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Working the Nexus: Teaching Students to Think, Read and Problem-Solve Like a Lawyer

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WORKING THE NEXUS: TEACHING STUDENTS TO THINK, READ AND PROBLEM-SOLVE LIKE A LAWYER

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I INTRODUCTION

The nature and purpose of Australian legal education has changed over time¹ but it is at least arguable that one constant has been the importance of law students learning to think: more particularly, learning to think ‘like lawyers’.² Despite agreement on thinking as a fundamental legal skill,³ giving content to this concept has generated debate within the academy⁴ and the profession. There is also some debate about why the many law students who will never be lawyers need to learn to think like lawyers. Further, even if there were

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¹ See, eg, Nickolas J James, ‘A Brief History of Critique in Australian Legal Education’ (2000) 24 *Melbourne University Law Review* 965; Mary Keyes and Richard Johnstone, ‘Changing Legal Education: Rhetoric, Reality, and Prospects for the Future’ (2004) 26 *Sydney Law Review* 537; Margaret Thornton, ‘The Idea of the University and the Contemporary Legal Academy’ (2004) 26 *Sydney Law Review* 481; Margaret Thornton, *Privatising the Public University: The Case of Law* (Routledge, 2011).

² See discussion in Peter John Macmillan, *Thinking Like An Expert Lawyer: Measuring Specialist Legal Expertise Through Think-Aloud Problem Solving and Verbal Protocol Analysis* (PhD Thesis, Bond University, 2015) 15-22 <<http://epublications.bond.edu.au/cgi/viewcontent.cgi?article=1167&context=theses>>.

³ Evidenced through the broad agreement reached across the tertiary sector and admissions authorities in the threshold learning outcomes for law: Sally Kift, Mark Israel and Rachael Field, *Bachelor of Laws Learning and Teaching Academic Standards Statement* (Australian Learning & Teaching Council, 2010).

⁴ See overview in Nick James, ‘Logical, Critical and Creative: Teaching “Thinking Skills” to Law Students’ (2012) 21(1) *Queensland University of Technology Law and Justice Journal* 66, particularly at 68-9 citing Michelle Sanson, ‘Thinking Like a Lawyer’ (2006) *International Bar Association Conference Newsletter*. Cf Larry O Natt Gantt, ‘Deconstructing Thinking Like a Lawyer: Analyzing the Cognitive Components of the Analytical Mind’ (2007) 29 *Campbell Law Review* 413.

agreement on what ‘thinking like a lawyer’ really means, how to teach legal thinking effectively remains relatively obscure.⁵

Access to professional development that might support the teaching skills of law teachers in relation to thinking skills is therefore crucial. While the framework presented in this article arises from professional development resources we have developed as part of the Australian Government Office for Learning and Teaching-funded *Smart Casual* Project,⁶ we suggest that teaching support which is of benefit to sessional academics is equally likely to benefit permanent colleagues. To this end, we draw on our work in the *Smart Casual* Project, offering law teachers a case study of the systematic development of an explicit approach to teaching thinking skills in law.

This article identifies the knowledge a law teacher might need to be able to teach law-specific thinking skills in an existing law curriculum within an Australian law degree. Following from that, we analyse how component thinking skills might coalesce within a teaching environment. Using the umbrella concept of thinking skills, we draw on the literature of legal education and on our collective experience to identify how law teachers embed three component thinking skills – reading law, critical legal thinking and problem solving – as part of a comprehended whole, providing concrete examples of integrated approaches to thinking skills in particular subjects to demonstrate the approach. We argue that through breaking down then building up these complex processes in a scaffolded approach, law teachers will be better placed to explain to students what is involved in learning law, and to identify how best to support student learning. While the genesis of the identified categories of thinking skills lies in analysis of the needs of sessional law teachers particularly, we present the findings here as relevant to all law teachers. Deriving as it does from work with sessional law teachers in particular, this approach does not presuppose a law teacher with the authority to alter curriculum. Instead, it outlines a conceptual approach with practical application in the context of classroom teaching.

As a result of its focus on what teachers need to know and be able to do, the taxonomy of thinking skills adopted here differs from other important work⁷ on curriculum design and regulatory requirements

⁵ Anthony S Niedwiecki, ‘Lawyers and Learning: A Metacognitive Approach to Legal Education’ (2006) 13 *Widener Law Review* 33.

⁶ *Smart Casual* identified eight initial dimensions of legal curricula warranting the provision of professional development resources to sessional teachers. It took cues from the Law Threshold Learning Outcomes, a review of the wider literature on legal education, surveys of sessional academics in three law schools, and national consultation with Associate Deans of Learning and Teaching and other experts in legal education. It also drew on the feedback provided by focus groups of sessional teachers who trialled the resources developed in the first phase of the project. *Smart Casual* modules are designed for self-paced professional development of sessional law teachers. Smart Casual, *The Smart Casual Professional Development Modules* <<https://smartlawteacher.org/modules/>>.

⁷ For thinking skills, see, eg, James, above n 4; Nickolas James, ‘Embedding Graduate Attributes Within Subjects: Critical Thinking’ in Sally Kift et al (eds), *Excellence and Innovation in Legal Education* (LexisNexis, 2011) 69.

which starts with the text and import of the Law Threshold Learning Outcomes ('TLOs') published in the *Discipline Standards for Law*.⁸ It advances knowledge in the field through its integration of skills that might otherwise be treated separately, providing both an overview of each component skill together with a synthesis of all three. The aim is to present the complexity of 'thinking like a lawyer' to afford law teachers with additional insights into student learning – in a way that might be applied in class.

This article begins with an analysis of three of the many component skills in the 'thinking like a lawyer' construct – legal problem solving, reading law, and critical legal thinking – and the way in which the three aligned *Smart Casual* thinking modules have interpreted these components. It explains the decisions made as to the structured approach to each, with a view to providing tools directly applicable to the classroom. The second part then illustrates how the components adopted in the three modules interrelate as part of a nexus, a seamless mode of thinking 'like a lawyer'. In doing so, it shows how a scaffolded approach to the teaching of discrete thinking skills in law is better understood as part of a larger, more complex whole.

II SCAFFOLDING TEACHING TO THINK LIKE A LAWYER

Thinking skills are considered important in higher education generally. This aligns with indications that employer groups rank 'critical thinking and analytical skills' highly in terms of graduate employability.⁹ Accordingly, graduate attributes of most Australian universities include at least some reference to thinking skills.¹⁰ The importance of thinking skills in law is evident from the TLOs, though, as Nickolas James explains, the TLOs canvass a variety of more particular skills.¹¹ James suggests that collectively these skills could be described as 'thinking like a lawyer' although this term is not without

⁸ Kift, Israel and Field, above n 3; see also the subsequent Good Practice Guides available at Legal Education Associate Deans Network, *Resources – Good Practice Guides* <<http://www.lawteachnetwork.org/resources.html>>.

⁹ See, eg, Foundation for Young Australians 'The New Basics: Big Data Reveals the Skills Young People Need for the New Work Order' (Report, Foundation for Young Australians, 2016) <http://www.fya.org.au/wp-content/uploads/2016/04/The-New-Basics_Update_Web.pdf>; Graduate Careers Australia, *What Employers Want* (2016) <<http://www.graduatecareers.com.au/careerplanningandresources/starting-your-search/graduateskillswhatemployerswant/>> although problem solving and analytical skills had reduced in importance in the 2014 Graduate Outcomes Survey after consistently sitting at the third most important for many years. Graduate Careers Australia, *Graduate Outlook 2014: Employers' Perspectives on Graduate Recruitment in Australia* (2015) 16 <http://www.graduatecareers.com.au/wp-content/uploads/2015/06/Graduate_Outlook_2014.pdf>.

¹⁰ Wendy Green, Sarah Hammer and Cassandra Star, 'Facing Up to the Challenge: Why is it so Hard to Develop Graduate Attributes?' (2009) 28 *Higher Education Research & Development* 17, 21; John Clanchy and Brigid Ballard, 'Generic Skills in the Context of Higher Education' (1995) 14 *Higher Education Research & Development* 155; Anna Jones, 'RedisCIPLining Generic Attributes: The Disciplinary Context in Focus' (2009) 34 *Studies in Higher Education* 85, 86.

¹¹ James, above n 4.

its own problems.¹² Without entering into the debate around the term, this article is based on the proposition that the three component skills are all recognisable as lawyering skills, and together constitute a suite of skills that reflect what is, for convenience, called ‘thinking like a lawyer’.¹³

The *Smart Casual* project found that from the perspective of a law teacher, the three components of thinking skills are identifiable as requiring specific instruction, yet many sessional academics feel underprepared to teach them to students. From this starting point, our analysis has taken form in a more generalised way that might encompass the likely experiences of all legal academics. Many (if not most) legal academics have graduated with a law degree that would not have covered the TLOs for law, which form a consensus model of the future of Australian legal education. Future legal education thus depends on teachers’ capacity to use skills that were not explicitly modelled to them as students.

It is important to note that these thinking skills are not novel – they have long been the cornerstone of legal practice. In the past however, such skills were largely learnt by osmosis or trial and error, principally through a focus on legal problem solving throughout the degree.¹⁴ It was assumed that the learning of such skills was immanent in the curriculum. With massively increased numbers of law students,¹⁵ changes to high school education, and a constantly evolving higher education environment¹⁶ it is no longer sufficient for such skills to be learnt implicitly, and many teachers perceive a student skill gap they were unaware of as students.¹⁷ Our work on *Smart Casual* has confirmed that while all teachers have these skills, understanding how to encourage their development in others requires a separate set of skills.

¹² Ibid. See also Macmillan, above n 2.

¹³ The approach and content of the modules proposed by *Smart Casual* have been endorsed by the Council of Australian Law Deans (CALD) and the Legal Education Associate Deans (LEAD) and reflect the TLOs for law. The extensive national consultation on which the TLOs were based gives a very strong indication that contemporary legal practice demands graduate capabilities that go beyond those of the past.

¹⁴ See, eg, discussion in Penny Carruthers, Natalie Skead and Kate Galloway, ‘Teaching, Skills and Outcomes in Australian Property Law Units: A Survey of Current Approaches’ (2012) 12(2) *Queensland University of Technology Law and Justice Journal* 66.

¹⁵ Analysis by the *Australian Financial Review* has found that ‘the number of domestic bachelor and post-graduate law finishers in 2014 was up by more than 1200, or 9 per cent, year-on-year’ in Emma Tadros and Katie Walsh, ‘Too Many Law Graduates and Not Enough Jobs’ *Australian Financial Review* (online), 22 October 2015 <<http://www.afr.com/business/legal/too-many-law-graduates-and-not-enough-jobs-20151020-gkdbyx#ixzz4TWdYECrU>>.

¹⁶ Summarised, eg, in Pauline Collins, ‘Australian Legal Education at a Cross Roads’ (2016) 58(1) *Australian Universities’ Review* 30.

¹⁷ See, eg, Mary Heath et al, ‘Beginning to Address “the Elephant in the Classroom”’: Investigating and Responding to Australian Sessional Law Teachers’ Unmet Professional Development Needs’ (2015) 38 *University of New South Wales Law Journal* 240, 255.

Three of the *Smart Casual* modules embody some or all of the components of TLO 3 ('thinking skills'), but are organised according to the identified needs of sessional law teachers, resulting in three discrete modules: reading law, and critical legal thinking, and problem solving. Categorising skills in this way has resulted in some insights into the complexity of the tasks facing both students as learners, and all legal academics as teachers. In particular, as we have observed the often complex connections between each ostensibly discrete skill, we have sought to articulate how the teaching of these skills might be scaffolded, an approach to educational design that 'helps learners develop independence, fluency and range of performance as they move along the development continuum from novice to expert'.¹⁸

A Reading Law

The first skill students attempt to master in legal studies is the reading of legal texts. Reading law permeates introductory units and their textbooks and, more recently as a result of intervention by the admitting authorities, one aspect of reading law, statutory interpretation, is taking on a higher profile throughout the degree.¹⁹ For law teachers, including those who were not taught explicitly how to read law, the skill is likely to have become intuitive. Without guidance, it can be difficult for the expert to articulate to the novice how to comprehend and make use of complex and diverse genres of legal writing. For the novice law student, reading law is the crucial foundation skill they require to advance in their law studies. Without proficiency in reading law, they will not have the materials with which to engage in critical legal thinking nor to solve legal problems.

Beyond simply reading for meaning, critical reading is a form of critical thinking. A critical reader must 'read against the text', looking to find what the author has not said as much as understanding what has been said.²⁰ This characteristic of lawyerly reading is a learnt skill that involves a complex process of de-constructing and re-constructing passages into propositions and data that are legally relevant. A skilled reader is also aware of the techniques that the authors have used in the manner of writing to convince readers or to delimit meaning.²¹

As with any complex skill, students must develop techniques of critical reading specific to law. These include recognising when terms of art are used, the meaning implied by the placement of text within document structures (for example, the use and limitations of headnotes in judgments, or headings in statutes), and strategic reading methods to

¹⁸ Stuart Levy and Holly Campbell, 'Promoting Motivation and Engagement among Academically at Risk Students' (2007) 9(3) *Widening Participation and Lifelong Learning* 17, 22.

¹⁹ Jeffrey Barnes et al, 'Good Practice Guide to Teaching Statutory Interpretation' (Good Practice Guide, Council of Australian Law Deans, June 2015).

²⁰ Elizabeth Fajans and Mary R Falk, 'Against the Tyranny of Paraphrase: Talking Back to Texts' (1993) 78 *Cornell Law Review* 163.

²¹ See generally Elizabeth Mertz, *The Language of Law School: Learning to 'Think Like a Lawyer'* (Oxford University Press, 2007) 100.

make sense of large documents (such as use of defined terms, indexes, skimming and re-reading).

In addition to unfamiliar reading techniques, the nature of the documents students read can also be unfamiliar and therefore require the acquisition of a further layer of skills particular to each genre of legal writing. For Australian students, law is principally found in statutes and regulations, case law, and private legal documents – each a discrete genre with its own interpretive requirements. To identify the rights and duties, opportunities and restrictions, rewards and punishments imposed on people’s behaviour, the lawyer must be skilled in interrogating and unpacking the text in these complex, non-intuitive forms of writing.

For example, legal judgments are often written in a narrative essay style, frequently without headings, and focus on an individual issue, rarely offering explicit indications of the law as it is applicable to other future situations. Readers must thus winnow general principles applicable to future scenarios from the detailed analysis of the facts of the case. Judicial referencing, legal and literary conventions are unfamiliar to the lay person and all require decoding. Making sense of case law requires attention to the context within and external to the written judgment, both of which are also crucial to understanding of the doctrine of precedent.²²

In contrast, statutes, legislative instruments, and regulations aim for precise description in concise language. Whereas judgments look to definitely resolve a historic incident, statutes speak to all future incidents, seeking to pre-determine legal outcomes through abstract descriptions of possible future behaviour. Despite the goal of clarity, the abstract nature of the language can mean that significant and often technical skill is needed to understand conventions. Additional knowledge of the body of law surrounding the correct approaches to determining textual meaning, the context of the provision, and the overall purpose of the statute are also needed.²³

The products of private law, such as contracts, trust deeds and wills, may seek to establish norms of behaviour through concise wording but they too must be submitted to interpretative conventions and a range of judicially imposed implications to supplement the express terms.²⁴ Likewise, procedural law demands adherence to prescribed form and conduct derived from regulation. In addition to interpreting language, law students must identify when implications are appropriate.

As highlighted in the case of statutory interpretation and through the doctrine of precedent, significant bodies of law exist providing interpretive directives as to the ‘correct’ way to read. Reading law thus occurs not simply in an English literacy sense – although this is important – but alongside substantive law itself.

²² Michael Kirby, ‘On the Writing of Judgments’ (1990) 22 *Australian Journal of Forensic Sciences* 104.

²³ See, eg, Tom Gotsis (ed), *Statutory Interpretation: Principles and Pragmatism for a New Age* (Judicial Commission of New South Wales, 2007).

²⁴ Scott J Burnham, ‘How to Read a Contract’ (2003) 45 *Arizona Law Review* 133.

Although not an explicit focus within the framing of thinking skills adopted in this project, it is important also to mention that in addition to critical reading, to interpret (and therefore to use) the law *creatively* requires yet further higher order skills:

Lawyers work with words, so most of our creative acts involve the construction of new language and interpretation of existing language, creating new concepts from whole cloth or from the interstices of statutory, regulatory or contractual gaps.²⁵

How law is read is also linked to theories of the role of law, including philosophical, ideological and moral ideas, imposing a further interpretive lens as to the context and purpose of words.²⁶ For this reason, the law graduate must understand how people with diverse world-views will read law and doing this requires self-awareness of their own interpretative lens.²⁷

Extracting or creating meaning, propositions and legally relevant facts from texts is implicitly a process of critical analysis and thinking. Placing that data within broader considerations and assessing its strengths and weaknesses is a process of explicit legal critical thinking.

B *Critical Legal Thinking*

In addition to the literature on critical thinking generally, there is a well-developed literature on critical legal thinking.²⁸ As a field of inquiry, critical thinking attracts diverse views, with some claiming it as a generic higher order cognitive skill, and others suggesting that it only becomes relevant within a particular disciplinary context.²⁹ Without entering into this debate, for legal educators critical thinking is necessarily taught within the context of the discipline of law. Indeed, the implication from studies analysing critical thinking skills is that

while critical thinking skills themselves transcend specific subjects or disciplines, exercising them successfully in certain contexts demands domain-specific knowledge, some of which may concern specific methods and techniques used to make reasonable judgments in those specific contexts.³⁰

²⁵ Carrie Menkel-Meadow, 'Aha? Is Creativity Possible in Legal Problem Solving and Teachable in Legal Education?' (2001) *Harvard Negotiation Law Review* 97, 127.

²⁶ Nick Johnson, 'The Lecturer, the Law Student and the Transmission of Legal Culture' (2006) 40 *Law Teacher* 117.

²⁷ Clifford Geertz, 'Found in Translation: On the Social History of the Moral Imagination' (1977) 31 *Georgia Review* 788. We explore this aspect in more detail in Alex Steel et al, 'Critical Legal Reading: The Elements, Strategies and Dispositions Needed to Master This Essential Skill' (2016) 26 *Legal Education Review* (in press).

²⁸ See, eg, James, above n 1.

²⁹ See discussion in Philip C Abrami et al, 'Strategies for Teaching Students to Think Critically: A Meta-Analysis' (2015) 85 *Review of Educational Research* 275; Jones, above n 10.

³⁰ Peter A Facione, *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction – Executive Summary* (California Academic Press, 1990) 5.

Appleby, Burdon and Reilly point out that there is ‘no consistent definition’ of critical thinking.³¹ Additionally, they observe that in the context of the law critical thinking has both ‘immanent and extrinsic qualities’.³² In broad terms, however, critical thinking can be considered as the

[a]ctive, persistent, and careful consideration of a belief or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends.³³

One key division in the critical thinking scholarship is between a narrow view of critical thinking as competency in logical reasoning, and a broader conception that incorporates a critical and reflective disposition.³⁴ *Smart Casual* adopts this broader conception and sees critical thinking as a mental process that extends beyond ‘black letter’ reasoning. In the legal context, critical thinking encompasses interpretation, analysis and evaluation of legal claims and arguments. But it also incorporates assessing the alignment of legal doctrines and rules in light of legal and political standards, jurisprudential frameworks, legal theories, ideological and theoretical standards, frameworks from other disciplines and ethical models and professional codes.³⁵

While this explains the context for critical thinking in law, it was important for *Smart Casual* to conceptualise how this occurs so that we could develop a toolkit for law teachers to assist students to develop their own critical thinking. To this end, Byrnes and Dunbar³⁶ outline the contours of critical thinking that have been used to inform the project’s approach. Their overarching observation is that critical thinking is metacognitive and reflective, requiring ‘thinking about your own or someone else’s thinking’.³⁷ The metacognitive element demands that the thinker should reflect on their biases and not uncritically accept their own perspective. Thus its evaluative contour involves considering the quality of an argument and this requires the thinker to be ‘skeptical and moderately distrusting’.³⁸

The analytical component requires the thinker to identify and scrutinise the processes involved in gathering evidence to support the argument in question, and how that evidence has been evaluated. This too has a metacognitive element in that to engage in this process

³¹ Gabrielle Appleby, Peter Burdon and Alexander Reilly, ‘Critical Thinking in Legal Education: Our Journey’ (2013) 23 *Legal Education Review* 345, 347.

³² Ibid 348.

³³ John Dewey, *Moral Principles in Education* (Houghton Mifflin Company, 1909), cited in Alec Fisher, *Critical Thinking: An Introduction* (Cambridge University Press, 2nd ed, 2011) 4.

³⁴ See, eg, James R Elkins, ‘Alternating Currents: One Teacher’s Thinking about the Critical Thinking Movement’ (1999) 23 *Legal Studies Forum* 379.

³⁵ James, above n 1.

³⁶ James P Byrnes and Kevin N Dunbar, ‘The Nature and Development of Critical-Analytic Thinking’ (2014) 26 *Educational Psychology Review* 477, 480–1.

³⁷ Ibid 480, citing Deanna Kuhn, ‘A Developmental Model of Critical Thinking’ (1999) 28(2) *Educational Researcher* 16.

³⁸ Byrnes and Dunbar, above n 36, 481.

requires an understanding of the mode of developing domain-specific (legal) knowledge. Finally, Byrnes and Dunbar observe that critical thinking is ‘effortful, potentially time-consuming, and mentally taxing’.³⁹ This insight is useful for the law teacher in raising awareness of the additional cognitive processing capacity required in critical thinking beyond that needed for lower order thinking skills.

Using Byrnes and Dunbar’s contours to inform the approach to critical legal thinking extends the scope of the *Smart Casual* approach beyond that identified by TLO 3 (‘thinking skills’). Arguably, by incorporating metacognition as integral to critical legal thinking, the ‘thinking skill’ begins to overlap with TLO 6 (‘self-management’). Indeed, there are links to the resilience components of the *Smart Casual* module on Wellbeing, indicating the fluid boundaries of ostensibly discrete skills. The broad conception of critical thinking adopted by *Smart Casual* also incorporates aspects of TLO 1 (‘knowledge’), particularly the broader contexts within which law operates and the complex issues they raise.⁴⁰ Incorporating metacognition in this way may start to address some of the criticisms of the lack of ‘soft skills’ in legal education more broadly – thus supporting law teachers in teaching a more contemporary law curriculum. It also can help to support the understanding that to solve legal problems effectively requires more than technical skill.

C Problem Solving

Bentley points out that ‘legal reasoning is usually a fundamental element in the teaching and understanding of law in common law countries’.⁴¹ It is also central to the work lawyers (and law graduates in many other fields) undertake in professional life.⁴² The use of problem solving exercises in substantive law subjects in Australian law schools (as well as those in the United States) is accordingly widespread.⁴³ The typical hypothetical scenario used in class and examinations involves fact patterns designed to raise one or more issues within a specific area of law.⁴⁴ Depending on curriculum design however, students may be

³⁹ Ibid.

⁴⁰ See, eg, Alex Steel, ‘Good Practice Guide (Bachelor of Laws): Law in Broader Contexts’ (Good Practice Guide, Australian Learning & Teaching Council, June 2013).

⁴¹ Duncan Bentley, ‘Using Structures to Teach Legal Reasoning’ (1994) 5 *Legal Education Review* 129, 129.

⁴² Niedwiecki, above n 5, 58–9. Cf Ann Sinsheimer and David J Herring, ‘Lawyers at Work: A Study of the Reading, Writing, and Communication Practices of Legal Professionals’ (2016) 21 *Legal Writing Journal* (forthcoming).

⁴³ Jones, above n 10; Nelson P Miller and Bradley J Charles, ‘Meeting the Carnegie Report’s Challenge to Make Legal Analysis Explicit – Subsidiary Skills to the IRAC Framework’ (2009) 59 *Journal of Legal Education* 192; Alex Steel and Dominic Fitzsimmons ‘Assessing Problem based and Experiential Learning: Answering Legal Problem Questions in a Grid Format’ in Kathryn Coleman and Adele Flood (eds), *Marking Time: Leading and Managing the Development of Assessment in Higher Education* (Common Ground Publishing, 2013).

⁴⁴ Bentley, above n 41, 130; Steel and Fitzsimmons, above n 43.

expected to grapple with knowledge and skills other than those belonging to the one discrete area of law. For example, statutory interpretation is frequently taught as substantive law and process within the context of a particular doctrinal field.⁴⁵ The same can be said of the doctrine of precedent.

Through practice, students are expected develop the problem solving skills needed to deal with real-world legal problems creatively and effectively.⁴⁶ It is therefore important that students acquire legal problem solving skills that are transferable outside of class, and away from structured prompts and the safety of a distinct legal subject. In other words, the (micro) skill of problem solving as the direct application of a discrete portion of law to a factually bounded scenario is necessary to develop students' legal problem solving abilities – but it is not sufficient of itself as legal thinking. Rather, problem solving requires critical thinking and reasoning skills, such as the evaluation of statements or evidence and inductive, deductive and analogical reasoning.⁴⁷ It is also a creative skill that stretches to include the identification of opportunities to resolve legal problems without recourse to adversarial approaches: legal problem solving involves creating solutions to legal problems, and most legal problems will be resolved outside of court.⁴⁸ Law graduates need to be able to undertake problem solving as part of a repertoire of other thinking skills.⁴⁹

In the taxonomy of skills canvassed by *Smart Casual*, guidance in how to teach a structured approach to problem solving⁵⁰ does not go so far as overtly addressing the elements of logic used in legal reasoning, or the possibilities of an expanded and non-adversarial approach to problem solving.⁵¹ The rationale for this choice reflects the aims of the project. Sessional teachers often do not have the capacity to construct curriculum (for example, to implement a non-adversarial approach) and *Smart Casual* is premised on providing support for teaching skills rather than for curriculum construction. The problem solving module therefore focuses on supporting sessional law teachers to articulate to students the structured processes of problem solving that are likely to

⁴⁵ See, eg, the vignettes below.

⁴⁶ Jones, above n 10; Jeffrey Metzler, 'The Importance of IRAC and Legal Writing' (2003) 80 *University of Detroit Mercy Law Review* 501. Whether this process succeeds is, of course, open to debate: Bobbi McAdoo, Sharon Press and Chelsea Griffin, 'It's Time to Get It Right: Problem-Solving in the First-Year Curriculum' (2012) 39 *Washington University Journal of Law and Policy* 39, 53.

⁴⁷ Niedwiecki, above n 5, 60; Miller and Charles, above n 43.

⁴⁸ Carrie Menkel-Meadow, 'The Lawyer as Problem Solver and Third-Party Neutral: Creativity and Nonpartisanship in Lawyering' (1999) 72 *Temple Law Review* 785, 786; Molly Townes O'Brien, 'Facing Down the Gladiators: Addressing Law School's Hidden Adversarial Curriculum' (2011) 37(1) *Monash University Law Review* 43, 50, 55.

⁴⁹ Indeed this is reflected in the organisation of the TLOs: see Kift, Israel and Field, above n 3. See also Niedwiecki, above n 5, 60.

⁵⁰ Mary Heath et al, *Problem Solving* (15 August 2016) Smart Casual <<https://smartlawteacher.org/modules/>>.

⁵¹ James, above n 4.

be adopted by most law schools. This foundation is, however, instructive in a broader application.

The literature discussing whether and how to use structured approaches debates whether these systems are tools for teaching these skills to students, or a rote approach that risks precluding teaching them; and whether structured approaches erase creativity or ensure the acquisition of fundamental skills upon which creativity would necessarily be based.⁵² As Carrie Menkel-Meadow has cautioned, adopting one approach to what lawyers can know and should be able to do may preclude other forms of knowledge and other skills.⁵³ Similarly, George Gopen summarised the debate between rival approaches (and their acronyms): ‘These organizing structures are both necessary and dangerous, both supporting and defeating. As with any good idea... they can all be used for harm as well as good.’⁵⁴

The MIRAT framework used as an exemplar in *Smart Casual*⁵⁵ – one of many such structured approaches⁵⁶ – is presented as a tool to assist students to structure their legal arguments clearly. However, the module implicitly calls on law teachers to require students to read law and to think critically. For example, the first step ‘M’ (locating the material facts) requires a constant switching between Bloom’s lower order ‘knowledge’ domains such as knowing what facts form the elements of the relevant general rules, and ‘cognitive’ domains that require insight into what it means to say that a fact is ‘material’; and the identification of facts that might be missing, exceptions that may come into play, and alternative arguments that may colour the relevance of particular facts. Authors such as Miller and Charles argue that reasoning is an explicit part of the ‘A’ (analysis or argument) in MIRAT or IRAC; but reasoning is implicit in the formation of ‘R’ (rule) as well.⁵⁷

Determining that something is a fact for legal purposes is itself a higher order cognitive task. Law students are required to re-learn within a legal mindset what are ‘facts’ and what are not. Facts are only details of a scenario that can advance legal claims based on statute or precedent,⁵⁸ and material facts are those relevant to the current legal issue.

⁵² See, eg, Linda Morton, ‘Teaching Creative Problem Solving: A Paradigmatic Approach’ (1998) 34 *California Western Law Review* 375; Greg Taylor, ‘Structured Problem-Solving: Against the ‘Step-by-Step’ Method’ (2006) 11(1) *Deakin Law Review* 89; George Raitt, ‘Preparing Law Students for Legal Practice: Or, How I Learned to Stop Worrying and Embrace Uncertainty’ (2012) 37 *Alternative Law Journal* 264, 268.

⁵³ Menkel-Meadow, above n 48, 787, 791; O’Brien, above n 48, 48.

⁵⁴ George D Gopen, ‘IRAC, REA, Where We Are Now, and Where We Should Be Going in the Teaching of Legal Writing’ (2011) 17 *Journal of the Legal Writing Institute* xvii, xviii.

⁵⁵ John H Wade, ‘Meet MIRAT: Legal Reasoning Fragmented into Learnable Chunks’ (1990) 2 *Legal Education Review* 283.

⁵⁶ Gerald Lebovits, ‘Cracking the Code to Writing Legal Arguments: From IRAC to CRARC to Combinations in Between’ (2010) 82(6) *New York State Bar Association Journal* 64; Gopen, above n 54.

⁵⁷ Miller and Charles, above n 43, 202.

⁵⁸ William M Sullivan et al, *Educating Lawyers: Preparation for the Profession of Law* (Wiley, 2007), 56.

One of the advantages of adopting a structured formalistic approach to problem solving is that it provides law teachers themselves with the means of deconstructing a process that may have become intuitive to them. *Smart Casual* adopts a ‘reflective teacher’ approach, prompting contemplation as to the difference in experience and knowledge between the teacher and student – arguably a useful approach for all law teachers. Law teachers – whatever their background – may solve legal problems intuitively, but students are still developing this skill and require a structured approach to practise it.⁵⁹

In presenting a structure and an explicit method for law teachers to interrogate their own problem solving, and thus to share their experience with students, the formal approach instils some of the dispositions recognised as integral to critical thinking⁶⁰ and to ‘soft’ legal skills more broadly.⁶¹ It also offers strong opportunities to invite students to think creatively and both inside and outside the adversarial frame.

These are reinforced by the module on reading law that emphasises the critical stances taken by legal readers, and the module on critical legal thinking that encourages thinking beyond instrumentalist logics. Together they aim to encourage a reflective use of these problem solving techniques as heuristic scaffolds to a more nuanced ability in students.

III INTEGRATING THINKING SKILLS

As James implies, reading law, critical legal thinking, and problem solving can be understood as independent skills. Yet, taken together, they form part of a nexus, an integrated whole that lies at the heart of the intellectual skill of lawyering. However, what lawyers might take for granted in terms of what it is that they do in practice may not be so clear to law students. This is likely to be the case so long as components of thinking are taught – or presented – as discrete elements. It is therefore incumbent upon the law teacher to spell out consciously what might be described as the macro and micro aspects of thinking like a lawyer, ie identifying reading law, critical legal thinking, and problem solving as skills in their own right (micro) and at the same time recognising them as a synthesised whole (macro).

Bloom for example provides an overarching taxonomy of cognitive objectives that is widely applied in higher education in formulating learning outcomes, and is relevant to thinking processes more generally.⁶² In understanding what it is to ‘think like a lawyer’, the

⁵⁹ A similar approach underlies the Decoding the Disciplines project: Joan Middendorf and David Pace, ‘Decoding the Disciplines: A Model for Helping Students Learn Disciplinary Ways of Thinking’ [2004] (Summer) *New Directions for Teaching and Learning* 1.

⁶⁰ *Ibid.*

⁶¹ Sally Kift, ‘Lawyering Skills: Finding Their Place in Legal Education’ (1997) 8 *Legal Education Review* 43.

⁶² David R Krathwohl, ‘A Revision of Bloom's Taxonomy: An Overview’ (2002) 41 *Theory Into Practice* 212.

taxonomy might be enhanced through acknowledging different types of legal thinking that together comprise not just learning the law, but thinking like a lawyer. Bloom's is not the only taxonomy, and others may well explain more aptly the diverse goals of a comprehensive legal education.⁶³ For our purposes, however, Bloom's cognitive objectives are one useful framing within which to understand the skills canvassed in the three *Smart Casual* thinking modules.

Some maintain that Bloom's taxonomy is necessarily linear and sequential, while others prefer an iterative understanding of cognitive processes.⁶⁴ In analysing legal thinking, we prefer the iterative approach. While all legal thinking is necessarily grounded in knowledge of the law, it is difficult to identify any one 'entry point' to full comprehension and utilisation of that law – especially in diverse contexts. For example, advising a client on legal options in response to a personal injuries claim under a prescribed scheme will differ from preparing a parliamentary submission on tort law reform. Legal thinking therefore involves an ability to move between layers of knowledge, depending on one's own starting point and the task at hand. This in itself requires metacognition – a higher order cognitive skill relating to understanding when and how to apply particular skills, reinforcing the iterative nature of thinking. Metacognitive skills are crucial to prepare law students for the constant learning required of them in professional life.⁶⁵

Table 1 represents the relationship between different modes of legal thinking (representing the three thinking modules in *Smart Casual* in the middle three columns) characterised both in terms of Bloom's taxonomy (in the left hand column) and layers of what might be called a 'knowledge entry point' involving legal knowledge or knowledge of broader contexts (in the right hand column). These entry points represent different – and layered – approaches to considering the applied intellectual skills of problem solving, legal reading and critical legal thinking.

⁶³ See, eg, Kift, above n 61; Christine M Venter, 'Analyze This: Using Taxonomies to "Scaffold" Students' Legal Thinking and Writing Skills' (2006) 57 *Mercer Law Review* 621.

⁶⁴ See, eg, Nancy Nentl and Ruth Zietlow, 'Using Bloom's Taxonomy to Teach Critical Thinking Skills to Business Students' (2008) 15 *College & Undergraduate Libraries* 159; Anat Zohar and Yehudit J Dori, 'Higher Order Thinking Skills and Low-Achieving Students: Are They Mutually Exclusive' (2003) 12 *Journal of the Learning Sciences* 145.

⁶⁵ Niedwiecki, above n 5, 41.

Table 1 – Different modes of legal thinking

Bloom’s cognitive objectives	Problem solving	Reading law	Critical legal thinking	Thinking mode / Knowledge entry point
Knowledge	Elements of law, authority	Meaning of legal terms	Elements of law, authority	Text
Comprehension	What facts are relevant Which rules are relevant	Purpose of this text / genre; role of the text structure	What is provided for, what is lacking in this law?	Text context
Application	How does law apply to facts	Legal doctrine, processes that frame the text eg statutory interpretation ; doctrine of precedent	What policy considerations have been brought to bear/omitted?	Legal context
Analysis	Broader theoretical / social context underpinning law / facts that might bear on the problem	What is the social context of this law, what theory supports / opposes it	How does this law stand against social or legal theory? What assumptions are embedded in law? What are the social implications?	Social / theoretical context
Synthesis	Propose a solution to the problem	Make a choice as between the layers of knowledge, to ascertain meaning of text	Proposal as to how the law might address a social / theoretical problem per selected critical frame	Text + contexts
Evaluation	What process have I adopted to reach this conclusion, is it limited & if so, how? What other solutions were available?	What reading techniques have I used here, and are they fit for purpose?	Where do I stand within this analysis – identity, emotions, bounded knowledge	Metacognitive reflection

Despite the linear organisation of the table, its purpose is not to promote a linear approach – although many commencing law students

may indeed need to adopt a staged method in learning both the law and lawyering skills. Instead, thinking requires movement up and down the columns and (depending on the task at hand) across rows, gathering together cognitive elements. The table represents component elements of thinking like a lawyer in different guises.

To illustrate how the components of thinking work together in the classroom, the following two vignettes draw on the authors' experience in an entry-level criminal law subject, and second-year land law subjects. They highlight the underlying complexities in thinking like a lawyer but also the ways in which the three types of thinking represented in the *Smart Casual* modules work together iteratively in the classroom context.

A Vignette: Entry-Level Criminal Law

One of the authors, Mary Heath, teaches at Flinders Law School where entry-level case reading, the doctrine of precedent and statutory interpretation are integrated into the teaching of criminal law. Most students will study public law and legal research and writing subjects concurrently with their first semester of criminal law. The IRAC (Issue, Rule, Application, Conclusion) method of problem solving is taught in legal research and writing, and it is therefore desirable that it be modelled in classes in criminal law.

The curriculum begins with entry-level information and then moves on to precedent and case reading, followed by murder as an example common law offence. Next comes an entry-level introduction to the law and principles of statutory interpretation, followed by the serious assault offences of causing harm and causing serious harm as example statutory offences.

By the time students reach classes on causing harm and causing serious harm, the range of recently acquired skills they are required to use is extensive. At the most basic level of *knowledge x reading law*, students are still struggling with identifying which terms are legal terms and which are simply antiquated or less common English language that is not specific to law (text and context). Many are adjusting to the fact that words they have been using for years ('cause', 'harm', 'voluntary', 'reckless') turn out to have very specific meanings in legal contexts and that these meanings are sometimes fixed ('voluntary' conduct has the same meaning no matter whether the student is looking at a driving offence or at a serious crime of violence), while others change ('cause' has a specific meaning established in cases in relation to murder and a related but not identical meaning established by a statutory provision in relation to causing harm).

To identify material facts, students must be able to think about legal issues and the rules that raise those issues, as well as consider the provided facts in an attempt to sift through which are material and which are not. Their understanding of what makes a fact 'material' is still developing. The presence of ambiguous facts and conflicting

accounts of events gives rise to a great deal of unease. The complexity of this *comprehension x problem solving* task is high.

To identify issues, the offence under consideration must be parsed into its elements, a process that is far from self-evident for a novice (*knowledge x problem solving*).

Rule identification by this stage involves *comprehension* of the rules established by case law and statute (*comprehension x reading law*). It also requires students to *comprehend* the doctrine of precedent and rules of statutory interpretation and how they interact, and then to *apply* these complex concepts to a range of texts in order to identify a rule (*analysis x reading law*). Having identified a rule, the rule itself must be *applied* to the material facts to construct an argument (*application x problem solving*).

As the class considers whether an offence is aggravated or basic, we encounter wider issues in which policy considerations are more obvious, such as the definitions of 'spouse' and 'domestic partner', which have become more interesting to classes whose political memory encompasses years of debate on same sex marriage. They are understanding and analysing the law against a background of policy and principle (*comprehension x critical thinking; analysis x critical thinking*).

By this stage the class has read the relevant second reading speech (*comprehension x reading law*), which sets out some of the context in which the legislation was passed and offers an opportunity to think about the 'tough on crime' rhetoric of the attorney general of the time as well as wider questions such as the obligation to criminalise torture (*analysis x critical thinking*).

In an entry-level class, there is a tension between treating these as important considerations and recognising that the law is not established by the judgments of its readers. The capacity to analyse depends on fundamental comprehension having been achieved. If a student cannot grasp the concept of parliamentary supremacy and apply it, they will be unable to conceptualise the difference between the law as a set of rules (established, in this case, primarily by Parliament), and a critique of those rules, which does not in itself change the law (*knowledge x reading law; application x reading law*).

In South Australia, 'a person is the spouse of another if they are legally married' for the purposes of the *Criminal Law Consolidation Act 1935 SA* and for the time being, this means that we must look to the definition of 'domestic partner' if we want to know whether a man who assaults his male lover is committing an aggravated offence, no matter what the views of the class on the subject of same sex marriage may be. Students may reflect at various points of this discussion but sometimes require support to recognise this is what is occurring (*evaluation x critical thinking*). Rule identification as a formal step in the process can assist students in identifying legal rules as (open to interpretation but nevertheless) conceptually distinct from their values and/or the values of others, even where they may happen to overlap with their values or opinions (*evaluation x critical thinking*).

As we pass through each element of the offence, working our way through IRAC step by step, we are constantly switching between content ('What does 'harm' mean in this context? Where does that meaning come from? Are there cases that can help us understand where 'harm ends and 'serious harm' begins?') and process ('Now we have identified the rule, how can we apply it to these facts to create an argument that the prosecution might use? How could the defence respond?')

B *Vignette: Second Level Land Law*

Another of the authors, Kate Galloway, has taught land law across two semesters in second year at James Cook University. The two subjects work together to scaffold student knowledge and skills, and are therefore considered here together. Students enter second year having undertaken introductory subjects including research, writing and analysis, and legal institutions and processes, but only having completed two substantive law subjects.⁶⁶ Despite first year grounding in reading law, critical thinking, and problem solving, there are manifest challenges for students in developing these skills – and as with first level criminal law, there is a lot going on.

The subjects are structured around legal doctrine (*knowledge*) but also embed the explicit teaching of statutory interpretation for the first time addressing an entire body of statute law in context, implicit application of the doctrine of precedent (together, *application x reading law*), introducing the equitable jurisdiction overlaid on the common law (*knowledge x reading law*), introducing reading private law instruments (*comprehension x reading law*), and promoting *critical thinking* skills particularly in terms of sustainability⁶⁷ and Indigenous perspectives.

First semester opens with the topic of the concept of property. Students are introduced to Indigenous conceptions of land in contrast to the Western liberal tradition. Further, land is contrasted with environment,⁶⁸ and as with the criminal law vignette, this often confounds student expectations of the meaning of English language that is not specific to law. Frequently students experience this topic as a new understanding of their world requiring reorientation as their expectations are challenged (*evaluation x critical thinking*). Many students select as the topic of their critical essay either a comparison of Western and Indigenous concepts of property and land, or property in the human body – both of which require students to grapple with the meaning of foundational concepts of the law (*analysis, synthesis x critical thinking*).

⁶⁶ Lisa Westcott and Mandy Shircore, 'The Experience of a Small Regional Law School in Preparing Students for a Journey through Law' (2006) 13 *James Cook University Law Review* 81.

⁶⁷ Kate Galloway, 'Sustainability in the Real Property Curriculum: Why and How' (2015) 8(2) *Journal of Learning Design* 31.

⁶⁸ *Ibid.*

While students are working on their essays over the first seven or eight weeks of second year, they are simultaneously learning and applying doctrine (*knowledge, comprehension, application x problem solving, reading law*). This is a known challenge for property law where '[t]he language [is] arcane and each class introduce[s] something which seem[s] wholly unrelated to everything else ...encountered previously in property law, other law subjects, and life in general'.⁶⁹

With the introduction of native title as common law recognition of customary law, and then with the introduction of the concept of equity, students are required to understand the limitations of the common law (*application, analysis x critical thinking*) while at the same time learning the structure and, to an extent, the content of these different sources of law (*knowledge, application x reading law*).

Being asked to apply equitable principles as both a source of property rights and as a procedural framework for considering claims, students' thinking must move between *comprehension x problem solving* and *application x reading law*. In contrast with a more linear approach (such as IRAC) that moves progressively through elements to reach a conclusion, analysing a problem involving equity can require weighing up of alternatives and making a value judgment (*analysis x problem solving, critical thinking*). IRAC is useful to a point, but students must switch between *analysis* and *synthesis x problem solving* and *application x reading law* to reach a solution. This aspect of thinking is not expressly represented within the IRAC model.

Language also comes into play here. For example, the fraud exception to indefeasibility of title requires 'actual fraud, ie dishonesty of some sort, not what is called constructive or equitable fraud'.⁷⁰ That the common meaning of 'fraud' is a term of art and further, that there are varieties of fraud, presupposes a *knowledge* and understanding of the law that a second year student has not yet acquired. On the one hand, IRAC contemplates this as 'R' (rule). Students may cite this rule as part of their problem solving. But the 'A' (application) involves implicit knowledge of the difference between, say, actual fraud and constructive fraud. It is one thing to cite a rule, but another to afford its language meaning where a deeper understanding of the elements of the rule is required.

Understanding the interplay between equity and common law itself represents a broader theoretical context of the law, that has evolved to meet social and economic need (*application, analysis x critical thinking*). For students still only half way through first semester in second year, underlying *knowledge x problem solving* is understanding which source of law is relevant – statute, case law, common law, equity – and what processes are required to *read* and to *apply* it.

Policy considerations (*application x critical thinking*) permeate the subjects – married women's property, the rise of equity to avoid Crown taxes, the evolution of feudal tenure in response to social change,

⁶⁹ Robert Chambers, *An Introduction to Property Law in Australia* (LBC Information Services, 2001) Preface, v.

⁷⁰ *Assets Co v Mere Roihi* [1905] AC 176, 210.

colonisation and racist assumptions to justify property, the need for strata title to deal with rising population density and the need for cost-effective dispute resolution, the development of Torrens and e-conveyancing ... and so it goes. In each case, the need for social, economic, and environmental sustainability is canvassed, providing a unifying theme for consideration of the law's effectiveness (*analysis x critical thinking*) and opportunity for reform (*synthesis x critical thinking*) – but also further thinking work in *problem solving* and *reading law*.

In semester two, an additional layer of complexity is introduced through the interplay between statute, common law, equity, and private agreements (*comprehension x reading law*). The form and content of the agreements are novel for students although working through the structure reinforces *reading* strategies for statutes. Ascertaining the meaning and effect of the instruments, however, requires knowledge beneath *application* as it appears in IRAC. There is a simultaneous interpretation of the instrument and the application of statute and case law to get to the starting point of identifying the ('I') issues.

Both of these vignettes illustrate the complexity faced by students learning to think like lawyers. But they also illustrate the complexity of teaching thinking skills. We have not included in these case studies the additional emotional and resulting cognitive load each student carries, quite independently of all else that is occurring in learning law. In omitting such considerations, we are not denying the impact of the student's own circumstances on their experiences of learning the law. A fuller exploration of the teaching of thinking skills should incorporate affect beyond its inclusion in aspects of metacognition within critical thinking. This simply highlights the difficulty for law teachers in deriving a comprehensive view not only of discrete aspects of student learning, but each interrelationship.

What the vignettes do offer, however, is an illustration of what the layers of process and knowledge might look like, what is implicit and explicit, and the interplay between modes of thinking that are integral to learning and teaching law right from the start. Even where curriculum is designed to scaffold students' skills, in reality they still face all thinking modalities at once, in all layers of complexity, and not all are explicit. It is difficult to see how the law teacher can articulate to students the complexities of thinking like a lawyer without the requisite language and frameworks to strip the processes to components, and the ability to put them back together to suit the task at hand.

IV CONCLUSION

From our work on both distinguishing and integrating the three thinking skills presented here, we draw two conclusions. First, we suggest that any single thinking skill is a necessary but insufficient component of 'thinking like a lawyer'. Secondly, attempting to break down the macro of thinking skills into the micro might highlight its

constituent parts, but it does so at the expense of exploring the interconnections, pathways, and implicit or behind-the-scenes thinking that characterises legal thinking. It is likely that it is not possible to represent this, bearing in mind the central role of the learner's own experience in constructing knowledge.⁷¹ Indeed, whether it is useful or even desirable to do so would be open to debate.

Instead, the purpose of this analysis, and the representation of the variety of processes at play as students learn law, is to encourage our own reflection as law teachers on the process of thinking, and in particular, thinking like a lawyer; to raise awareness of the implicit and integrated nature of the instinctive reasoning of the experienced lawyer and how this contrasts with the student experience of learning.

The three broad modes of legal thinking establish an overarching framework to support the teaching of thinking skills. The premise in selecting three ostensibly discrete skills is that each of these thinking skills not only can be taught, but also must be taught explicitly. Further, they each identify challenges experienced by learners and what can make it challenging for the law teacher to teach these skills, and share strategies that may be useful for law teachers in addressing these issues in the classroom.

While raising awareness of the processes at play within the three aspects of thinking, each module refers (and is linked) to each of the others. They provide connections for law teachers between each micro, or discrete, skill and thus recognise the breadth of the thinking skillset involved in the study of law.

This structured approach lays the groundwork for understanding one's own legal thinking, and explaining it to students as a process. Each module recognises the need for an iterative approach in encouraging development in students' thinking, and the effort⁷² and persistence – the character – that is required to develop, if not to master, legal thinking.

As illustrated in the vignettes, the components of each mode of thinking represented in the modules encourage the articulation of the nexus between different thinking processes. Rather than masking the processes of problem solving for example, each element can contribute to a more comprehensive understanding of the complexity of the task at hand, to expose how the elements and processes work together. For the reflective teacher, regardless of their employment conditions, this offers the foundation for a comprehensive understanding not just of thinking like a lawyer, but the means by which to teach it, explicitly, to students.

⁷¹ See, eg, David Jonassen, 'Designing Constructivist Learning Environments' in Charles M Reigeluth (ed) *Instructional Design Theories and Models: A New Paradigm of Instructional Theory* (Routledge, 1999) 215.

⁷² Byrnes and Dunbar, above n 36.