

How to Stop Engineers from Becoming “Bush Lawyers”: The Art of Teaching Law to Engineering and Construction Students

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Abstract: Law forms a core part of most engineering and construction programs. The way that law subjects are taught varies dramatically, and too often focuses on trying to teach students complex aspects of the law, such as contract, tort, and trade practices. This paper suggests that the aim of including law subjects in construction and engineering degrees needs to be clearly understood as this determines the content of the law subject. It is argued that the reason for including a law subject should be not to teach students *the law*, but rather to train them to recognize when legal issues arise in their work, and how to respond to such issues. With this aim in mind, a model curriculum is proposed and insight given into how to most effectively implement such a course.

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Introduction

In Australia and New Zealand, the term “bush lawyer” is used to refer to those, who, although not qualified as lawyers, purport to have knowledge of the law, and to give legal advice.¹ The content of law subjects taught in many engineering and construction programs risk creating more bush lawyers, and we know from the abundance of lawyer jokes² that the world does not need more lawyers, not even bush lawyers!

This paper explores the idea that the purpose of teaching construction law to law students is fundamentally different from the purpose of teaching construction law to engineering, architecture, and building students (hereinafter “construction students”).³ Based on the writer’s own experience practicing as a construction lawyer for over two decades, and teaching law to construction students for five years,⁴ this paper argues that construction students do not need to be taught *the law*, but rather they need to learn how to recognize when legal issues arise, how to respond to those issues, how to protect their interests, and how to best assist their legal team to deal with problems when they do arise. It is analogous to the medical training that paramedics receive compared with the training that medical students receive. Paramedics need to have enough medical knowledge to be able to deliver first aid until a patient can be transferred to a doctor. The thesis propounded here is that construction and engineering professionals need to know just enough legal “first aid” to effectively manage a crisis until a lawyer is engaged.

What Is the Motivation for Teaching Law to Construction Students?

Although law has been a part of general undergraduate studies for well over a century, the motivation for having such courses has varied depending on the era (Gee and Webber 1986). For example in the 1950s it was said that law should be taught as part of liberal education so as to make students “aware of law as one of the great freedom-creating traditions of Western thought and action” (Berman 1956) and to develop students’ “reasoning and analytical abilities as well as a sense of justice” (Gee and Webber 1986). In the 1960s teaching law to nonlaw students was considered to be beneficial in “developing good judgment, a disciplined mind, self-awareness, and heightened consciousness of recurrent themes of civilizations” (Kirkpatrick 1965). The 1970s and beyond saw a broadening of the objectives for teaching legal studies to “increasing students’ awareness of the central role of law in daily life” (Gee and Webber 1986). This modern philosophy bears the closest resemblance to the objective of teaching law to construction students, that is, to give them the skills they need to respond to legal issues that arise in their professional lives.

Today, many university engineering, architecture, and building faculties include subjects on construction law in their programs because they are required to do so by various professional bodies.⁵ The rationale of these professional bodies is that students should know and understand the law regulating the profession they propose joining. However, many construction law units go beyond this, and seek to teach students about complex areas of the law such as tort, contract, and trade practices.⁶ It is this approach that the writer argues should be avoided. As Alexander Pope, wrote almost 300 years ago, “A little learning is a dangerous thing.”⁷ Learning just a small amount about a given topic can lead people to think they have more expertise than they really do. When it comes to legal problems, this can potentially result in engineers, architects, and contractors making a problem worse because they fail to promptly seek legal advice, erroneously be-

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believing that they have sufficient legal knowledge, from their construction law studies, to handle the problem themselves. Furthermore, construction students may not keep up with changes in the law after they graduate, and thus may seek to resolve legal problems by applying outdated legal knowledge. The writer's experience is that the negative impact of most legal issues can be minimized by seeking expert legal advice at the earliest opportunity.

In that context, the proposal here is that construction students do not need a watered down law course borrowed from a law school, but rather a specific and relevant subject designed to meet their needs as they enter their chosen professions.

Existing Scholarship on the Theory of Teaching Law to Nonlawyers

Although the model curriculum propounded in this article is based on the writer's own experience in teaching law to construction students, at both the undergraduate and graduate level, it is important to consider the existing literature relating to other scholars' experience of teaching law to nonlaw students. There has been considerable research conducted into teaching law to nonlaw students. Students undertaking degrees in disciplines other than law are often struggle with understanding sophisticated legal principles, terminologies, and ideas (Monseau 2005). Much of the research relates to legal education in social work and business faculties,⁸ however, the work most relevant to this paper, is the research relating to teaching law in construction faculties, and it is a selection of this literature that is analyzed in this section.

Morris reports on the teaching of law to building and real estate students at the Hong Kong Polytechnic University (Morris 2007). He concludes that the pedagogical approach employed in teaching law to nonlaw students should be different from that employed in law schools, but that this is difficult to achieve because courses tend to be taught by staff from law schools, who find it difficult to change their teaching methods. Morris notes that these academics were not only trained in law schools, but also taught in law schools, with the result that they are firmly entrenched in the law school pedagogy, a pedagogy not suited to students in other disciplines. Morris recommends that nonlaw faculties show leadership in educating law academics about curricular theory and pedagogical approaches used in their faculty, which are likely to be better suited to their student body (Morris 2007).

Morris concludes that law students generally undertake mandatory introductory subjects devoted to legal research and writing and how to study law, which are designed to give them the tools they need to study law, and that nonlaw students, by not receiving such introductory courses, are at a distinct disadvantage (Morris 2007). He therefore suggests the introduction of a new subject called *Introduction to the study of law for nonlaw students*. This approach seems entirely appropriate to a context where students are expected to analyze primary legal resources. However, the model proposed below extends Morris' differential approach by positing that nonlaw students should not be expected to be able to research law or write legal papers. Rather the objective of law subjects in construction faculties should be about understanding when and how the law impacts on their professional practice.

Soetendorp provides interesting insight into getting a narrow law subject (intellectual property) into an engineering program and concludes that there were three main obstacles:

1. The curriculum was very focused on students acquiring the technical skills needed to become engineers.

2. Professional bodies that accredited engineering schools did not require intellectual property to be addressed in the course.
3. There was a lack of faculty members qualified to teach an intellectual property subject (Soetendorp 2004).

With respect to general law subjects within construction and engineering programs, the first two obstacles identified earlier do not appear to be an issue, in that most professional bodies do recognize the need for those entering the engineering profession to have some knowledge of applicable law, and courses are structured to include a law component. However, the third point about the lack of qualified teachers within the faculty is likely to also be an obstacle in teaching law subjects, since very few engineering or construction faculties have qualified lawyers on staff. Interestingly, Soetendorp noted that the students do not present a barrier, and that once they understand why they are being asked to learn about intellectual property, they respond positively (Soetendorp 2004).

One aim of the curriculum model set out below is to ensure that students understand the reason behind the requirement that they undertake a law subject. This approach is supported both by Soetendorp, as explained earlier, and also by Doorey, who conducted research into teaching labor law to nonlaw students and concluded that the success of a law course is dependent on both the instructor and students having a clear and common understanding of the reason for the course (Doorey 2008). He noted that the objectives will vary depending on whether the law unit is being taught at a graduate or undergraduate level, or even to practitioners already working in the discipline (Doorey 2008). In the undergraduate context, Doorey emphasizes that teaching labor law is not about students learning legal doctrine, but rather about them understanding how this area of law informs the complex interactions that occur in the workplace. This shapes how law should be taught to nonlaw students, and Doorey emphasizes that "*students should not be assigned reams of case law*" and it is not helpful to require them to "*memorize lots of technical legal rules taken from cases or relevant statutes*" (Doorey 2008).

The same theme is taken up by Braye, Preston-Shoot, and John who argue that the objective of including law in nonlaw subjects is "*not to create legal experts. Rather, the aim is to provide legal education that enables students to operate effectively in their environment using legal concepts and rules*" (Braye et al. 2006). What appears to be missing from the literature, and what this paper seeks to address, is the development of content and methodology designed to facilitate the achievement of this aim.

What Skills Do We Want Construction Students to Have?

In light of the foregoing consideration, we can begin the identification of what skills we want construction students to have at the end of a law subject by specifying what they are *not* required to have. Construction students need not be familiar with legal jargon and Latin maxims. They need not know how to read and decipher lengthy court judgments; the model syllabus outlined below should be capable of being taught without students being required to read a single case. They need not study legal philosophy and theories of law and justice. They need not learn skills related to drafting legal documents, or making oral arguments. All of these matters are inherent in, and fundamental to, law degrees, but are unnecessary for construction students.

There are significant differences between the skills that are

taught in law schools, and the skills that construction students, undertaking some law studies, need to have. This paper argues that the only proficiencies that construction students should be expected to have after successfully completing a law subject are that they are able to:

- Understand when and how the law impacts on their profession and the projects they will work on.
- Respond to legal issues that may arise in their professional life in an appropriate and timely manner.
- Provide meaningful assistance to their legal team.

Thus, the law subject that construction students undertake, should be highly practical and tailored to the skills they will need when they enter their chosen profession. This is consistent with the findings of Morris who observed that “*legal problems are not always self-evident, and recognizing them requires specialist training*” (Morris 2007). The curriculum outlined next is intended to provide such specialist training.

Model Construction Law Subject

In light of the aforementioned arguments, it is suggested that construction students are best served by a subject that does not seek to teach them the law but rather teaches them the skills they need in order to be able to identify and respond to legal issues they are likely to encounter during their professional practice. With that in mind, Table 1 sets out a suggested curriculum. A more detailed discussion of each topic then follows.

The sequence of topics was determined by two factors. The first was to establish a sound foundational knowledge on which to build more complex and sophisticated discussions. Thus, the subject begins with general legal principles, which students need to understand before moving on to more difficult topics. In this way, students develop a level of confidence with legal terminology and dialogue before advancing to more challenging topics. The second rationale for ordering the topics in this way was to broadly follow the sequencing of a construction project—from tendering, to contracting, to the construction phase, and finally resolution of

disputes. In the writer’s experience, students feel comfortable with this structure and see it as a logical and effective means of covering the many varied topics.

It will be noted that this suggested curriculum does not focus on issues such as variations, time, latent conditions, payment, and defective work as many construction law curricula do.⁹ This is because for construction students, variations, time, payment, and so on, are generally viewed as *project management* issues rather than *legal* issues. They are everyday occurrences on most construction projects and covered in construction management subjects. It is contended therefore, that it is inappropriate to cover them in depth in a construction law unit. Rather, construction students need to be equipped with the skills to recognize when a management issue may be escalating into a legal issue, and how to respond to such a development. The model curriculum proposed here is therefore more skill based than knowledge based. Each of the 13 modules that make up the subject are considered in more depth next.

Why Study Construction Law? What Is Law? Sources of Law and Overview of the Law Governing the Construction Profession and Construction Projects

The first lecture should gently introduce students to what law is and where it comes from. The purpose of this is to ensure that students understand that the laws they must comply with during the course of a construction project are not only the laws set out in legislation, but also in court judgments, known as case law or common law. So students should be broadly introduced to areas such as the law of tort, in particular negligence, and the law relating to contracts, as aspects of the law that impact on construction. This knowledge should give students greater understanding about the purpose, structure, and content of the subject. That is, students are not going to be taught the law, but rather how to identify when there is a legal dimension to an issue, and if there is, how to deal with that legal aspect. As one writer stated, it is the difference between learning the law and learning *about* the law (Le Brun et al. 1989).

Legal Issues Relating to Tendering

The overwhelming majority of construction projects involve some form of tendering prior to a contract being entered into. Many in the construction industry view tendering only as a way of obtaining the lowest price, and fail to recognize that tendering involves many potential legal pitfalls and impacts on the legal framework for the entire project (Marsh 2000). The purpose of this lecture is therefore to expose students to the law regulating tendering, and to provide them with the skills to recognize when they need to seek legal advice before or during a tendering process.

Students should be introduced to the ethical obligations associated with the tender process (Zarkada-Fraser et al. 1998) [including the illegality of collusive tendering (Zarkada-Fraser 2000)] and to the various codes of practice governing tenders,¹⁰ including the legal status of such codes. Students should also become familiar with legislation governing tendering, particularly when the party calling for tenders is a government body, and understand the potential legal liabilities that those seeking tenders may face regarding any misrepresentations, errors, or omissions in the documents provided to tenderers.

Other issues relating to tendering that should be covered in this topic include potential legal liability if a nonconforming tender is accepted; withdrawal of tenders; the form of acceptance of

Table 1. Model Law Curriculum for Construction Students

Week	Topic (3 h per topic)
1	Why study construction law? What is law? Sources of law; and overview of the law governing the construction profession and construction projects.
2	Legal issues relating to tendering.
3	Legal issues relating to assessing and allocating construction risk.
4	Legal Issues relating to construction contracts.
5	Legal issues relating to alternative forms of contracting.
6	Legal issues relating to subcontracts.
7	Legal issues relating to the superintendent/engineer under a construction contract.
8	Understanding and complying with the regulatory regime.
9	Legal issues relating to insurance.
10	Dispute avoidance processes.
11	Alternative dispute resolution.
12	Construction litigation and arbitration.
13	Tying it all together; revision and exam preparation. ²⁷

tender, including the legal ramification of acceptances which are expressed as being either “subject to contract” or as a “letter of intent”; and posttender/precontract negotiations (Uher and Runeson 1984).

Assessing and Allocating Construction Risk

One of the main purposes of construction contracts is to allocate risks between the parties. This lecture should expose students to the Abrahamson model of risk allocation, which requires that a risk should be allocated to the party that is best able to manage, control, or transfer the risk (van Wassenae 2006) and to the legal ramifications of risk allocation.

Students should understand that any risk allocation must be made in the context of applicable law, and that the law may prohibit the transferring of certain risks from one party to the other (Cushman and Myers 1999). Students should also learn key terminology such as risk assessment, risk avoidance, risk management, risk transfer, and risk abatement, and the legal implications of each (Smith et al. 2006).

The topic of risk allocation is one that is likely to be also covered in other subjects that students are undertaking. It is therefore important that this lecture focuses on the legal implications or risk allocation, and in particular how the construction contract deals with risk, rather than broader project management issues involved with risk allocation. It is an area where it would be highly worthwhile for the lecturer to communicate and coordinate with other academics in the construction or engineering faculty who are likely to be addressing risk allocation in their subjects, so as to ensure a consistent approach with minimal duplication.

Legal Issues Relating to Construction Contracts

The title of this lecture emphasizes that students are not going to learn about the huge body of law that makes up contract law. Rather, construction students can expect to learn about a select number of key issues that tend to impact on construction contracts, including

- Contract formation, in particular that, apart from special cases, binding construction contracts can be formed orally, and certainly in the absence of any “standard form” document.
- How to read, interpret, and understand a construction contract.
- How to use a standard form contract, and pitfalls to be aware of when amending a standard form contract.
- What constitutes the contract, including when and how courts imply terms into a contract.
- What constitutes a breach of contract and the ramifications of a breach.
- What conduct amounts to repudiation and the consequences of a repudiation of the contract.

By learning about the aforementioned issues, students should acquire sufficient knowledge to understand how the law impacts on construction contracts, and be able to recognize when a contractual issue is a legal issue, and needs to be resolved using expert legal knowledge.

Legal Issues Relating to Alternative Forms of Contracting

Dissatisfaction with traditional forms of construction contracts led to the construction industry embracing alternative forms of contracting such as partnering and alliancing.¹¹ Students are likely to be exposed to these increasingly popular arrangements during

their careers, and therefore, need to learn about the legal ramifications of these different models of contracting.

This section is therefore designed to enable students to learn about the benefits and risks associated with alternative forms of contracts and to develop an understanding of the legal issues related to using contractual arrangements that are markedly different from the standard methods of contracting traditionally used by the construction industry.

Implications flowing from the *nonbinding* nature of the partnering charter (see Tyrill 1998) should be explored. For example, the dispute resolution procedures of the charter may differ from those of the contract, and prioritization of compliance with the *charter* procedures may result in a party failing to comply with a notice condition in the contract, thereby losing rights under the contract (Bresnen and Marshall 2000). Alliancing is also explored. Like the usual contractual position, in alliancing the parties *are* legally bound, but the terms are generally very different from the standard building contract. For example, alliancing contracts may require that all decisions be unanimous, and that there is no third party dispute resolution mechanism (Thomson 1996).

Legal Issues Relating to Subcontracts

The overwhelming majority of construction work is performed by subcontractors. Indeed it is said that there are probably 20–25 subcontracts entered into for every one major building contract (McGuinness 2007). This justifies focus upon legal issues and problems unique to subcontracts. For example, it is commonplace for head contractors to seek to bind subcontractors to the same obligations that the head contractor is under pursuant to its contract with the principal. Frequently, this is done by adding a clause in the subcontract that purports to incorporate the terms of the head contract into the subcontract. Although this may be the simplest way for the head contractor to try to pass on maximum amount of risk to the subcontractor, it is not always effective. Students should learn about instances where courts have criticized this practice and found it to be invalid,¹² and explore alternative legally valid ways of achieving the same objective.

Other legal issues relating to subcontracts, that construction students should be familiar with, include

- Repudiation by “variation.”¹³
- Default by a subcontractor.
- Nominated subcontractors.
- Tripartite dispute resolution (involving the principal, main contractor, and subcontractor).

If students learn about the legal issues relating to these aspects of subcontracting they should be well placed to manage subcontract arrangements and be able to identify when a legal issue has arisen, and respond accordingly.

Legal Issues Relating to the Superintendent/Engineer

Many construction students will at some time during their career act in the role of a superintendent or engineer under a construction contract, and those students who do not actually end up in this role will invariably have dealings with a superintendent/engineer on a construction project. Superintendents have the difficult job of performing two separate roles, namely as an agent of the principal when performing some tasks, and as an independent assessor/certifier when performing other tasks. Students should learn about the different obligations that the law imposes on superintendents depending on which role they are performing (Mead 1999).

Although the superintendent is assigned various responsibilities under the building contract, he/she is not actually a party to that contract, and has no direct contractual relationship with the builder. Students should learn about projects where contractors have sued superintendents for alleged breaches of a duty of care to the contractor.¹⁴ This is one of the few topics where it is suggested that students may have to read cases, or at least extracts of cases, since it is only from the case law that students can learn exactly what the obligations are that the law imposes on superintendents/engineers.

Understanding and Complying with the Regulatory Regime

Construction industries all around the world are governed by rules and regulations, albeit of vastly different complexities, and based on different philosophies regarding the appropriate degree of government intervention in construction projects. Students entering the construction and related professions need to be aware of the statutory regimes that will impact on their work and projects. Thus, this module should cover

- Registration/licensing requirements for members of the construction industry, including any mandatory insurance requirements associated with registration.
- Building and/or planning permit requirements for projects, including mandatory inspection stages and final certificates of occupancy.
- Occupational health and safety laws.
- The authority and functions of the various regulatory bodies, including their powers to prosecute and discipline practitioners for breaches of statutory requirements.
- Security of payment legislation.¹⁵
- Statutorily required contract clauses, for example regarding cooling-off periods or maximum allowable deposits.¹⁶

This is a lot of material to cover in one lecture, and it is not intended that students acquire a detailed knowledge of each of these different aspects of regulation. Rather, students should understand the philosophy behind the regulatory regimes and develop an awareness of the complex regulation that governs the construction industry so that they are able to identify when it impacts on their activities, and ensure they are always in compliance (Bosch and Philips 2003).

Legal Issues Relating to Insurance

Those entering the construction and engineering professions are going to be faced with a multitude of potential liabilities, and insurance is one way they can seek to manage these exposures. The purpose of this lecture is to educate students about different types of insurance; how to analyze insurance and indemnity clauses in construction contracts and consultancy agreements; how to read and understand insurance contracts; and the duties and responsibilities of both the insured and insurer.

Students should also learn about professional indemnity insurance, public liability insurance, contractors' works insurance, and any statutorily required insurances such as for workers' health and safety.¹⁷ In analyzing these different types of insurance, students should become familiar with insurance terminology such as subrogation, indemnification, and the duty of utmost good faith, so that they are not intimidated by having to analyze an insurance policy. Students should also become familiar with issues surrounding making a claim under an insurance policy, including, for example, determining whether a policy is a claims-made policy or

an occurrence based policy, which impacts on which policy governs the event for which insurance cover is sought (Bunni 2003).

By the end of this lecture, students should be comfortable with an insurance policy, understand the various components that make up a contract of insurance, and have the skills to be able to competently deal with day-to-day insurance issues that arise on construction projects, while at the same time recognizing when they need to seek expert legal advice relating to an insurance matter.

Disputes Avoidance Processes

All too often a construction project is finished, but the disputes continue. Too much time and money is wasted in construction litigation and arbitration. There is much discussion of the need to prevent disputes on construction projects, but only recently have concrete methods been developed that actually assist parties on a construction project to stop conflicts from escalating into full-blown disputes that can only be resolved in the legal system. Dispute avoidance processes (DAPs) are systems that those involved in construction projects can implement at the start of the project to manage conflicts and disputes as they arise (Gerber 2001).

This lecture should introduce students to the three models of DAPs available, namely dispute review boards,¹⁸ dispute adjudication boards,¹⁹ and dispute resolution advisors.²⁰ It should explore the advantages and disadvantages of each of these early intervention models and provide students with the skills to determine whether a particular project is suited to a DAP, and if so which one. In addition, students should learn about the legal ramifications of using a DAP, i.e., do the rules of natural justice apply to the DAP? Will the decision/recommendation of the DAP be admissible in any subsequent litigation or arbitration?

The construction industry as a whole is likely to benefit if the next generation of professionals are aware of the variety of on-site DAPs available, and feel comfortable using them, rather than managing disputes in the way the construction industry has traditionally done so, which has resulted in it having a reputation as an adversarial and dispute prone business.²¹

Alternative/Appropriate Dispute Resolution

This module should introduce students to the multitude of dispute resolution techniques available for resolving disputes that remain outstanding at the end of a construction project, including negotiation, mediation, adjudication, expert determination, and mini-trials (also known as senior executive appraisal).²² The lecture should begin with analyzing the requirements for dispute resolution contained in various standard form contracts. Students should learn about the myriad of different dispute resolution mechanisms that can obviate the need for the parties to take their dispute to court or arbitration. Students should be introduced to the way each form of alternative/appropriate dispute resolution (ADR) works, its advantages²³ and disadvantages,²⁴ and the way to prepare for an ADR process in order to maximize the chances of achieving a favorable outcome (Horan 1996). The emphasis of this module is on students developing an understanding of the different ADR processes so that they can make an informed decision about which dispute resolution method to pursue, and be able to effectively assist their legal team in the event that lawyers are engaged.

Construction Litigation and Arbitration

When a construction project ends up in litigation or arbitration, the parties invariably have lawyers representing their interests. Therefore, construction students do not need to know the rules or procedures for conducting litigation or arbitration, and they do not need to know the intricacies of pleadings and evidence. These matters are best left to the lawyers. What they should know is how they can make their case as strong as possible, and how they can best assist their legal team. This lecture should therefore focus on developing students' understanding of what is required to win a construction case once it is in the court or arbitral system. Thus, students should learn about the importance of having adequate documentation to substantiate all claims (Kangari 1995). In that context, a good case can be made for *all* project documentation, including, minutes of meetings, instructions, correspondence, and site diaries to be drafted as if they will one day be read by a judge or an arbitrator, and this point can be made to the students.

Students should also learn about the process of giving evidence, and this is best done by conducting a mock hearing (Tarchini and Vandercoy 2000). This exposes students to the ways in which construction disputes are handled once they are in the court or arbitration system and, in the writer's view, serves dual purposes. First, it helps students to appreciate the significance of the documents they will create throughout their professional life, in terms of supporting (or not) any position they adopt on an issue. Second, the somewhat unpleasant experience of being cross examined may convince students that being involved in a construction trial is something that should be avoided if at all possible, hence incentivising competent practice in the future. Finally, students should learn about the pivotal role that experts play in most construction cases and how, and when, an expert should be engaged (Crisham 1987).

Tying It All Together: Revision and Exam Preparation

In the final class, the lecturer should endeavor to unify the disparate topics that have been covered in the course and emphasize that students who have completed this subject are not expected to know the law, but rather understand how it can impact on their work in the construction profession. Exam questions should therefore be designed to give students an opportunity to demonstrate their skills in identifying and responding to legal problems that may arise during the course of a construction project. Students should be well equipped to do this because of the numerous class exercises they have participated in as part of this subject (see section on Problem-based teaching). Thus, one of the best forms of preparation that students could do for the exam is to practice doing previous class exercises, and any past exam papers that are available, under exam like conditions, that is, within the same time period available for the exam, and with the same materials that students will have in the actual exam (Angelo and Cross 1993).

It will be recalled that the early part of this article identified three skills that students should have after completing this subject, namely: (1) understand when and how the law impacts on their profession and the projects they will work on; (2) respond to legal issues that may arise in their professional life in an appropriate and timely manner; and (3) provide meaningful assistance to their legal team. It is suggested that the proposed module addresses these three aims, in that, at the end of the unit, students should have the ability to recognize when legal issues arise and

how to respond to those issues. Furthermore, this knowledge enables graduates to provide meaningful assistance to their legal team by, for example, consulting lawyers in a timely manner,²⁵ adequately documenting problems,²⁶ and understanding the legal principles at stake and what is needed to address them. Construction projects are very document intensive, and a client can save a lawyer considerable time in getting up to speed with a dispute, by providing a detailed chronology of events leading up to the conflict, and attaching relevant documents. By providing such assistance to a construction lawyer, a client is likely to get faster and more efficient service, which will in turn reduce the amount of fees charged by the lawyer.

Problem-Based Learning

Because this subject is designed to equip students with the skills they need to identify potential legal issues, rather than to teach them the content of applicable law, it is essential that students be given a lot of opportunity to learn and practice these skills. It is therefore recommended that those teaching a law subject to construction students adopt a problem-based learning approach (Evensen and Hmelo 2000). That is, they provide students with plenty of opportunities to think critically, analyze real world problems, and come up with their own solutions. To achieve this, it is suggested that each 3-h class be broken into 2 h of lecturing and 1 h of hands-on practical problem solving. This could be done in tutorials, or alternatively, as small group exercises within the regular lecture. This method of teaching gives students an opportunity to apply what they have learned, and gives lecturers a chance to see whether students have grasped the key concepts. This is consistent with the recommendation of Christudason who advocates breaking classes into groups of 4–5 students to discuss problems and present their findings to the rest of the class (Christudason 2004). Two examples of problem-solving class exercises are included in the Appendix.

Engaging students with real problems to discuss and debate, such as the two outlined in the Appendix, is likely to promote deep rather than surface learning (Bond and Le Brun 1996). The result is that students are motivated to *understand* the material, not just rote learn, and reproduce in an exam, the content of a lecture. Thus, problem-based teaching is designed to make learning possible, by encouraging students to actively participate with the content, rather than being passive recipients of knowledge.

Course Materials

A challenge in teaching law to construction students is finding reading material that is pitched at the right level and sufficiently accessible to intelligent students lacking a legal background. If it is necessary to use cases, the lecturer should endeavor to edit the judgment so that students are required to read only the sections that directly relate to the issue that students are learning about, and, if necessary, the lecturer should provide a summary or paraphrase the case so that it is understandable by a lay audience. Secondary materials such as texts and articles on construction law tend to be written for a legal audience, and are too detailed or sophisticated for undergraduate construction students (Christudason 2004). As one scholar noted, "using a simpler textbook, without large numbers of excerpts from cases or case-based problems" significantly improved business students' outcomes in her law subject (Monseau 2005). It may therefore be necessary for the

subject lecturers to themselves write suitable course materials, until such time an appropriate text is available for construction students.

Integrating the Law Subject

It appears that law subjects offered in construction and engineering faculties are often taught by a staff member from the law school of that university, or even by a practicing member of the legal profession (Morris 2007). The result may be that the law subject is not well integrated into the degree program as a whole, and appears to be unconnected and unrelated to other subjects the students are undertaking (Soetendorp 2004). It is therefore recommended that the person in charge of the law unit make a concerted effort to collaborate with other academics in the construction/engineering/architecture faculty with a view to better connecting the law subject with the overall discipline. This is particularly true with subjects relating to construction management and project management. One way of achieving better integration of the law subject might be to develop factual scenarios, which can be used across several subjects. The two class exercises in the Appendix (superintendent's liabilities and DAPs) could be analyzed and discussed just as easily in a project management class as in a law subject. Thus the problem-solving approach to teaching not only assists students to develop the required analytical skills, but can also provide opportunities to weave in issues from other subjects that students are undertaking simultaneously with the law subject (Christudason 2004).

Conclusions

It is argued that the similarities between teaching a law subject to construction students, and teaching construction law to law students, are few and far between. The objectives, content, and methodology are different. It is important that law subjects for construction and engineering students should not be designed to teach them the law, nor turn them into bush lawyers. Rather, the curriculum and pedagogy should be aimed at students developing skills that enable them to recognize when there are legal ramifications or implications to a problem, and the knowledge and skills to respond appropriately.

This paper began with a medical analogy that compared the training that paramedics need with the training that doctors need, and it is appropriate to end with another medical analogy. Morris compared the legal training that construction professionals need to the knowledge that patients need in relation to doctors. He suggests that just as a "*patient needs to know enough about health and medicine to practice preventive medicine, to know when to take an aspirin, and when to visit the doctor*" so too do construction professionals need to know enough to know when they need to seek legal help (Morris 2007).

It is argued that helping construction students to not be intimidated by law, and to come to appreciate and understand its impact on their work, is much more art than science. It involves differentiating between teaching students the law and teaching students *about* the law and its impact. It requires lecturers to pay careful attention to the course materials to ensure that they are pitched at the appropriate level i.e., for a nonlegal student body. Finally, to achieve the specified outcomes, the subject must be taught in a way that students learn through developing problem-solving skills, and feel that the subject is relevant to, and connected with,

the rest of their studies. It is proposed that by teaching law to construction students in the way outlined above, the construction industry will come to be made up of highly skilled professionals who understand how the law impacts on their projects, and know when and why they need to seek legal expertise. The next research challenge is to formally evaluate the model curriculum and assess it against these claims.

Appendix

Legal Issues Relating to Superintendents—Class Exercise

You are the contractor on a project to convert an inner city office block into residential apartments. The contract is a lump sum contract for \$2.8 million, and under the contract the engineer, Big Bad Bruce (BBB) is nominated as the superintendent. Just as the project is reaching practical completion the principal/owner goes into liquidation. The contractor alleges that it is owed significant sums under the building contract by the principal. The contractor commences proceedings against BBB alleging that, as superintendent on the project, he owed a duty of care to the contractor to act fairly and impartially in carrying out his functions as independent certifier under the building contract. The contractor alleges that BBB undercertified the progress payments that the contractor was entitled to, and overcertified the amount of liquidated damages that the principal was entitled to withhold, with the result that the principal did not pay to the contractor the amounts that were properly owing to it under the building contract. Thus the contractor alleges that BBB should be liable to pay the contractor damages for effectively directing the principal to underpay the contractor.²⁸

Do you think that BBB has any liability to pay damages to the contractor? Justify your answer.

Students would be expected to begin the discussion by talking about which role the superintendent was performing when assessing progress claims and liquidated damages i.e., was BBB acting as an agent of the principal or as an independent certifier. Students should conclude that BBB was performing these tasks as an independent certifier and go on to discuss the legal obligations imposed on a superintendent when carrying out tasks as an independent certifier. Students would be expected to discuss previous attempts of contractors to sue superintendents and what the courts decided in those cases. It is expected that students would conclude that BBB is unlikely to have any liability to the contractor. Students might also discuss the policy reasons behind this, including insurance implications, the relevance of an arbitration clause, and the fairness of having a superintendent potentially liable to both parties to the construction contract.

This class exercise is designed to give students an opportunity to apply the law relating to superintendents in a practical way, and to demonstrate to the lecturer, that they understand the myriad of complex legal responsibilities imposed on superintendents. If students omit to address relevant matters, and/or misapply the legal principles, the lecturer will recognize that not all students have fully grasped this topic and should therefore revisit the issues and go through them again until he or she is confident that the students do understand, and can apply, the relevant legal principles.

DAPs—Class Exercise

You are a developer about to commence a new project—the construction of the tallest residential tower in the world. It will be

350 m tall and consist of 120 floors of luxury apartments. The design is extremely original and complex with many state-of-the-art features, which are likely to prove challenging for the contractor. The drawings and specifications have been finalized and all necessary approvals obtained. The total construction cost is estimated to be \$575 million. You plan to proceed on the basis of a lump sum contract with a large reputable construction company.

The project has an estimated duration of four years. Most of the apartments have been presold and any delay beyond the date for practical completion will mean heavy penalties have to be paid to the purchasers. Also, it was difficult to obtain finance for the project, and there are severe constraints on the budget.

Although you are an experienced developer, many of your projects have ended up in costly litigation or arbitration. You would like to try and have a cooperative relationship with the contractor and are anxious to avoid this project ending up in court. *What, if any, dispute avoidance process would you consider using on this project, and why?*

In order to answer this question, students first need to analyze the three different DAPs and consider what aspects of the project influence the selection of a DAP. For example, given the tight time constraints a dispute adjudication board may not be appropriate, since they generally have very generous time frames for the board making a decision (84 days). Other aspects that may impact on the choice of DAP include the value of the project (\$575 million), the duration of the project (four years), the complexity of the design, the constraints on the budget, and the impact of any delays.

There is not necessarily a right answer to this problem. It is more important that students demonstrate an understanding of how DAPs work and what factors influence the choice of a DAP. Better students will also refer to other steps that the developer could take to minimize the risk of disputes at the end of the project, such as partnering and alliancing arrangements covered in the "Legal issues relating to alternative forms of contracting," lecture thereby demonstrating an understanding of how the different modules that make up the subject are interlinked.

Endnotes

¹Macquarie Library Pty Ltd. (2001). *Macquarie dictionary federation edition*, NSW, Australia.

²See, for example, Irvin, Dale and Dolan, John Patrick. (2001), *The lawyer's joke book*, LawTalk Publications; William L Pfeifer, Jr. and G. Ray Kolb, Jr. (2007). *The greatest lawyer jokes of all time*, Pipers Willow, Inc.; Rovin, Jeff. (1992), *500 great lawyer jokes*, Signet; and Wilson, Phineas T. (2007), *The politically incorrect book of lawyer jokes*, Quaker Hills Press.

³For a comprehensive review of construction law subjects for law students, see Bell, Matthew. (2006), "Construction law graduate studies: Around the world in 80 subjects," *Construction Law International*, 1(3), 19.

⁴Between 2000 and 2004, the writer taught construction law to building and architecture students in the Faculty of Architecture, Building and Planning at the Univ. of Melbourne, Australia, and still regularly returns to present guest lectures to such students. Prior to moving into academia, the writer worked as a construction lawyer in London, Los Angeles, and Melbourne.

⁵See, for example, the accreditation requirements of the Royal Institution of Chartered Surveyors, Royal Australian Institute of Architects, Australian Institute of Building, Australian Institute of Quantity Survey-

ors; Australian Institute of Building Surveyors, Chartered Institute of Building, Singapore Institute of Surveyors and Valuers, Hong Kong Institute of Surveyors, and Institute of Surveyors Malaysia.

⁶See, for example, the Faculty of Design, Architecture and Building at the Univ. of Technology in Sydney, which offers a unit entitled "Construction law and professional practice," which examines the tortious liability imposed by the law upon professionals, some major contractual problems related to the building industry, and an outline of employment law and statutory industrial regulation. It also provides an understanding of the issues of professional codes and of conduct and ethical behaviour, legal research, and referencing. Accessed at www.handbook.uts.edu.au/subjects/16421.html on 10 September 2008. See also Swinburne Univ. in Melbourne, which offers a construction law subject, the content of which is described as "legal relationships; agency, partnerships, firms, companies, and unincorporated associations; professional responsibility and relationships; client, architect, engineer, contractor, subcontractor; insurance; loss, noncompletion of contract, injury, death, weather, etc.; role of the lawyer in drawing up contracts; bankruptcy of contractor/client; tort; tendering procedure; negotiating within an existing contract; dispute avoidance and settling disputes; contract variation procedure; and commercial law." Accessed at <http://courses.swinburne.edu.au/Subjects/ViewSubject.aspx?mi=300&id=501> on Sept. 10, 2008.

⁷Pope, Alexander. (1709). *An essay on criticism*.

⁸See, for example, Braye, S., Preston-Shoot, M., and Johns, R. (2006), "Lost in translation? Teaching law to non-lawyers: Reviewing the evidence from social work," *Law Teacher*, Vol. 40(2), 131-150; Jan-kovic, J. and Green, R. (1981), "Teaching legal principles to social workers," *Journal of Education for Social Work*, Vol. 17, 281; Endshaw, A. (2002), "Teaching law to business students: An inquiry into curriculum methodology," *Law Teacher*, Vol. 36, 24; Skwarok, L. (1995), "Business law for non-lawyers: Setting the stage for teaching, learning, and assessment at Hong Kong Polytechnic University," *Law Teacher*, Vol. 29, 189; and Monseau, Susanna C. (2005), "Multi-layered assignments for teaching the complexity of law to business students," Paper presented at the *ACT 8 Creative Teaching Conf. of the World Association for Case Method Research and Application*, January. Accessed at www.rider.edu/files/bridge-monseau_mla.doc on Sept. 11, 2008.

⁹See, for example, *Construction Law* offered at Monash University Law School at www.monash.edu/pubs/handbooks/subjects/LAW4190.html and *Principles of construction law* at the Univ. of Melbourne Law School accessed at <https://app.portal.unimelb.edu.au/CSCApplication/view/2008/730-493> on Sept. 14, 2008.

¹⁰See, for example, *The Australian Standard Code of Tendering (AS 4120-1994)* and the UK Construction Industry Board's *Code of Practice for the Selection of Sub-Contractors* (1997).

¹¹See, Abrahams, A. and Cullen, A. (1998), "Project alliance in the construction industry," *Australian Construction Law Newsletter*, 62, 31; Halman, J. I. M and Braks, B. F. M. (1999), "Project alliancing in the offshore industry," *International Journal of Project Management*, 17(2), 71; and Bremen, J. (2000), "Alliance contracting? Why choose alliancing?" Paper presented at *Alliancing Contracting in Construction Conf.*, Dec. 11-12, Sydney.

¹²See, for example, the Australian cases of *Carob Industries (in Liq.) v. Simto Pty. Ltd.* Western Australia Full Court, May 22, 1997 and *Behmer & Wright v. Tom Tsiros Constructions*, Victorian Supreme Court, Oct. 30, 1997.

¹³For example, see *Chadmax Plastics Pty Ltd v. Hansen and Yuncken (SA) Pty. Ltd.* (1984) 1 BCL 52 where a variation directed by the

superintendent under the head contract, amounted to a virtual cancellation of the subcontract, and was held by the court to constitute repudiation of the subcontract.

¹⁴See, for example, *Pacific Associates Inc v. Baxter* [1990] 1 QB 993; *P&E Phontos Pty Ltd v McConnell Smith and Johnston Pty Ltd.* (1993) 9 BCL 259; *Christiani & Neilson Pty Ltd v. Goliath Portland Cement Co Ltd.* [1993] 2 TASR 122; and *John Mowlem & Co Plc v. Eagle Star Insurance Co Ltd.* (1995) 62 BLR 126.

¹⁵See, for example, *Housing Grants, Construction and Regeneration Act 1996* (UK); *California Civil Code* relating to Mechanic's Liens and Stop Notices (Title 14, Chapters 2-4); and *Building and Construction Industry Security of Payment Act 2002* (Victoria, Australia).

¹⁶See, for example, the *Domestic Building Contracts Act 1995* (Victoria, Australia).

¹⁷There are numerous textbooks and articles relating to construction insurance issues. In the United States see W. J. Palmer, J. M. Maloney, and J. L. Heffron (1996), *Construction insurance, bonding, and risk management*, McGraw-Hill Professional. For an overview of insurance issues in a variety of countries see Knocke, Jens (ed.) (1993), *Post-construction liability and insurance*, Taylor & Francis.

¹⁸For further information about dispute review boards see Matyas, Mathews, Smith, and Sperry (1995), *Construction dispute review board manual*, McGraw-Hill; Gerber, Paula (1999), "Construction dispute review boards," *Australasian Dispute Resolution Journal* 10(1), 9; and Maxwell-Smith, Shelley (2004-Feb.), "Dispute resolution boards: Coming to a project near you?" *Australian Construction Law Bulletin*, 16(1), 1.

¹⁹For further information about Dispute Adjudication Boards see Jaynes, Gordon (2000), "FIDIC's 1999 edition of conditions of contract: Is the DAB still a star?" *International Construction Law Review*, 42; and Bryan, M. Seifert (2005), "International construction dispute adjudication under international federation of consulting engineers conditions of contract and the DAB," *Journal of Professional Issues in Engineering Education and Practice, ASCE*, 131(2), 149–157.

²⁰For further information about dispute resolution advisors see Wall, Colin. (1992), "The dispute resolution advisor in the construction industry" in Fenn, Peter, and Gameson, Rod (eds.), *Construction conflict management and resolution*, E & FN Spon, London; and Cheung, Sai-On (1999), "The alternative dispute resolution movement in the construction industry in Hong Kong," *Australasian Dispute Resolution Journal*, 10(2), 98–112.

²¹See, for example: (May 1990) "No disputes" report of the joint working party of the National Public Works Conf. and the National Building and Construction Council (Australia); and "Arresting the decline of the UK construction industry" (2003) accessed at http://www.coursework.info/University/Engineering/Arresting_the_decline_of_the_Uk_construc_L44614.html on June 23, 2008.

²²Sai-On Cheung, Henry C. H. Suen, and Tsun-Ip Lam (2002), "Fundamentals of alternative dispute resolution processes in construction," *Journal of Construction Engineering and Management*, Vol. 128(5), 409–417; Harmon, Kathleen M. J. (2003), "Resolution of construction disputes: A review of current methodologies," *Leadership and Management in Engineering*, Vol. 3(4), 187–201; and Steen, Richard H. and MacPherson, Robert J. (2000), "Resolving construction disputes out of court through ADR," *Journal of Property Management*, Vol. 65(5), 58.

²³For example, as compared to litigation and arbitration, ADR offers flexibility, cost savings, time savings, is controlled by the parties, and has the potential to preserve relationships between the parties.

²⁴ADR requires both parties to cooperate in progressing a dispute toward a settlement and thus if one party is not interested in resolving a dispute, ADR may not be suitable.

²⁵A common problem encountered by the writer in her two decades working as a construction lawyer, was that clients often came when the problem had escalated beyond their control, by which time many opportunities for early resolution had been lost.

²⁶For example, it greatly assists a construction lawyer conducting arbitration or litigation if the client has detailed file notes of all communications with the other party and has taken photographs at critical stages of the construction.

²⁷It is beyond the scope of this article to discuss in depth the most suitable assessment regime for a law subject for construction students. Suffice it to say that it should assess students' ability to identify legal problems as they arise and respond appropriately. Thus it should be skill based rather than testing students' knowledge of particular areas of law.

²⁸The facts for this class exercise are adapted from the Australian case of *John Holland Construction and Engineering Pty Ltd v. Majorca Projects Pty Ltd* (1997) 13 BCL 235.

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