Simulation and technology in legal education: a systematic review and future research programme

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Introduction

In the following review we shall describe our search strategies and the dataset that resulted from our search. We shall outline some of the main findings and comment on the robustness of the findings. Finally we shall outline a research programme for future studies in simulation and technology in legal education. At the outset we should note that because the dataset will be much larger than the normal collection of citations in this book we have, with the approval of the editors, adapted the house style, OSCOLA. Our dataset is referred to in Harvard (APA) style, with name and date in the body of the
Search and classification procedures

A systematic review requires an answerable question. We began the process intending that we would analyse the literature for the characteristics of good simulation practice, and that the analysis would take the form of a meta-review – effectively a statistical analysis of the data derived from the literature that would provide a standardized approach for analyzing prior findings. However we quickly encountered a fundamental issue. The key challenge in writing this chapter has not been the quantity of the literature. Indeed for a specialized topic such as this there exists a relatively substantial body of literature. The main problems we encountered derived from the variation and quality of the literature. These included lack of relevant data, including statistical analyses, insufficient specificity on description and analysis of the educational intervention, wide variation in information on the quality of learning, and lack of detailed analysis of findings. Randomized clinical trials, including cluster-randomized trials, are generally recognized as providing the least-biased estimates of intervention effect – there was not a single example of this in the literature under review; almost no reliable statistical studies, and within those items that had undertaken literature reviews, the general quality of them was not robust. A prior analysis was therefore necessary: we required to investigate the quality of the literature on simulation and technology. Our systematic review therefore focuses on this analysis.

Systematic reviews require explicit inclusion and exclusion criteria. Our timespan is 1970-2012 – effectively 42 years. We searched the following common law jurisdictions: England & Wales, N. Ireland, Ireland, Scotland, USA, Canada, Australia, New Zealand, Hong Kong. We searched only the literature published in English, including items translated into English and those in English in a foreign language publication (e.g. Maharg 2007 [Dutch] and 2009 [Japanese]). Where we came upon items from civilian jurisdictions in English that referenced simulations in civilian and common law jurisdictions, we included these where possible. Searches were conducted using the following keywords and phrases: legal simulation education; legal simulation; digital simulation; transactional learning; mock courts; moot courts; mock trials; hypotheticals; learning by doing. The following databases were searched: Westlaw, Lexis, SSRN, Heinonline, Legal Journals Index. Jurisdictional bibliographies were also searched, as were topic-specific bibliographies. We reviewed items that were peer-reviewed (though it was often unclear, particularly for the first two decades of our timespan, to determine which items had undergone peer-

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3 A meta-review is often used to analyze the results of earlier systematic reviews in order to arrive at new conclusions or insights regard the data. We originally adopted guidelines for meta-review that would be based upon statistical approaches, e.g. those developed by the QUOROM Group, available at [http://www.consort-statement.org/QUOROM.pdf](http://www.consort-statement.org/QUOROM.pdf). See also Moher D, Cook DJ, Eastwood S, et al. (1999). Improving the quality of reports of meta-analyses of randomized controlled trials: the QUOROM statement. Quality of reporting of meta-analyses. *Lancet*. 354, 1896–1900. Note that the term ‘meta-review’ is sometimes misused as a synonym for ‘systematic review’, where the review may include a meta-review. We discuss the effect of this in law in our final paragraphs below.


review), as well as those that appeared to have undergone no peer-review. Where we decided that a web-published item (eg on an author’s webpage or on SSRN) was sufficiently within the parameters of our review we would include that, even if there were no formal publication. Where appropriate we used search engines such as Google Scholar.

A critical issue for us was the definition of our three main terms: ‘simulation’, ‘technology’ and ‘legal education’. We construed our terms broadly, knowing that the field under analysis was fairly small, given the vectors of these three terms.

1. ‘Simulation’ was construed as any heuristic that involved the *simulation of any aspect of legal theory or practice within a legal education context and for an educational purpose*. Since our review covered theory as well as practice, we included work that discussed simulation as well as accounts of simulation interventions.

2. We defined ‘legal education’ widely as being at *tertiary education or beyond, and involving any legal matter*. It became quickly apparent that the vast majority of the items in the dataset described simulations that took place in tertiary education, with a minority having taken place in a workplace setting. We also included continuous professional development. The few secondary or high school studies that were found during searches were deleted. We took a broad view of the subject-matter included in this definition of legal education, including multi-disciplinary and interdisciplinary examples, eg legal studies embedded in or spliced with other subjects, such as Philosophy or Business.

3. ‘Technology’ was the most complex of the three terms to define. We defined it as *incorporating the practice and/or discussion of any form of digital technology used in the design, implementation, assessment or analysis of simulation; and essential to the functioning of the simulation*. Digital technologies could of course include video, photographs, maps and graphics as well as text. We excluded simulation studies where the only use of technology seemed to be the common use of everyday applications such as word processors to reproduce text and numbers. If these were included in our review, then the simplest word-processed hypothetical could claim a place. This was a matter of judgment, of course.

Clearly, given the chronological span of our search, we could not restrict our definition to online learning; and historically, in the period 1970-1988 or so, it could be argued that word processors were innovative technologies. We therefore defined the digital element as essential for the reported simulation, if a simulation were present in the item. In our definition of ‘online learning’, we were guided in part by the annual Sloan Consortium Reports which, since 2002, have defined online learning as learning that takes place entirely or in substantial portion over the Internet.6

Given these definitions and search vectors, it should be remembered that we are focusing on the intersection of all three search criteria. Thus useful collections of items such as the US *Journal of Legal Education’s* Symposium on Simulations (Issue 4, 1995) are not included because there was no discussion of technology in the simulations under discussion.

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Following initial searches, 238 items were identified as being potentially relevant from title and abstract descriptions. Full paper readings of each document then took place, and 38 were discarded as not relevant according to the search criteria. There were 20 items for which the full text could not be sourced (stemming largely from the first decade or so of our search). Items were then assessed for the presence of a digital element to the simulation discussion (107 items). Items that were from non-common law jurisdictions were generally discarded; but during the course of searching there were 11 publications referencing common law initiatives that we considered required to be included because they described important aspects of simulation activity or theory, or referenced simulation initiatives in common law jurisdictions; and therefore these have been included in the dataset. Five of these items originated from the Netherlands (Warmelink et al 2009, Fernhout et al 1987, Lodder and Verheij 1997, 1998, 1999), one from the republic of Georgia (Nakashidze 2012) and one from Japan (Shibasaki & Nitta 1997). The items in the sub-set of 107 were largely published in the proceedings of legal conferences and in legal (and very often legal education) journals. There were also several final project and institutional reports as well as a few articles from legal professional journal publications that we included. In addition to this we included five review articles, bringing the total in the dataset to 123 items.7

Results
Around half of the dataset consists of what one might call ‘overview’ items, that is to say they outline possible uses for simulation in legal education, often dealing in detail with the use of simulation both in law and in other disciplines. They contain no specific description of a real example of the use of simulation in the classroom or elsewhere. A significant minority of the items found are descriptions of, sometimes merely announcements about, simulations that are about to take place in a particular institution and the educational technology invested in rather than any information about their success or otherwise, or the resulting outputs.

Chronology
The graph below illustrates the chronological spread of items within our timespan of 1970-2012.

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7 Connolly & Davis (2002), Goldman (2008) and, on the subject of learning by doing, Duncan (1984) were especially useful. In some cases these reviews are merely bibliographical lists of references but others, notably that by Goldman (2008) helpfully provided short descriptive summaries of both the technology employed and subject area covered by the simulation. In all cases however, it has been necessary to read the items referenced themselves to uncover the finer detail of the simulation theory discussion or intervention(s) that took place.
The rate of publication remained fairly low during the 70s and 80s at a rate of several items per year with a small peak at the close of the 70s. Peaks can be observed in the late 90s and early 2000s a reflection of the rise in interest in the Internet following the establishment of the first widely available web browser in 1993 (Mosaic, and later Netscape). Another peak is seen in the mid-2000s when Second Life and other virtual communities began to make their presence felt. Publication numbers have continued to increase steadily ever since, reaching a high of 14 publications in 2011, though we cannot correlate an increase in publication with an increase in simulation activity within law schools. Interestingly, though, among the non-digital items found in our initial search, few were published much earlier than 1970. There may be a relationship between simulation and the use of innovative delivery technologies. The recent increase in the number of items corresponds with the predictions of more general reports such as the annual Horizon Reports, which describe simulation as a heuristic as becoming increasingly more visible.

**Geography**

Geographically, items originate from six common law jurisdictions. The greatest number of papers originated in the UK with 56, followed by the USA with 28. 15 papers originated from Australia, 2 from Canada, 2 from Hong Kong and one from the Republic of Ireland. Two items were cross-jurisdictional (eg UK/Aus) and another, falling under this category, was written from a pan-EU perspective (Petzold 1999). Figure 2 below illustrates the geographical spread:

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8 Here the jurisdictions of England, Scotland, Wales and Northern Ireland will be considered as one because of methodological problems in separating out simulations across the four jurisdictions.
Simulation data
A detailed summary of the information provided by the dataset on the structure of the simulations is set out below.

Year of study
32 of the items made specific reference to the year of study in which the simulation took place. The most commonly reported timeframe for a simulation to occur was during the year or years of postgraduate study. 21 of the items reported simulations that took place during those years – it would appear that they were designed or run on vocational or professional programmes. Four items referred to simulations that took place during the final year of undergraduate study. Five items described interventions that took place during the first year of study (Ashley 2000; Crellin et al 2011; Munro & Noah 1978; Vaughn 1995; Yule et al 2012) and a further two items described the use of simulations at various points of a degree-level programme (Garvey Zinkin 2009; Le Brun 2003).

Description of data subjects
A striking feature of the dataset is the near-absence of any data that describes the age, gender, ethnicity or native language(s) of the participants. There is also close to no discussion of accessibility issues for learners or staff in the simulations.

Simulation in different curricula
Simulation can often be used as a platform to enable learning in places or at a distance where conventional learning would be problematic. One item described a simulation that was specifically designed for distance learning (Barnett & McKeown 2012), three that were cross-jurisdictional (Bradlow & Finkelstein 2007; Maharg & Nicol 2009; Maharg & Paliwala 2004) and five described simulations that took place in the workplace among recent graduates of law schools (Hemming 2006 & 2007; Hutchinson 2006; Jabbari 2000; Macoustra 2004), with four of these items published in the last decade. Gould et al (2008) describe the development and evaluation of a simulation engine, the Simulated Professional Learning Environment (SIMPLE). The evaluations carried out in that project are the most extensive evaluations on simulation in legal education to date, involving a multi-disciplinary grouping across the UK (Architecture (1), Management Science (1), Law (5)). However statistical analysis of the quality of the
learning is lacking in all of these items, the studies often focusing on other aspects (eg in SIMPLE the key focus of the project was the analysis of the use of SIMPLE itself).

**Duration**

In those items that reported the duration of the simulations that were run, the timescales reported ranged from three hours (Boyne 2012) to 2 semesters (Maharg et al 2007; Barton & Westwood 2006). It was not possible to accurately ascertain the duration of simulations in the vast majority of items.

**Contact time**

Few of the items provided clear information as to the amount of contact time that students had with tutors or facilitators during, before or following the simulation. This included information on debrief times as well as in-simulation times. There is also a general lack of clarity about how much time students spent interacting with their peers while engaged in the simulation activity, either within simulation activities or beyond them. The true amount of contact time can be difficult to measure of course but some detail about scheduled class times or independent simulation times would have given insights into the nature of the simulations that is currently lacking in many simulation descriptions. There were two items that reported on intensive simulations that involved students having 100% contact time with staff over that period of time – Boyne (2012) at three hours, and Degnan & Haar (1970) at two days.

**Facilitators**

In the vast majority of cases it was difficult to ascertain how many facilitators had been used during each of the simulations. Indeed it is sometimes difficult to decide from descriptions who among the participants was a student and who was a facilitator. Often students and tutors are playing traditional hierarchical roles such as lawyer and partner respectively with professionals and additional staff providing support by playing characters in the simulation. However students are often playing multiple roles, which makes the question of facilitation more difficult to define and disentangle. Where numbers of participants are reported these are in the range 1-150. The simulation activity described by Schaefer (2010), and Poustie (2001) for example involves only one facilitator, the author having carried out the simulation alone with no assistance from other teaching staff (this would seem to be a fairly common feature of much of the non-digital literature also). At the other end of the spectrum, the simulation activity carried out by Barton, Maharg and McKellar involved between 250 and 283 students that involved as many as 30 or more facilitators. These activities are described in items by Barton & Maharg (2006), Barton, Maharg & McKellar (2007) and Barton & Westwood (2006).

**Student collaboration**

Of those items that referred specifically to the collaborative groupings in which students worked during simulations, eight items described, to a greater or lesser extent, the work that occurred in groups of four (Barton & Maharg 2006; Barton & McKellar 2007; Barton et al 2007; Barton & Westwood 2006; Billingham 2011; Ferguson & Lee 2012; Maharg & Owen 2007: Poustie 2001). One item mentioned groups of between two and four members (Barnett & McKeown 2012), and a further four items described the use of groups without specifying size (Babacan 2011; Boyne 2012; Bradlow & Finkelstein; 2008; Garvey & Zinkin 2009). The largest collaborative grouping reported was Serby (2011) where students worked in groups of 5-6. Students worked on their own as individuals in six items (Butler 2010; Degnan & Haar 1970; Lambiris & Oberem 1993; Munro & Noah 1978; Schaefer 2011; Yule et al 2012); and there was one instance of students working in pairs (Ashley 2000). Where group and pair activity is reported there was often little information regarding methods of group selection, for example whether they were self-selecting or formed by other means. There was also little comment on group function and dynamics, and the measures taken to enhance this aspect of learning from simulations.
Subject and skills areas
As a heuristic, simulation has the unique potential to cross the boundaries of jurisdictions (Maharg & Paliwala 2002), as well as the boundaries between substantive subject areas. Given the diversity of degree programmes and jurisdictions that are represented in the dataset it is perhaps not surprising to find that a large range of subject areas within law have been taught using simulation activities. It has been difficult to divide these into meaningful categories, for reasons of diversity of jurisdictions and terminological diversity, and so we cannot specify this in graphical form. In addition, many simulations involved more than one substantive area of law, sometimes in a matroshka doll structure. Thus 11 items describe the use of simulations in areas of civil practice, with five referring to civil practice in general (Billingham 2011; Ferguson & Lee 2012; Munro & Noah 1978, Serby 2011; Vaughn 1995). Within this general category one specified the area of law being litigated as environmental law (Bradlow & Finkelstein 2008), another tax law (Cassidy 2009), another corporations (Evans & Howe 2007), while one used the civil practice simulation as an opportunity for client counselling (Zariski 2010). Other items focused on constitutional law (Smith 2012); two items focused on criminal law (Barnett & McKeown 2012; Boyne 2012); one dealt with criminology (Grenfell & Warren 2010); with one each on dispute resolution (Ponte 2011), one on ethics (Evans & Howe 2007), and EU law (Petzold 1999).

If subject areas are at times difficult to identify with certainty, this is even more the case with legal skills. Some items were clear on the types of skills and the standards to which the skills were practised (Barton & Westwood 2006, for instance, or Bloxham & Armitage 2003). Two items developed skills of professional practice (Pescod & Seagroves 2009) while one developed information literacy skills (Macoustra 2004). Three dealt with practice skills in general (Webb 1995; Woodley & Beattie 2011; Pescod & Seagreaves 2009). These skills were specified to a degree, though the context was quite different, with the first focusing on clinical experience, the second addressing issues of practice and identity in cyberspace more abstractly and the third developing a range of practice skills: advising a client, drafting legal documents and negotiation in the context of the case that is constructed. Another project developed legal research skills (Widdison 2002), another legal writing (Ashley 2000), another mooting competitions (Yule et al, 2012). One of the most frequent skills was that of negotiation (Clark 1990; Bloxham 1998; Barton & Maharg 2007).

Interdisciplinary practice and theory
As we pointed out above, simulation as a heuristic has the potential to cross many boundaries between jurisdictions, institutions, subjects and sub-domains of knowledge acquisition and skill development. Simulation also has the potential to provide a means for students or professionals from a variety of disciplines to interact with each other. Indeed it is inherent in the three vectors of our search strategy – law, education and technology. In that sense, it could be said that there was to a significant degree a measure of hidden or invisible interdisciplinarity in all the items, and which surfaced in some items rather than others, often because such items focused on the process of simulation-building as well as describing the results. The work of Barton, Bloxham, Maharg, McKellar and Westwood was notable in this regard. In spite of this, however, it was remarkable that there were only two papers in the dataset (Boyne 2012; Maharg & Nicol 2009), describing a simulation that involved law students interacting with other professionals – the first social policy professionals in a terrorism response scenario, the second business law students facing an employment issue. In addition, Maharg & Nicol’s example was a cross-jurisdictional instance, between the Netherlands and Scotland, in which the law students had to work within the framework of European law and international private law. There is clearly much more that can be done in this regard.
Interdisciplinary theory was more widely represented in the dataset. In the early 80s and 90s CAI was influential as a constellation of theories that explained how technology and teaching could be successfully implemented – Ashley (2000) and Aleven (2003) are examples of this approach, as is the work of Bench-Capon, Leng & Stanford (1998) and the work of the Jurimetrics group. In the new century, we see the emergence of a constructivist approach to learning and education. In many respects this reflected wider changes in educational theory: the move away from a focus on computer-based metaphors of memory and cognition to a broader conception of mind, and an understanding of learning as being more than knowledge acquisition and the cognitive ability to rehearse, recall and apply knowledge. The social and connectivist aspects of learning began to be explored in simulations, along with collaborative models of learning. The work of Barton, McKellar, Maharg and Westwood is representative in this regard. Much more could be said of the theoretical developments within the dataset. For now we should note the energy and focus of theory in the literature – we shall discuss this below.

**Proportion and type of simulation activity carried out in the digital context**

Context matters in simulation, more so than in other forms of learning. The placing of resources and the availability of expert advice in the form of briefing and debriefing at the right moment, for instance, is important to the quality of learning that takes place in a simulation.\(^9\) The extent to which a simulation is conducted in the digital domain, and the activities that learners carry out there, are telling factors also. It is therefore important to understand how much of a simulation takes place within the digital domain, and the type of activities carried out there. In our dataset it was impossible in many cases to classify the interventions described due to lack of detail. We comment on this below in the final section of our chapter.

**Media and simulations**

Any form of media is a powerful determinant of learning. If a simulation is restricted to face-to-face and paper-based communications, then those contexts will affect what and how learners learn. If the affordances of the digital domain are used, the experience of learning becomes significantly different. We can understand why this might be so if we adopt Henry Jenkins’ distinction, common amongst media analysts, between *media* and *delivery technologies* (Jenkins 2006, 13). A delivery technology is a tool by which we consume media – he cites the Betamax tape or 8-track audio as examples of defunct technologies. Media, on the other hand, is a more complex concept, and Jenkins cites Lisa Gitelman’s two-level model of media.\(^10\) First, ‘a medium is a technology that enables communication’. Recorded sound is a typical example. But it is also ‘a set of associated “protocols” or social and cultural practices that have grown up around that technology’ (Jenkins 2006, 13-14). As Jenkins points out, a medium’s content shifts according to the delivery technology (he cites the example of television displacing radio as a storytelling medium), and ‘its social status may rise and fall’, but ‘once a medium establishes itself as satisfying some core human demand, it continues to function within the larger system of communication options’ (14).

Over the period of the review the available delivery technologies have of course changed remarkably, and their enhanced functionalities have had an effect on the social and cultural practices that have grown up around them. Thus, there are nine items in the dataset that can be classified as using CAI


(computer-aided instruction), and employing the use of AI (artificial intelligence) programs. These date mostly from the earlier period of our timespan, in the 1970s and 1980s. Three items from the 1990s describe interactive video (Killingly 1992; Hibbs & Vaughn 1994; Hogan et al 1989), and two describe the use of simulations that make much use of video conferencing (Boyne 2012; Bradlow & Finkelstein 2008). More recent items from 2000 onwards describe the use of transactional learning environments (TLEs). There are 19 such items. Five items refer to a ‘virtual world’ of some kind, four naming the multi-user virtual environment Second Life as being in use in whole or part of their simulation activity. One describes a virtual office (Ferguson & Lee 2012), one an electronic casebook (Ashley 2000) and there are several other studies that were conducted using custom-made interactive environments (eg Cassidy 2009).

**Statistical controls**

Meaningful comparisons about the efficacy of pedagogic interventions requires, to some degree, a body of studies involving statistical controls. In the entire dataset there is only one item (Ashley 2000) that provided this. Ashley compared the pre- and post-test results from a first year cohort of learners who were divided into control (conventional methods of teaching) and experimental (use of the CATO CAI application) groups.

**Student evaluations**

Data arising from student evaluation feedback is reported in only 15 of the 123 items. The chronological spread of the evaluation data is noteworthy. The earliest study (Degnan & Haar 1970) reported outcomes in detail with the next study to do the same dating from 1995 (Vaughn). It is only in the 2000s, in particular the late 2000s, that educators really begin to ask their students for formal feedback on the simulations in which they have participated. Australian institutions have been best at collecting and reporting student evaluation data, perhaps a reflection of their recent prominence in the area of simulation in education. Five of the US items reported student evaluation data, as did three of the items from England and one from the UK. In many items, however, student feedback data consists merely of a few quotations from a very small number of students. There are very few examples of pre-simulation and post-simulation evaluation taking place.

**Staff evaluations**

Data on the experiences of staff taking part in simulation exercises in legal education is even thinner on the ground than is student evaluation data. Of the 123 items in the dataset, only eight report staff feedback in any detail. Once again Australia leads the way with four such items. Additionally, there are two items from the USA and England that provide any data of this nature. All of these items date from 2000 onwards with a peak occurring in the past few years.

The quality of staff feedback is variable. In many of the items the source of data is the author, who is often the person designing and/or running the simulation, detailing his or her observations about how well the intervention was liked or disliked by those students and others who participated. Where staff and student feedback exists it is often reported in such a way that it is difficult to isolate an author’s opinions from the thoughts and feelings of the students or staff providing their feedback on the simulation.

**Emerging themes in simulation practice**

Much of the data that emerges from our dataset is not reliable in a statistical sense for the reasons set out above. With the caution that self-reported learning data is notoriously unreliable, and with the
proviso that much basic statistical data and information is missing from the dataset it nevertheless may be useful to give some indication of learning and other effects that have been reported following the use of simulations. The most commonly-mentioned effect is increased engagement, followed by a sense of authenticity and an appreciation of issues that might arise in the world of legal practice. Several authors mention time management, enhanced class discussion, improved problem-solving skills, increased motivation, opportunity to practice and professionalism as further positive outcomes.

Authenticity of learning is described by several authors as being a positive effect of simulation i.e. learners can learn from errors, which do not have the same consequences as they might have in the real world. Other items, however, point to this aspect of realism being off-putting for those about to embark on career. Collaboration is a benefit also mentioned by a few authors as are the opportunities to practise drafting, counselling and interviewing skills. Not all authors employ the same language when describing these characteristics, which makes comparisons somewhat difficult. Tutor feedback, while thin on the ground, gave a sense of heavy initial workload for staff in many simulation activities but a few discuss the reusability of the learning resources as an advantage.

Simulators as educators
Following on from the previous points, it is clear from many of the studies that simulation sits uneasily in the structure of most legal education curricula. To adopt the framework that Shulman developed, it remains a shadow pedagogy, challenging the orthodoxy of the hegemonic or ‘signature’ pedagogies in various common law jurisdictions. One of the reasons why this is so is the lack of infrastructure for staff and staff positions that can enable an organization such as a law school to develop, explore and sustain the heuristic. Such a person would likely be experienced and trained in the intersections between disciplines and professions such as law and technology, or education and technology. In turn, this requires an infrastructure for such a new employment category, including the recognition of educational and technical expertise, and reward and career structures for this new category of personnel.

Interdisciplinary theory and simulation in legal education
Looking back at the last 42 years of literature, simulation appears to be protean, chameleon-like. As we have seen above, it is capable of supporting many theoretical approaches and in particular two as different as jurimetrics and constructivism. This is in contrast to some other disciplines such as medical education, where simulation appears to be more uniform in approach and focused in outcome. The reasons why this is so have partly to do with the availability of more powerful and mobile computing, and the rise of the social and collaborative web – this undoubtedly fostered the rise of constructivist and connectivist approaches.

It also has to do with the nature of the discipline. Medical education simulation initiatives often use the approaches and evaluative instruments stemming from the scientific base of medicine and used in other areas of legal education, eg problem-based learning. By contrast, legal education is more porous, more open to other disciplines because its hegemonic pedagogies are articulated enough to ensure that

simulation and other ‘shadow’ pedagogies remain shadow, but those dominant pedagogies are neither sufficiently well-researched and verified themselves; nor to do they have a coherent scientific basis. There is an advantage to this weakness for simulation and other shadow pedagogies – interdisciplinary theory in legal education can more easily be adapted to legal educational practices such as simulation, in order to define and explain aspects of that practice. The disadvantage of this for simulation is a lack of coherence in method and particularly in evaluative methods, which this chapter evinces. It is perhaps significant that one of the most detailed recent literature reviews involving legal education was a multi-disciplinary endeavor, comprising Health, Social Sciences and Medicine.\(^{14}\)

**A future research programme**

It will by now be clear that the literature on simulation and technology is highly variable in quality, and in two areas particularly, namely granulated evidence of success in enhancing learning, and best practices in simulation. Few of the items about legal educational simulations have found their way into publications outside of the world of legal publication for example, in more general educational or technological journals. If the wider legal educational community is to be persuaded of the value of this experiential learning approach then wider publication is necessary. We would also propose that any future research should include the following data to improve the quality of scholarly literature in the field, set out in the next three points.

1. **Core data for simulations**
   The following basic data should be available in each research item where specific implementations of simulations are discussed:
   1. Number of legal educators involved and whether full- or part-time academic staff, administrators, technical staff, adjuncts, etc.
   2. Year level of learner cohort
   3. Number of learners
   4. Learner profile: age, gender, socio-economic and ethnicity where appropriate to research aims
   5. Description of the literature search undertaken and the educational approach taken by simulation designers
   6. Year of implementation and duration of simulation under analysis
   7. Subject domain(s) in law
   8. Any interdisciplinary interventions
   9. Media and platform descriptions
   10. Activities undertaken by students and staff
   11. Type of data analyses, eg controlled statistical study, qualitative study, etc
   12. Wherever possible, the development of simulation resources as Open Education Resources (OER).

2. **Extensible data**
   We also need:

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\(^{14}\) McKimm, J., Preston-Shoot, M. (2010). *Teaching, Learning and Assessment of Law in Medical Education.* Coventry and Newcastle: The UK Centre for Legal Education (UKCLE) and The Subject Centre for Medicine, Dentistry and Veterinary Medicine (MEDEV)
1. More reliable data on the quality of learning stemming, where possible, from correlative studies of learning. Baernstein et al, quoted in McKimm & Preston-Shoot, suggested that a rigorous methodology should contain the following characteristics:  
   a. Greater number of participants;  
   b. Multi-institutional focus;  
   c. Control or comparison group;  
   d. Measure objective outcomes;  
   e. Measure validated outcomes;  
   f. Measure outcomes at least one month after the intervention;  
   g. Conduct the intervention more than once;  
   h. Estimate statistical power.

2. Analysis of the types of activities learners carry out, by means of data-tracking, self-reporting and where possible observation that can counter the biases of insider research.

3. Longitudinal cohort analysis, eg tracking a cohort of learners through a whole programme of study, and possibly beyond.

3. Central data-point and updating of information

There is a need for a central data-point that contains reliable information on educational innovation. In the College of Law at The Australian National University we have set up a Centre for Legal Education and its Regulation – CLEAR. The Centre will have a number of projects that it will develop, one of which will be a Simulation Project. This chapter’s systematic review dataset will be posted up as a public resource on our Centre site, and a dynamic reference list will be posted on Zotero, in a group library entitled ‘Simulation and technology in legal education’, which will be open. It will be updated quarterly with a summary of each item in the review. Researchers will have the option of signing up for regular updates from the CLEAR site or simply checking the public site on Zotero.

Further implications

There are further implications for the whole question of research quality raised by this chapter, which should be addressed by those working in legal education. Medical research and information dissemination in many respects provides a gold standard to which we need to aspire. The Cochrane Collaboration, for instance (www.cochrane.org), is an organization that in the 20 years since its foundation in 1993 has produced the Cochrane database of reviews – over 5,000 systematic reviews and meta-reviews of primary research in human health care and health policy, and published and freely accessible in The Cochrane Library (http://www.thecochranelibrary.com/view/0/index.html). While research analysis on this scale is well beyond our infrastructure and funding sources, it should be possible to collect data more systematically, on a global scale, and to start to build the research architecture that will enable a more rigorous analysis not just of simulation and technology in legal education, but of every heuristic in legal education, whether innovative or conventional. Nor need we

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15 Baernstein, A., Liss H, Carney, P., Elmore J. (2007), quoted in McKimm & Preston-Shoot (2010), op cit. Trends in study methods used in undergraduate medical education research, 1969-2007. Journal American Medical Association. 298(9), 1038-45. McKimm & Preston-Shoot comment in their own field, that of medicine and law, that ‘much published research focuses on local processes and relies on student satisfaction and short term acquisition of knowledge’ (2010, 14). They also mention the problem of ‘insider research’, namely that many effects were observed and recorded by staff who were already involved in the educational intervention, rather than by trained outsiders (2010, 14). This was problematic in our dataset too.
limit this to heuristics: it could be argued that almost every aspect of legal education requires systematic analysis.

Yet systematic data is not the only terminus of systematic review. Even researchers in medical education recognize this. Their research methods arose in part from the scientific method within the discipline; but recently there has been a growing movement that argues the ‘gold standard’ of controlled trials and psychometric discourse is insufficient. Researchers such as Bleakely for example have compare research based on acquisition metaphors to aspects of identity-formation, narration, the rhetorical strategies of practitioners, models of ethical awareness, the role of activity theory and much else, while others such as Lingard have emphasized the collective competences of teams.16 These bodies of theory are not replacements for cognitive research or controlled trials. Rather, their explanatory and predictive power is appropriate to particular situations, particular purposes. As well as statistical studies, therefore, we need more sustained interdisciplinary analyses of why simulations work, under which conditions for learners, including the affective domain (Maharg 2011).

Within Law generally, the concern for systematic analyses has of course been a part of legal scholarship and jurisprudence. There are, however, terminological and conceptual differences with other disciplines. Discussing empirical studies of tort law for example, Schwartz describes the work of Saks and Galanter, mistakenly, as ‘meta-reviews’.17 In his article Galanter defines, explains, systematizes, presents new insights; it is a work of substantial scholarship, but his approach cannot be termed a meta-review, not least because of the nature of his subject matter, the nature of prior research he is gathering and analyzing, and the nature and method of his analysis. One can understand Schwartz’s intention, however: while the work of Saks and Galanter may not be meta-review or systematic review, the articles do occupy a discussion space where there is a concern, at a high level, to analyze systems and rule-based regimes from their effects, and which is a central empirical function in legal research.

The situation is different for legal education however, caught as an interdiscipline between education and law and glancing to sister educational discourse in medicine and elsewhere. One of the critical problems of legal educational scholarship we are still faced with, as we have seen in this chapter, has been the lack of systematic research review summarizing the empirical research carried out, and the results obtained. We hope that this chapter is the first of many in the field.

**Review dataset**


