.html>>; Ellie Margolis and Kristen E Murray, 'Say Goodbye to the Books: Information Literacy as the New Legal Research Paradigm' (2013) 21(1) *Legal Education Digest* 40; American Association of Law Libraries, 'AALL Legal Research Competencies and Standards for Law Student Information Literacy' (Policy Document, American Association of Law Libraries, 2012) <<http://www.aallnet.org/Archived/Leadership-Governance/policies/PublicPolicies/policy-lawstu.html>>; Robyn Carroll and Helen Wallace, 'An Integrated Approach to Information Literacy in Legal Education' (2002) 13 *Legal Education Review* 133; Steven A Lastres, 'Rebooting Legal Research in a Digital Age' on *LLRX.com* (10 August 2013) <<https://www.llrx.com/2013/08/rebooting-legal-research-in-a-digital-age/>>.

⁸⁴ Lastres, above n 83.

per cent of their employers expected them to have strong research skills, but did not provide training. Of those surveyed, 49 per cent called for more digital research education across a variety of areas.

While it is impossible to extrapolate from this study to the Australian context, it provokes thought about the nature and extent to which digital research skills are taught through the curriculum as well as their purpose. Recognising the digital context of legal research and its variety is part of an effective strategy for embedding digital literacies within the curriculum more broadly. With the advent of data mining, the digital search for patterns in huge data sets, and its context in the discipline of law notably in e-discovery, the idea of research moves beyond 'finding law'.⁸⁵

Part of the answer to the way in which legal educators engage students in digital research may lie in how legal academics integrate digital research into their own practice. Even where academics do integrate and consciously scaffold digital research skills into the law curriculum, using proprietary databases for example, it is unclear how familiar legal academics are with new ways of finding and representing legal information. Indeed, universities themselves may not yet subscribe to the latest iteration of legal research databases. These evolving tools are relevant not only for finding the law,⁸⁶ but also for information management in practice, in circumstances such as gathering evidence for trial.⁸⁷ Exposure to these systems at the very least is one way of bridging the digital gap between academic study and legal practice.

Technologies, notably the diversity of information available for free online, also raises the question of the scope of materials to search and their relative worth. This relates to information literacy, ie critical evaluation of sources. There is an increasing volume of legal scholarship presented on blogs, for example. These sources may or may not represent an appropriate source depending on the context, but to ignore them in legal education, or to put them 'out of bounds' as a source of legal information, misses an opportunity to develop students' information discretion.⁸⁸ Indeed, blogging is evolving as a

⁸⁵ Andrew Stranieri and John Zeleznikow, *Knowledge Discovery from Legal Databases* (Springer, 2005).

⁸⁶ Ashley Ahlbrand, 'Research Makeover: Is Crowdsourcing Entering the Legal Research Arena? A Look at Mootus and Casetext' on *Ms JD Blog* (5 June 2014) <<http://Ms-Jd.Org/Blog/Article/Research-Makeover-Is-Crowdsourcing-Entering-the-Legal-Research-Arena-a-Look>>.

⁸⁷ Tools such as those developed by WBB Discovery Informatics: WBB, *Discovery Informatics* <<http://wbbinc.com/capabilities/discovery-informatics>>; or Lex Machina: Lex Machina, *Law Firms* <<https://lexmachina.com/customer/law-firms/>>. See papers presented at Discovery Informatics, *2014 AAI Discovery Informatics Workshop* <<http://www.discoveryinformaticsinitiative.org/diw2014>>; papers presented at Law + Informatics Institutem, *2015 Law + Informatics Symposium on Digital Evidence* <<https://lawandinformatics.wordpress.com/2014/07/03/2015-law-informatics-symposium-on-digital-evidence/>>.

⁸⁸ See discussion in Kate Galloway, Kristoffer Greaves and Melissa Castan, 'Gatecrashing the Research Paradigm: Effective Integration of Online Technologies in Maximising Research Impact and Engagement in Legal Education' (2013) 6 *Journal of the Australasian Law Teachers Association* 83.

genre within legal practice and academia so that this form of legal writing itself may fall within the scope of digital literacies.⁸⁹

Research and information literacy go hand in hand, and they are related to the management of information,⁹⁰ where information is the currency of the law.

B *Information Management*

While research involves finding information, information management in the legal context includes skills in storing, disseminating, and protecting information appropriately. Generic digital skills might include knowing how and why to back up digital objects, but in the legal context, skills include knowledge about the appropriateness of dissemination of information and the process by which this should be done — including through appropriate forms and genres of communication. ‘Appropriateness’ in the legal context will often relate to the transparency or secrecy of information. This can be considered as a spectrum, for example, from the principle of open court, to client confidentiality and the role of privilege.

Knowing where information is situated on this spectrum is itself a type of legal knowledge, such as knowing when to invoke a duty of confidentiality or a right to privilege. However, this legal knowledge might also logically inform the practical aspects of information storage, retrieval, and dissemination, traditionally occurring in filing cabinets and through safe custody processes. In the digital context, client information and records may be stored via cloud computing, namely on a server accessed via the Internet. This puts client information beyond the physical control of the lawyer and perhaps even outside the jurisdiction. Cloud computing is one example of a digital context that raises questions about security of information, including issues of privilege and confidentiality.⁹¹ It goes without saying that not understanding what cloud computing is or when it might normally be used, predicates against considering the legal consequences of its application.

The lawyer without digital literacies, who conceptualises law as a paper-based endeavour of physical filing cabinets filled with paper files, is no longer equipped to handle information management

⁸⁹ Kevin O’Keefe, ‘Should We be Teaching Blogging and Wordpress at Law Schools?’ on Kevin O’Keefe, *Real Lawyers Have Blogs* (15 January 2012) <<http://kevin.lexblog.com/2012/01/15/should-we-be-teaching-blogging-and-wordpress-at-law-schools/>>.

⁹⁰ See discussion in David Howarth, *Law as Engineering: Thinking About What Lawyers Do* (Edward Elgar, 2014).

⁹¹ James M McCauley, ‘Cloud Computing: A Silver Lining or Ethical Thunderstorm for Lawyers?’ (2011) 59 *Virginia Lawyer* 49, cited in Queensland Law Society Ethics Centre, *The Ethics of Cloud Computing for Lawyers* <<http://ethics.qls.com.au/news/ethics-cloud-computing-lawyers.html>>; Sarah Jane Hughes, ‘Did the National Security Agency Destroy the Prospects for Confidentiality and Privilege When Lawyers Store Clients’ Files in the Cloud — and What, if Anything, Can Lawyers and Law Firms Realistically Do in Response?’ (2014) 41 *Northern Kentucky Law Review* 405.

appropriately in a professional digital context. Nor is such a lawyer well placed to engage fully with the substantive law that will inevitably flow from the reality of these changes in practice.

The control of information that underpins a lot of legal practice is not the only digital context for legal information. The very creation of information, including as a source of democratic power, is also likely to be increasingly digitally mediated. In particular, technologies foster a significantly enhanced capacity to crowd-source information. While there is no one definition of crowdsourcing, it can generally be considered to be:

a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task.⁹²

Crowdsourcing might occur in a number of ways in a legal context. Ahlbrand, for example, examines the digital ‘collection of arguments and research on a variety of legal issues’ through online mooting via subscription.⁹³ This has potential to alter the practice of law through providing enhanced legal knowledge suited to various scenarios, but it requires an enhanced skill set in graduates who might be required to engage in this environment.

In a different way, the crowdsourcing of laws has the potential to reconfigure our understanding of legal processes. A frequently cited example is the crowd-sourced Icelandic constitution,⁹⁴ which illustrates the potential of digitally mediated participatory democracy. As foreign as it might be to the traditional lawyer or legal academic, crowdsourcing represents a contemporary (and future) context for the creation and dissemination of legal information, including the sources of law itself.⁹⁵

Apart from crowdsourcing, legal information is increasingly accessible through digital channels enhancing participatory democracy and access to justice.⁹⁶ The English Openlaws.eu project, for example,⁹⁷ sees courts and parliaments working together to ensure greater access to legal information and processes. Thus ‘every judgment can ... use the same metadata and be stored in the same

⁹² Enrique Estelles-Arolas and Fernando Gonzalez-Ladron-de-Guevara, ‘Towards an Integrated Crowdsourcing Definition’ (2012) 38 *Journal of Information Science* 189, 197.

⁹³ Ahlbrand, above n 86.

⁹⁴ Jon Olafsson, ‘An Experiment in Iceland: Crowdsourcing a Constitution?’ (Paper presented at Epistemic Democracy in Practice, Yale University, 20-23 October 2011).

⁹⁵ See Parlamento Italiano, *From E-Parliament to Smart-Parliament: How to Improve Citizens’ Participation Using Web Technologies and Social Media? And How Can Parliamentary Rules of Procedure Support Transparency and Participation?: Agenda* <<http://www.parlamento.it/1073>>

⁹⁶ Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future*, above n 9.

⁹⁷ See discussion in Chris Marsden, ‘Open Access to Law: How Soon?’ on *IT Law Community* (13 February 2015) <<http://www.scl.org/site.aspx?i=ed41009>>.

format, ready for release to the public as open data’.⁹⁸ Additionally, UK legislation is ‘close to achieving an up-to-date statute database ... accessible in various open data formats’.⁹⁹

In Australia, Austlii pioneered greater access to the law through technologies, providing free access to Australian statutes and most case law. Yet its capacity to deliver full open access legal information has been limited by existing copyright laws, which keep some reported decisions from inclusion in the free online database.¹⁰⁰ In other words, increasing access to legal information does not equate necessarily to open access.¹⁰¹ More recently Jade, an ‘open law’ initiative of BarNet (established and run by barristers), provides ‘a current awareness service that collects recent decisions of selected Australian Courts and Tribunals into an enhanced database’.¹⁰² Collecting more diverse sources than Austlii, it is a further example of the way in which technology facilitates sharing information packaged in different ways.

These examples illustrate some of the contemporary applications of information in a legal context. For those unfamiliar with the frameworks within which information is used and managed digitally, it is difficult to imagine a sustainable legal framework that integrates these methods into legal processes. To do so requires an understanding of what these systems are, how they are used, and how they are relevant in practice and in society. For the profession to keep pace, graduates will need to enter with an enhanced skillset — that of digital literacies. There is a movement incorporating the digital context of practice into legal education, principally in the US,¹⁰³ although there is little in the literature evidencing this in Australian law schools.¹⁰⁴

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ Anne Fitzgerald et al, ‘Open Access to Judgments: Creative Commons Licences and the Australian Courts’ (2012) 19(1) *Murdoch University Law Review* 1.

¹⁰¹ Daniel Poulin, “‘Free Access to Law’” and “‘Open Data’” — Similarities and Differences’ (Paper presented at Austlii Research Seminar, Austlii Offices, Sydney, 19 November 2013) <http://www.austlii.edu.au/austlii/seminars/2013/5_slides.pdf>.

¹⁰² Jade, *About Jade* <<https://jade.barnet.com.au/Jade.html#c=About+Jade>>.

¹⁰³ See review of law schools in Richard Granat and Marc Lauritsen, ‘Teaching the Technology of Practice: The 10 Top Schools’ (2014) 40(4) *American Bar Association Law Practice Magazine* <http://www.americanbar.org/publications/law_practice_magazine/2014/july-august/teaching-the-technology-of-practice-the-10-top-schools.html>; and see, eg, Stanford Law School, ‘Courses – Legal Informatics’ <<https://law.stanford.edu/courses/legal-informatics/>>; Cardozo Law, *Cardozo Data Law Initiative* <<https://cardozo.yu.edu/CDLI>>.

¹⁰⁴ While not integrated into law schools, see however the work on Law and Innovation, by Mary-Anne Williams, Innovation and Enterprise Research Laboratory at University of Technology Sydney: see Mary-Anne Williams, *Innovation, IT and the Law* <<http://research.it.uts.edu.au/magic/Mary-Anne/Law.html>>; and John Zeleznikow at Victoria University, Melbourne, notably his work on digital ADR processes: see, eg, Naomi Augar and John Zeleznikow, ‘Developing Online Support and Counseling to Enhance Family Dispute Resolution in Australia’ (2014) 23 *Group Decision and Negotiation* 515.

The examples so far have identified a need to understand the nature of information and its manipulation in a legal context. While digital technologies affect the way in which a lawyer or law student might search for law and the substance of the law, an understanding of how technologies are used in a variety of social contexts is also necessary to solve legal problems effectively. This is an attribute of all so-called broader contexts of law — that the lawyer has the capacity to understand the context within which legal problems occur.

C *Problem Solving*

Legal problem solving traditionally contemplates the identification of an issue of substantive law and its resolution through recognised legal method. There are two ways in which digital contexts challenge existing modes of problem solving. The first relates to personal awareness of the broader digital context of the law.

In a fairly simple example, in the interests of consumer protection, Queensland legislation has required vendors of residential property to attach a warning statement to the front of the contract for sale.¹⁰⁵ In one reported case,¹⁰⁶ the contract had been faxed to the purchaser's solicitor. The pages had been reassembled so that the warning statement did not form the front page. Pondering why fax would be used to deliver such an important document (which in the Judge's view should only be dealt with in hard copy delivered in person) the Court in solving this legal problem failed to appreciate how lawyers manage information on a daily basis. The Court's problem-solving capacity was framed by its paper-based experience. The Court, in turn, had been failed by Parliament in legislating such a requirement that could so easily have been derailed by (the then) contemporary practice of information management, namely routinely faxing documents.¹⁰⁷

In a further example, teaching fraud in Torrens transactions tends to rely on case law that relates almost completely to transactions involving paper title.¹⁰⁸ In these cases a third party (often the solicitor) misuses the paper title and absconds. Digitisation of land titling and the roll out of e-conveyancing have together generated a completely different form of information management and new ways in which to contemplate the key legal concept of fraud. However, there is little, if any, case law dealing with fraud other than in paper title. Re-conceptualising the existing traditional format of the property law curriculum is difficult for academics who are themselves schooled in

¹⁰⁵ Under the now repealed *Property Agents and Motor Dealers Act* (2000) ss 366, 366A, 366B.

¹⁰⁶ *MNM Developments Pty Ltd v Gerrard* [2005] QCA 230.

¹⁰⁷ The Act was subsequently amended to provide for exchange by fax and email. One might now wonder how frequently fax is used in 2015.

¹⁰⁸ For an overview of what is taught in Australian property law courses, see Penny Carruthers, Natalie Skead and Kate Galloway, 'Teaching Property Law in Australia in the Twenty-First Century: What We Do Now, What Should We Do in the Future?' (2012) 21 *Australian Property Law Journal* 57.

the traditional forms of the law.¹⁰⁹ If contemporary legal practice and its potential issues are not represented in the curriculum, this raises the question of its adequacy to meet contemporary professional needs in broader digital contexts of the law.

The second and more fundamental challenge to the existing emphasis on, and method of, problem solving in legal education is more controversial. It involves the development of software to enhance decision-making and to solve legal problems without the need for a lawyer at all.¹¹⁰ While there is likely always to be a need for bespoke lawyers,¹¹¹ the role of lawyers is changing dramatically in the face of new technologies.¹¹² Despite the conservatism of the profession and its own reluctance to change, the contemporary regulatory environment, globalisation, competition and client demands together form an imperative for the profession to embrace technologies that will fundamentally change the profession itself. In the meantime, law schools are slow to engage in the education their students need to face this change.

D Substantive Law

If the idea of robotic legal problem solving is a step too far, at the very least the academy can start to build capacity in understanding the contemporary context of legal practice if not its (digital) machinations. It is one thing to identify the substantive law to apply to a problem — for example common law contract or a particular statutory provision — and quite another to view this in the context of the digital use and manipulation of information. There are straightforward ways of integrating digital contexts into teaching, such as incorporating electronic transactions legislation into contract law subjects. But while this is necessary, it is not sufficient.

Substantive law, as with legal skills, is largely based on a mostly non-digital social, economic and governance foundation. Following the continuum of skills and knowledge in digital context, this too needs to be re-imagined. One way to address this is to offer specific

¹⁰⁹ See discussion in Sherry, above n 46.

¹¹⁰ See, eg, Richard Susskind, 'Legal Informatics — A Personal Appraisal of Context and Progress' (2010) 1(1) *European Journal of Law and Technology* <<http://ejlt.org/article/view/18/7>>; R Amani Smathers, 'The 21st-Century T-Shaped Lawyer' (2014) 40(4) *American Bar Association Law Practice Magazine* <http://www.americanbar.org/publications/law_practice_magazine/2014/july-august/the-21st-century-t-shaped-lawyer.html>; Lauritsen, above n 52; Pompeu Casanovas et al (eds), *AI Approaches to the Complexity of Legal Systems* (Springer, 2013). For a lighthearted view with a genuine diagram illustrating computational legal prediction, see Sam Glover, 'Will Computers Become Better Lawyers Than Humans?' on *Lawyerist* (24 September 2013) <<https://lawyerist.com/69954/will-computers-become-better-lawyers-humans-cliocloud9/>>.

¹¹¹ See, eg, Susskind, *Tomorrow's Lawyers: An Introduction to Your Future*, above n 9.

¹¹² See, eg, George Beaton, *New Law, New Rules: A Conversation About the Future of the Legal Services Industry* (Beaton Capital, 2013).

subjects in the field.¹¹³ It is unlikely however that this is sufficient to achieve graduate digital literacies as envisaged here. Instead, the idea of digital contexts must be embedded throughout the core of the degree as a foundation for all students, as well as to support subsequent specialisation. Understanding these digital contexts is included here in the term ‘digital literacies’.

Contextualising legal education within digital practice would give new meaning to contract and property law as well as to a spectrum of commercial laws — beyond electronic transactions legislation alone. As discussed, intellectual property, civil procedure, and evidence take on a new dimension if the nature and form of information is reconsidered.

The implications of digital technologies for substantive law go further than private law. The content and meaning of human rights,¹¹⁴ effects on responsibilities of executive government regarding information,¹¹⁵ and even the implied (Australian) constitutional right of freedom of political expression¹¹⁶ all take on a different complexion when viewed within a digital context.

It may be fair to say that studying the law in the absence of digital context leaves us with only an historical viewpoint, ill-equipped for its contemporary and future application.¹¹⁷ By implication, it will also leave the profession ill-equipped to engage in law reform.

E Law Reform

As Susskind points out, ‘it is almost impossible to conceive of a future — of law, or indeed society — that is not radically changed through technology’.¹¹⁸ To the extent that legal academics and practitioners are not able to recognise or to imagine such a future, they will be hampered in their capacity to think critically about the law and the need for reform.

¹¹³ For example, *Law and Technology* at the University of Queensland; and *Internet Law* at Queensland University of Technology.

¹¹⁴ See, eg, Daniel Joyce, ‘Privacy in the Digital Era: Human Rights Online?’ (2015) 16 *Melbourne Journal of International Law* 270; Jerome Squires, ‘*Google Spain SL v Agencia Espanola De Proteccion De Datos* (European Court Of Justice, C-131/12, 13 May 2014)’ (2014) 35 *Adelaide Law Review* 463.

¹¹⁵ See, eg, Galloway, ‘Big Data: A Case Study of Disruption and Government Power’, above n 50; Melissa Perry, ‘iDecide: The Legal Implications of Automated Decision-Making’ (Speech delivered at the Cambridge Centre for Public Law Conference 2014: Process and Substance in Public Law, University of Cambridge, 15-17 September 2014); Lyria Bennett Moses and Janet Chan, ‘Using Big Data for Legal and Law Enforcement Decisions: Testing the New Tools’ (2014) 37 *University of New South Wales Law Journal* 643.

¹¹⁶ See, eg, Paul Wragg, ‘Enhancing Press Freedom Through Greater Privacy Law: A UK Perspective on an Australian Privacy Tort’ (2014) 36 *Sydney Law Review* 619.

¹¹⁷ See, eg, the analysis in Lyria Bennett Moses, ‘Creating Parallels in the Regulation of Content: Moving from Offline to Online’ (2010) 33 *University of New South Wales Law Journal* 581.

¹¹⁸ Richard Susskind, ‘Provocations and Perspectives’ (Working Paper, UK CLE Research Consortium (Legal Education and Training Review), October 2012) 21 <<http://lettr.org.uk/wp-content/uploads/Susskind-LETR-final-Oct-2012.pdf>>.

Fundamental concepts of the law, including ideas as diverse as property or evidence, will be unsuited for the future (or may already be unsuitable) unless lawyers have the intellectual and practical tools to think differently about society, economy, environment and governance and how they are mediated by technology. The idea of privacy for example, has taken on a radically different meaning in light of now ubiquitous social media. Rather than existing in a personal realm like reading a newspaper or listening to the radio, social media has become a facet of governmental and corporate information management and control. This is evidenced by Australian laws requiring the capture of ‘metadata’ — the background details of every online interaction. Such metadata provides law enforcement agencies with detailed information about Internet use, including sites visited. This information can provide a very clear picture of a user’s daily activities, for so long as they are connected to the Internet. With smartphone technology and the likelihood of being logged on at work, many people would have a considerable amount of data to track. The very idea of who we are in private has radically changed, requiring the framing of entirely new questions to address new legal issues.

Following from these kinds of law reform proposals, there is now discussion about the need for an Internet bill of rights.¹¹⁹ This demonstrates a possible response to the role of law in a society evolving on the back of rapidly developing technologies. Legal education is instrumental in ensuring the law can evolve to comprehend and provide for these contexts in a way that upholds principle tenets of justice and the rule of law, and that its practitioners are sufficiently digitally literate to engage in these contexts themselves. One facet of their literacy will come down to personal use of digital technologies¹²⁰ with potential to affect both the professional and personal life of law students and graduates.¹²¹ That is the effect of the so-called ‘digital footprint’.

F *Personal and Professional ‘Branding’*

The final suggested domain lies in the relationship between each student — the future professional — and technology. This has a practical side, in terms of a ‘digital footprint’ and one’s professional persona developed in the online environment.¹²² But it has an

¹¹⁹ See discussion in David Harvey, ‘Towards an Internet Bill of Rights’ on *IT Country Justice* (11 May 2014) <<https://thecountryjustice.wordpress.com/2014/05/11/towards-an-internet-bill-of-rights/>>.

¹²⁰ Where digitally-mediated networking is known as a ‘21st century skill’: Colin Lankshear and Michele Knobel, *New Literacies: Every Practices and Social Learning* (McGraw-Hill Education, 2011).

¹²¹ Kylie Burns and Lillian Corbin, ‘E-Professionalism: The Global Reach of the Lawyer’s Duty to Use Social Media Ethically’ [2016] *Journal of the Professional Lawyer* 153.

¹²² Steve Wheeler, *Who We Are* (26 April 2014) Learning With ‘E’s’ <<http://steve-wheeler.blogspot.com.au/2014/04/who-we-are.html>>.

intellectual aspect also: one that requires a graduate to be able to articulate their own perspectives on the digital realm and its relationship to the citizen, the lawyer and the law.

This is an aspect of the attitudes expected of a law graduate not in the sense that it represents an article of faith ('I believe in technology') but rather that it reflects an understanding of the graduate's own role within a digital context. As with the lawyer's 'traditional' ethical responsibilities, this has a personal as well as a professional dimension though social media now means that a person's various identities are now more closely intertwined.¹²³

The importance of this merging of identities can be harnessed to engage students in learning about professional responsibility. Hemingway points out that Facebook (and by extension other social media) presents

law students, lawyers, and judges [with] a veritable cornucopia of ethical dilemmas. Judges are admonished and lawyers are sanctioned and disbarred for their posts to Facebook and other social media sites. As Facebook continues to blur 'the boundaries between personal and professional worlds,' law students will require more guidance on how to 'navigate social networking in the legal landscape'.¹²⁴

Legal education should offer the opportunity for students to engage with a variety of digital media — reflecting good pedagogy generally — in a critically reflective way. The aim of this approach is to engender an understanding of different digital tools and their implication for the practitioner and for society. They should support students in developing professional and personally ethical approaches as well as a digital footprint that represents their personal values system.

Putting these ideas together, it is possible to develop an 'immersion' law curriculum using digital literacies as an organising context. A scaffolded approach to knowledge, skills and attitudes is an essential part of the contemporary law curriculum in any situation. It provides for greater support in the first year, followed by deliberate and gradual learner independence in executing the relevant knowledge and skills for themselves. For digital literacies, scaffolding can be achieved through embedding throughout the degree appropriate knowledge about digital practice in the substance of the law, and critical approaches to technology, its promise and its limitations. Students should have the opportunity not just to learn through digital tools but to engage in supported reflective practice around their use, developing a professional persona that will equip them to engage in the law of the future, rather than law as an historical artefact.

¹²³ Joan Morris DiMicco and David R Millen, *Identity Management: Multiple Presentations of Self in Facebook* (IBM TJ Watson Research, 2007).

¹²⁴ Anna P Hemingway, 'Keeping It Real: Using Facebook Posts to Teach Professional Responsibility and Professionalism' (2013) 43 *New Mexico Law Review* 43, 43-4 (citations omitted).

IV CONCLUSION

The meaning of contemporary legal education is not universally agreed upon. This is to be expected within a tradition-bound discipline taught in the corporate university. Even grasping the meaning of contemporary legal practice is challenging in a profession in which senior members are bound by the same traditional norms. Technologically mediated change has, however, already arrived, and legal education has not yet engaged in this reality.

This article suggests that legal education must be reconceptualised to integrate digital literacies within its fabric. The purpose of legal education, regardless of whether graduates practise law, must be an understanding of law and legal process in social contexts — including digital contexts. Law students' learning experiences therefore require deliberate and scaffolded digitally mediated engagement in concepts, information tools, and self-reflection. Only through development of digital literacies can legal education support graduate outcomes equipped to engage effectively with society's needs.

The meaning of digital literacies for law students — and graduates — must be broad enough to encompass the knowledge, skills and attitudes required to engage in legal practice and to exercise discipline-based thought and skills. Literacies therefore are conceptualised here across the range of TLOs. This framework however is informed by the variety of ways in which technologies are driving social, economic, environmental and political change. Each of these domains is reflected in the operation of the law and its practice.

Despite the variety of particular skills required to teach a digitally literate cohort of law graduates, the initial movement required is to re-situate the role and purpose of legal education within a digital context. Legal academics have always shown diverse skillsets, and the evolution of digital literacies as a core competency within the discipline will reflect this also. Thus, the property lawyer need have no expertise in criminal law, but there is a common language and tradition that binds both specialists within the broader discipline. Technologies in the context of the law will likely show similar diversity.

The conversation on digital literacies in higher education generally and in the law more specifically is really only just gaining momentum.¹²⁵ The challenge for legal academics lies in re-imagining the way in which law is taught, particularly in the Priestley subjects that tend to be conceptualised in traditional ways. It is this traditional thinking that may stifle the development and reform of the law itself. Thus legal academics' reflection on their own thinking and practice in digital contexts is central to the reform of legal education.

¹²⁵ Evidenced by the recent recommendations of the Law Society of New South Wales *Future of Law and Innovation in the Profession Report*, that legal education should do all it is doing — as well as introduce digital skills and knowledge. Law Society of New South Wales, above n 22, ch 6.

It is up to legal academics themselves to join the conversation or the law school — and our graduates — will simply be left behind, their remnant analogue knowledge, skills and attitudes ill-suited to contemporary life. This article has provided a starting point for legal academics to consider their own digital literacies, and to contemplate next steps in preparing themselves to prepare their students for the transformation of the law.