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USING GUIDING PRINCIPLES TO CONSTRUCT EFFECTIVE MULTIPLE CHOICE EXAMS TO ASSESS LEGAL REASONING

FELICITY DEANE* AND DANIELLE BOZIN**

I INTRODUCTION

The multiple choice exam is a form of assessment that has not always been given serious consideration in the law discipline.¹ Traditionally research essays, and exams and assignments that consist of scenario-based problem solving questions, have been used to evaluate the achievement of learning outcomes in law schools. This is because advanced legal reasoning is an essential skill for any legal professional, and the methods employed to test the acquisition of this skill are generally standardised. However, the multiple choice exam arguably has an important place within the suite of assessment forms available in law courses.

The use of standard forms of assessment such as essays and problem based exam and assignment questions can result in certain problems when trying to introduce fair and equitable assessment. The written communication skills necessary to competently write a research essay or answer a scenario-based problem solving question (whether it be contained within an exam or assignment) must develop over time. Not all students in their formative years of tertiary education demonstrate the same level of written communication expertise. This means that students can be disadvantaged depending on their background and the quality of their high school education. Another notable problem with always using research essays and problem solving exam or assignment assessment items to assess student achievement is that they necessarily test discipline-specific legal writing skills. Skills that are discipline-specific and evaluated in an assessment item must be taught within the degree curriculum. However teaching legal writing has not traditionally

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¹ Erik Driessen, Cees Van Der Vleuten and Henk Van Berkel, 'Beyond the Multiple-Choice v. Essay Questions Controversy: Combining the Best of Both Worlds' (1999) 33 *Law Teacher* 159, 159-60.

been afforded the priority it requires, and has arguably been considered a secondary requirement to content based learning.²

Questioning the utility of traditionally adopting research essays, and problem solving exams and assignments, as the primary methods of assessing law students' legal reasoning abilities led the authors to undertake a case study with a view to exploring whether multiple choice exams can effectively assess legal reasoning. The authors have concluded that multiple choice exams can occupy an important place within the suite of assessment items available to assess legal reasoning skills. This is particularly the case in the early years of the law degree, when students should be mentored to progressively develop their legal writing and communication skills. There is little doubt that multiple choice questions can be a useful formative assessment tool, however their validity beyond this usage is often questioned. Arguably, using multiple choice exams as a summative assessment tool will achieve a more balanced approach to assessing law students' skills and knowledge. This may facilitate greater student retention and improved wellness of the student cohort.

The following article presents the findings of the authors' case study in several parts. The first part of the article explains the methodology and hypothesis behind this case study, together with a brief examination of the existing literature on pedagogical principles of assessment design that justify the use of this type of assessment. These general ideas are followed by a specific discussion of the associated benefits of using multiple choice questions to assess legal reasoning skills. Importantly, the final part of this article applies established principles for designing effective multiple choice questions to the law discipline specifically, with examples of their use to assess legal reasoning for illustrative purposes. The authors conclude by suggesting that multiple choice exams, when properly constructed using the identified guidelines, can effectively assess legal reasoning skills.

II HYPOTHESIS AND METHODOLOGY

The authors began this case study with a multifaceted hypothesis. That is:

- established principles for designing multiple choice questions are transferrable to the law discipline, and can be used to develop multiple choice questions that can assess the discipline-specific skill of legal reasoning;
- multiple choice question exams can assess legal reasoning just as effectively as traditional problem solving questions when drafted in accordance with identified guidelines; and

² Sharon Hanson, *Learning Legal Skills and Reasoning* (Routledge, 2015) 3. Hanson notes that students often forget the range of skills they need in the 'information overload' associated with the study of the law.

- multiple choice questions provide a number of benefits where traditional problem solving questions are problematic.

This article represents the first step in exploring the above hypothesis. The findings from this article form the basis of an ongoing empirical study. With this in mind, the authors note that this article does not purport to provide a high level empirical evaluation of the efficacy of multiple choice exams compared to other forms of assessment currently utilised in the law discipline. Rather, that will be the focus of stage two of the case study. The purpose of the current article is to report on the examination and application of the existing principles for designing effective multiple choice questions from teaching scholarship to the law discipline specifically. To determine which of the existing principles were applicable to the subject matter of this case study the authors have undertaken a literature review of previously published empirical studies. The results of the authors' evaluation of the benefits of applying these principles to assess the skill of legal reasoning are provided in this article. Finally, to demonstrate these findings, examples of multiple choice questions that effectively assess legal reasoning are provided in the final part of this article.

III CASE STUDY

The case study that features within this article is an initiative that forms part of the authors' development and coordination of a new elective unit offered within the Queensland University of Technology law degree called *Regulation of Business*. This unit's student cohort includes first year law and double degree students, and some advanced law and double degree students. There were 553 students enrolled in the unit during its first offering in 2015. The unit provides students who have a particular interest in corporate and commercial law with the opportunity to complete an introductory elective prior to undertaking the core unit *Corporate Law* in their third year. The assessment was carefully selected in this unit and a multiple choice exam was chosen for a number of reasons. First, it enabled the marking allocation to be satisfied, and second, there were a number of different and discrete topic areas to be completed in the final weeks of the semester, each to be assessed in the final exam. After the authors received peer feedback in relation to the inclusion of this type of assessment, the decision was made to conduct a case study into the efficacy of multiple choice exams in assessing legal reasoning abilities.

The overarching objective of the authors' case study is to examine whether multiple choice questions can be used to assess law students' legal reasoning abilities as effectively as traditional problem solving questions. The case study presents new ideas and includes the design and implementation of practical solutions to the problem of designing effective assessment for large student cohorts in the law discipline. As examined and reported in this article, stage one of the case study applies established principles for designing effective multiple choice questions

to the law discipline specifically, and provides examples of best practice multiple choice questions that can effectively assess legal reasoning. A future empirical study in stage two will measure whether multiple choice question exams can in fact assess legal reasoning just as effectively as traditional problem solving questions when drafted in accordance with identified guidelines. In addition, the authors will test the question of whether or not multiple choice questions can provide a number of benefits where traditional problem solving questions are problematic.

Stage one of this case study required that the authors first consider established principles for designing effective multiple choice questions generally. This required a collation of the principles from the existing teaching scholarship. Notably these principles were not drawn only from legal scholarship. Following from this review of existing literature, this article explores the utility of these principles in guiding the construction of multiple choice questions that can specifically assess legal reasoning in the law discipline. Indeed, the application of these principles to the assessment of legal reasoning is the primary contribution of this article.

IV THE JUSTIFICATION FOR CHOICE

A *Why Multiple Choice Exams?*

The objective of any university course is to enable students to achieve particular learning outcomes and to assess their understanding of the course materials. University students are held accountable for their learning, and therefore assessment must be tailored to assess their knowledge and skills in a fair and equitable way. With this in mind, the authors suggest there are a number of benefits associated with using multiple choice exams as a method of assessment that arguably outweigh any negative aspects of their use.³

To begin, multiple choice exams provide the ability to assess a number of different topics within one shorter exam,⁴ without subjecting students to the demands of a long exam with several pages of writing. Indeed, the number of topics that can be tested in multiple choice exams generally exceeds those that can be assessed in more traditional essay

³ See generally Eileen Fry, Jenny Crewe and Richard Wakeford, 'Using Multiple Choice Questions to Examine the Content of the Qualifying Law Degree Accurately and Reliably: The Experience of the Qualified Lawyers Transfer Scheme' (2013) 47 *Law Teacher* 234; Greg Allen, 'The Use of Multiple-Choice Questions as a Form of Formative Assessment on an Undergraduate Law Module' (2008) 42 *Law Teacher* 180; Susan M Case and Beth E Donahue, 'Developing High-Quality Multiple Choice Questions for Assessment in Legal Education' (2008) 58 *Journal of Legal Education* 372; Driessen, Van Der Vleuten and Van Berkel, above n 1, 167; Edwina Higgins and Laura Tatham, 'Exploring the Potential of Multiple-Choice Questions in Assessment' (2003) 2(1) *Learning and Teaching in Action* <<http://www.celt.mmu.ac.uk/ltia/issue4/higginstatham.shtml>>.

⁴ Pinchas Tamir, 'Multiple Choice Items: How to Gain the Most Out of Them' (1991) 19 *Biochemical Education* 188, 188.

style and problem solving exams.⁵ This means students may be assessed on their understanding of more content when required, have more meaningful engagement with the subject matter and also feel that their learning was not 'wasted'. In addition, problem solving question exams necessarily require handwriting within a limited period of time when many students are accustomed to word processing on computers. This may impact unduly on their performance in these exams.

Second, there is no question of bias or inequality in the marking of multiple choice exams.⁶ One may suggest that this is hardly a serious contemporary issue in the assessment of students given the introduction of criteria referenced assessment.⁷ However studies have repeatedly demonstrated that 'biases in grading can reduce equity, unfairly helping some students and unfairly harming others'.⁸ Studies across many decades have demonstrated that this bias may occur for a plethora of reasons.⁹ As such this article contends that the removal of subjective marking at least in one item of assessment within a unit creates a more even playing field for students, allowing them to take responsibility for their own learning outcomes.

The third benefit is that multiple choice exams are more easily graded.¹⁰ This in turn reduces the need for the management of large sessional marking teams and moderation time. This was demonstrated clearly in an empirical study authored by Driessen et al, who identify a significant difference in times associated with drafting and marking for exams that incorporate multiple choice questions compared to exams containing essay style questions.¹¹ This study noted that moderation and review of grade processes are a significant burden on the workload of academic staff. Larger student cohorts can mean that marking teams of 10 or more sessional staff are required to mark papers within a unit. Although plans may be implemented to ensure evenhandedness in the marking of papers, it is important to recognise that human error, subjective differences and sessional time management may have an impact on impartiality.

Of course not all impacts of using multiple choice exams are positive and it is important to note that there are limitations with this method of assessment. There is the problem of guessing,¹² Each question within an exam represents a certain percentage chance of accuracy. When a student has done the work associated with the unit

⁵ The authors originally decided on the multiple choice format for the *Regulation of Business* unit for this reason.

⁶ Tamir, above n 4, 189. Note that bias in construction can arise. See Paul McCoubrie, 'Improving the Fairness of Multiple-Choice Questions: A Literature Review' (2004) 26 *Medical Teacher* 709, 710.

⁷ John M Malouff et al, 'Preventing Halo Bias in Grading the Work of University Students', *Cogent Psychology* (online), 3 December 2014.

⁸ Ibid 2.

⁹ Ibid 2-3.

¹⁰ Tamir, above n 4, 188.

¹¹ Driessen, Van Der Vleuten and Van Berkel, above n 1, 167.

¹² Mark L Campbell, 'Multiple-Choice Exams and Guessing: Results from a One-Year Study of General Chemistry Tests Designed To Discourage Guessing' (2015) 92 *Journal of Chemical Education* 1194.

the chance of choosing the correct answer increases significantly. However, the chance of randomly selecting the correct answer can distort results and unfairly reward students who have failed to engage with the unit requirements. Despite noting this, the chances of guessing correctly across two questions drops dramatically. For example, a 25% chance of guessing correctly across one question with four possible answers drops to 6.25% across two and 1.56% across three. Therefore, it is unlikely that students will successfully rely on this strategy as a general practice.

In addition to the problem of guessing there is also the possibility of imperfect analysis through identified information recall.¹³ By this the authors suggest that where answers are provided students may be able to recall, through imperfect analysis, the phrases and terms within the correct answer even when they have insufficiently engaged in the subject matter. This of course will not occur in traditional exams and heightens the importance of writing questions and answers in accordance with principles designed to eliminate any such a possibility. In this regard, the problem of imperfect analysis has been considered in this article's principle identification and analysis.

Another common problem associated with multiple choice exams is student-perceived difficulty. Students frequently underestimate the requirements necessary to perform well on multiple choice exams,¹⁴ and sometimes approach these exams with a strategy that requires that they can eliminate the incorrect answers.¹⁵ This strategy can lead to frustration amongst students when the exam does not meet these initial expectations. The tendency to rely on this strategy may be reduced where students attempt sufficient practice questions prior to the summative exam.¹⁶ In this regard academics must clearly detail the importance of proper preparation to students in order to eliminate this erroneous perception. The authors suggest that adequately preparing students for summative assessment using multiple choice exams is of primary importance in utilising such exams. Of course, this is not a concept that is unique to the use of multiple choice exams.¹⁷

¹³ Lee Di Milia, 'Benefiting from Multiple-Choice Exams: The Positive Impact of Answer Switching' (2007) 27 *Educational Psychology* 607.

¹⁴ Chan Nixon and Peter E Kennedy, 'Are Multiple-Choice Exams Easier for Economics Students? A Comparison of Multiple-Choice and Equivalent Constructed-Response Exam Questions' (2002) 68 *Southern Economic Journal* 957; Janet Fisher, 'Multiple-Choice: Choosing the Best Options for More Effective and Less Frustrating Law School Testing' (2008) 37 *Capital University Law Review* 119, 122.

¹⁵ Fisher, above n 14, 122.

¹⁶ Arnold L Glass and Neha Sinha, 'Multiple-Choice Questioning Is an Efficient Instructional Methodology That May Be Widely Implemented in Academic Courses to Improve Exam Performance' (2013) 22 *Current Directions in Psychological Science* 471, 476.

¹⁷ Some academics suggest that the use of multiple choice practice questions can improve performance in both multiple choice and traditional style exams. See, eg, *ibid* 476.

B *Relevance of Multiple Choice Exams for Large and Diverse Cohorts in the Law Discipline*

Incorporating different methods of assessment is a way to acknowledge the diversity of both learning needs and communication strengths that can exist in large student cohorts. Core units at the Queensland University of Technology Law School can have a student cohort well above 1000 and elective units can be upwards of 500 students. Consequently, assessment and feedback provided to students can put unit coordinators under severe time constraints. Given this, when dealing with large student cohorts it is vitally important that assessment design is not only informed by the importance of achieving the economies of scale, but also the satisfaction of graduate outcomes coupled with optimal skills development. In this regard, scholars have indicated that good teaching and assessment practice requires that student differences are recognised, and that different assessment choices are provided so that each student has the opportunity to demonstrate the abilities that may be particular to them.¹⁸ However, the concern with larger cohorts is that this is occurring less and less, with assessment becoming more standardised as opposed to embracing diversity. In this sense multiple choice exams can be an important inclusion in any academic's suite of assessment items that will not lead to onerous workload requirements even where student cohorts are sizeable.

Large student cohorts may also mean that unit coordinators are less inclined to include more than two assessment pieces within a given unit, which may not be ideal for student learning. A study by Star et al found that spreading assessment across the semester, using two assignments and an exam resulted in improved student performance and retention.¹⁹ This was particularly the case where one of the assessment items was an incremental research assignment.²⁰ The inclusion of such an assignment has a significant associated marking allocation, leaving little or no allocation for an end of semester exam. In response to this, a multiple choice exam option enables unit coordinators to overcome the problem of a capped marking allocation due to inevitable budgetary constraints when offering units, whilst at the same time providing students with an option for assessment that may allow them to demonstrate their learning in a different manner.

C *The Importance of Difference for Law Students*

Universities should strive to maintain an even playing field and offer the same opportunities to all students to maintain equity and wellness

¹⁸ Ibid.

¹⁹ Cassandra Star and Jacquelin McDonald, 'Embedding Successful Pedagogical Practices: Assessment Strategies for a Large, Diverse, First Year Student Cohort' (2007) 3 *International Journal of Pedagogies and Learning* 18, 27.

²⁰ Ibid.

in the student cohorts.²¹ Students who undertake a law degree are required to have achieved at an exceptional level in their high school education. Despite this when students enter into a discipline such as law, they face a steep learning curve to develop discipline-specific legal writing skills.²² The challenges faced by first year law students can have a significant impact on their wellbeing, which in turn may impact on their legal career trajectory and professional identity.²³

Australian universities are also seeing increasing numbers of international students in both undergraduate and masters courses. These students have achieved at a high academic level in their countries of origin, but can face extreme challenges when commencing a law degree due to language barriers. It is acknowledged that written communication is a crucial skill in both law and other professions; however, this barrier should not exclude students from university learning.²⁴ Indeed, the authors suggest that these challenges could be, and often are, overcome with time and guidance.

The literature acknowledges that skills should be assessed only when taught,²⁵ and in the context of law units, this is not always done in a meaningful way.²⁶ Rather, skills development has traditionally been secondary to teaching substantive legal content. As a result, the

²¹ See, eg, Rachael Field and James Duffy, 'Better to Light a Single Candle Than to Curse the Darkness: Promoting Law Student Well-Being Through a First Year Law Subject' (2012) 12 *QUT Law and Justice Journal* 133; James Duffy, Rachael Field and Melinda Shirley, 'Engaging Law Students to Promote Psychological Health' (2011) 36 *Alternative Law Journal* 250; Kath Hall, 'Do We Really Want to Know? Recognising the Importance of Student Psychological Wellbeing in Australian Law Schools' (2009) 9 *QUT Law and Justice Journal* 1; Kennon M Sheldon and Lawrence S Krieger, 'Does Legal Education Have Undermining Effects on Law Students? Evaluating Changes in Motivation, Values, and Well-Being' (2004) 22 *Behavioral Sciences and the Law* 261; Matthew M Dammeyer and Narina Nunez, 'Anxiety and Depression Among Law Students: Current Knowledge and Future Directions' (1999) 23 *Law and Human Behavior* 55.

²² See, eg, James E Viator, 'Legal Education's Perfect Storm: Law Students' Poor Writing and Legal Analysis Skills Collide with Dismal Employment Prospects, Creating the Urgent Need to Reconfigure the First-Year Curriculum' (2012) 61 *Catholic University Law Review* 735.

²³ Molly Townes O'Brien, Stephen Tang and Kath Hall, 'No Time to Lose: Negative Impact on Law Student Wellbeing May Begin in Year One' (2011) 2(2) *International Journal of the First Year in Higher Education* 49. See also Rachael Field and Sally Kift, 'Addressing the High Levels of Psychological Distress in Law Students Through Intentional Assessment and Feedback Design in the First Year Law Curriculum' (2010) 1(1) *International Journal of the First Year in Higher Education* 65, 66.

²⁴ See, eg, Erlenawati Sawir, 'Language Difficulties of International Students in Australia: The Effects of Prior Learning Experience' (2005) 6 *International Education Journal* 567; Maureen Snow Andrade, 'International Students in English-Speaking Universities Adjustment Factors' (2006) 5 *Journal of Research in International Education* 131; Rachel A Smith and Nigar A Khawaja, 'A Review of the Acculturation Experiences of International Students' (2011) 35 *International Journal of Intercultural Relations* 699.

²⁵ See, eg, Jennifer Jaff, 'Frame-Shifting: An Empowering Methodology for Teaching and Learning Legal Reasoning' (1986) 36 *Journal of Legal Education* 249.

²⁶ See, eg, Sherran Clarence, Latiefa Albertus and Lea Mwambene, 'Building an Evolving Method and Materials for Teaching Legal Writing in Large Classes' (2014) 67 *Higher Education* 839, 839.

assessment of skills such as written communication often occurs before the skill has been adequately taught. As noted by Field and Kift, ‘many first year students of law under-perform in their assessments and find assessment very stressful, because they do not understand tertiary expectations or the specific requirements of writing like a lawyer’.²⁷ This is a skill that students should have the time to develop over the course of the law degree. The desire for this time allowance further justifies the importance of both diversifying assessment and including items such as multiple choice exams.

D *Legal Reasoning and Multiple Choice Exams*

The use of multiple choice exams for information recall and knowledge development is well known. This type of assessment can be used in any discipline where knowledge recall is the most basic level of learning. According to Bloom’s Taxonomy,²⁸ six abilities can be attained through learning: to remember, comprehend, apply, analyse, evaluate and create. The authors are not proposing to use this case study to support only the abilities to remember and comprehend; rather it is suggested that multiple choice exams can be used to teach and assess the more difficult learning outcomes at a university level.

Legal reasoning is an important skill within the law discipline.²⁹ James and Field note that it is a way to solve legal problems, construct legal arguments and prepare advice about the consequences of a factual situation.³⁰ Students are given methods to develop this ability early in their law degree and it is included as one of the five graduate capabilities at the Queensland University of Technology Law School. The ability to identify and articulate legal issues and apply the core skill of legal reasoning underpins the third Threshold Learning Outcome (TLO) of ‘thinking skills’ for the Bachelor of Laws degree,³¹ and is one of the skills a law student is expected to demonstrate as a result of learning, in accordance with the Australian Quality Framework.³²

²⁷ Field and Kift, above n 23, 73–4.

²⁸ Anne R Reeves, *Where Great Teaching Begins* (Association for Supervision & Curriculum Development, 2011) 25-6.

²⁹ John H Farrar, *Legal Reasoning* (Lawbook, 2010); Jerzy Stelmach and Bartosz Brozek, *Methods of Legal Reasoning* (Springer, 2006); Frederick F Schauer, *Thinking Like a Lawyer: A New Introduction to Legal Reasoning* (Harvard University Press, 2012); David R Samuelson, ‘Introducing Legal Reasoning’ (1997) 47 *Journal of Legal Education* 571; James Gordley, ‘Legal Reasoning: An Introduction’ (1984) 72 *California Law Review* 138; Donald H J Hermann, ‘Legal Reasoning as Argumentation’ (1985) 12 *Northern Kentucky Law Review* 467; Vincent Blasi, ‘Teaching Reasoning’ (1999) 74 *Chicago-Kent Law Review* 647.

³⁰ Nickolas James and Rachel Field, *The New Lawyer* (John Wiley & Sons, 2013) 266. See also Jaff, above n 25; Peter N Swisher, ‘Teaching Legal Reasoning in Law School’ (1981) 74 *Law Library Journal* 534.

³¹ Council of Australian Law Deans, CALD Standards for Australian Law Schools as Adopted 17 November 2009 and Amended to March 2013 (March 2013) <<http://www.cald.asn.au/resources>>.

³² Australian Qualifications Framework Council, *Australian Qualifications Framework 2nd Edition January 2013* (January 2013) <<http://www.aqf.edu.au/resources/aqf/>>.

To explain the skill of legal reasoning in more detail, Fruehwald notes that there are five types of legal reasoning. These are:

- rule-based reasoning;
- reasoning by analogy;
- distinguishing reasoning;
- reasoning by policy; and
- inductive reasoning.³³

Fruehwald argues that rule based reasoning is the most important of these skills for any legal professional. Indeed, the development of complex forms of legal reasoning generally builds upon simpler evolutions of this skill, to a stage where students are able to understand how the law can have an impact on new societal challenges to enable progress from understanding how the law is, to how the law should be.³⁴

Rule-based legal reasoning requires a student or legal professional to consider a rule and apply it to a given set of facts. Further, rule-based reasoning is deductive and demands consideration from the general to the specific. Rules within law vary significantly, but may generally be said to include at least three main parts: a set of elements, a result that occurs when all elements are present, and a causal term that determines whether the result is mandatory, prohibitory, discretionary or declaratory.³⁵ Rule-based reasoning in traditional law exams requires that students recall a legal rule, apply it to a given set of facts (which may include reasoning by analogy),³⁶ consider any exceptions to the rule and draw conclusions on the basis of their analysis. The authors suggest that this process can be replicated in multiple choice exams in a meaningful manner. This is demonstrated in the final part of this article which provides example multiple choice questions and steps through the legal reasoning process that students must engage in to identify the correct answer.

V PRINCIPLES FOR DESIGNING EFFECTIVE MULTIPLE CHOICE QUESTIONS

A *A Tool for Assessing Legal Reasoning*

Multiple choice questions are not all created equal. Fisher contends that when multiple choice questions have been drafted without clear guidelines in mind, students may be inherently disadvantaged and more

³³ E Scott Fruehwald, *Think Like a Lawyer: Legal Reasoning for Law Students and Business Professionals* (American Bar Association, 2013) 49.

³⁴ Wilson Huhn, 'The Stages of Legal Reasoning: Formalism, Analogy, and Realism' (2003) 48 *Villanova Law Review* 305, 308.

³⁵ Nickolas James, 'Logical, Critical and Creative: Teaching 'Thinking Skills' to Law Students' (2012) 12 *QUT Law and Justice Journal* 66.

³⁶ The English common law is based on reasoning by analogy; Fruehwald, above n 33, 49.

likely to fail an exam they should otherwise have passed.³⁷ With this in mind, guiding principles for the development of multiple choice questions are not only important but required where any academic wishes to introduce this form of assessment. The principles discussed here can be applied within the law discipline, and used to develop multiple choice questions that effectively assess legal reasoning.

First, any multiple choice questions should be developed to ensure a sufficient degree of difficulty so as to be able to discriminate between students who have engaged with and understood the requirements of the subject matter and those who have not. Therefore, the questions themselves should be written in a way that requires higher level thinking, rather than simply some form of information recall. For example, if the question is a scenario then it should not be based on one discussed within class, but should instead be a scenario unknown to the students to test their ability to engage in legal reasoning by applying taught rules to a novel situation.³⁸

Second, it is important to understand that multiple choice questions comprise two fundamental components: the stem (or the question) and the alternative answers. Each component should be drafted in accordance with some key guidelines. The stem should be focused and contain all of the relevant information needed for students to be able to engage in legal reasoning to address each of the options provided, and chose the most appropriate answer.³⁹ Stems are usually in one of two formats: a full sentence question or a phrase that requires sentence completion, however some evidence suggests that the sentence-completion method is more difficult to understand.⁴⁰ Further, the stem should not be negatively stated unless there is a significant reason for this. The reason for avoiding negative wording in stems is because it has been shown to increase the strain on student short-term memory.⁴¹

Although there are fewer constraints in the development of good alternative answers than good stems, answer construction is every bit as important as that of the stem. In particular, alternative answers should all be plausible responses to the question. This ensures students' legal reasoning ability is measured at a complex level so that this assessment format appropriately measures both the school-based graduate learning outcomes and the applicable Threshold Learning Outcome (TLO).⁴² Given this there should also always be one most correct answer, or best practice response, however all the alternatives should ideally have a degree of similarity so that any students who attempt to guess will have a more difficult task. The alternative answers can contain extraneous details, as this enables students to demonstrate their ability to distinguish between relevant and irrelevant information when engaging

³⁷ Herbert T Krimmel, 'Dear Professor: Why Do I Ace Essay Exams but Bomb Multiple Choice Ones?' (2014) 63 *Journal of Legal Education* 431, 433. Krimmel notes that student performance can be affected by the validity of the testing vehicle.

³⁸ Fisher, above n 14, 126.

³⁹ *Ibid* 128.

⁴⁰ *Ibid*.

⁴¹ Tamir, above n 4, 190.

⁴² Australian Qualifications Framework Council, above n 32.

in legal reasoning. However, the extraneous details must be plausible and convincing so as to enable the more conscientious students to demonstrate their abilities, and eliminate the possibility of imperfect analysis as identified earlier in this article. This will certainly be possible where all responses fit within the logical scope of the question.

The third important principle underpinning the construction of multiple choice questions is collaboration. Whilst undertaking the case study the authors observed that it is in fact more important to collaborate in the development of multiple choice exams than traditional exams. This is because the number of questions that are included in multiple choice exams means that errors in grammar and development are more likely to occur. This is particularly problematic where an error can change the outcome of a question. Collaboration between the authors involved the initial question development by one author coupled with review by the second author who then responded to the questions without the provision of the answers. The first author then modified the questions to reflect the advice and guidance of the second author. This was an extremely effective approach and enabled the cross checking of questions and answers in a way that ensured any errors were corrected.

Having clarified how to construct good multiple choice questions generally, it is important to tailor these established principles to the development of multiple choice questions that can assess high level legal reasoning skills. Given that legal reasoning requires: recall of a legal rule; application of the rule to a given set of facts;⁴³ consideration of exceptions to the rule; and coming to a conclusion, a robust multiple choice legal reasoning question should include the following:

- A meaningful stem that ideally includes a factual situation (scenario) that is analogous to either a known case or invokes the need for a rule or legislative requirement to be applied.
- An answer that requires that a legal rule is applied, which hasn't been provided in the question, so that students must demonstrate their ability to identify which rule is applicable as part of the legal reasoning process.
- Alternatives that are plausible and convincing even if they contain irrelevant information. This means that if a student employs legal reasoning and is able to identify the applicable rule then the correct answer will be obvious but not if the student is less familiar with the rule.⁴⁴ Alternative answers must be stated clearly and concisely.
- Collegial collaboration in the drafting of stems and alternative answers to ensure error-free questions.

⁴³ The English common law is based on reasoning by analogy: Fruehwald, above n 33, 49.

⁴⁴ The optimum number of answers in legal reasoning in multiple choice exams is a subject of further study for the authors. This has been considered in other disciplines, see, eg, Campbell, above n 12.

B Examples of Multiple Choice Questions that Assess Legal Reasoning

Although the above guiding principles may appear simple to apply, drafting appropriate multiple choice questions is a process that must be learnt and practiced. Below are examples of questions that have been drafted using these principles. To illustrate the efficacy of these example questions the legal reasoning that students must necessarily employ to respond correctly has been explained.

1 *Example A*

Jodie Healthy runs a thriving fruit and vegetable cart outside of a university campus. Jodie has been operating as a sole trader. Jodie and four of her friends decide to join forces to expand this business. They devise a plan to use their joint knowledge of healthy food to sell a variety of organic fruit and vegetable hampers online. They wish to adopt a company form. The friends agree that Mary and Fiona will be employees of the company, and will hold a 5% shareholding when the company is registered. Jodie, George, and Johnny agree to be directors of the company. Jodie will be the Managing Director and own 40% of the company's shares. George has agreed to occupy the position of Company Secretary and will have a shareholding of 25%. Johnny will hold the remaining 25% shareholding. The five friends agree that they cannot envisage selling their shares to anyone else, at least in the foreseeable future. Which of the following company types is most appropriate for this venture?

- a. A proprietary company, unlimited with share capital.*
- b. A proprietary company, limited by guarantee.*
- c. A public company, limited by shares.*
- d. A proprietary company, limited by shares.*

To respond to this question, students first need to identify that they must determine which company type as listed in s 112(1) of the *Corporations Act 2001* (Cth) is appropriate given the specific needs of the group of entrepreneurs in the factual scenario. They must understand when each of these company types can be adopted, and they must engage in legal reasoning to determine which option is most appropriate in the circumstances. They must identify that the main reason these entrepreneurs would want to adopt a company form is to attract limited liability. Therefore, answer a. is not a desirable option. They must also know that a company limited by guarantee does not afford the ability to raise capital. With this knowledge they must engage in legal reasoning to decide that b. is not a viable option given the entrepreneurs wish to have shareholdings. When considering option c. students must know that floating a public company involves offering shares to the public and relinquishing tightly held ownership of the company. Given this, they can conclude that if the entrepreneurs do not envisage selling their shares to anyone else in the foreseeable future this

type of company is not a reasonable option at this point in time. This is so especially given the costs involved in a float. Finally, students can identify option d. as the most appropriate answer.

2 Example B

Jodie, George and Johnny are directors of Wholefoods Pty Ltd. They are concerned about the company's cash flow, and whether or not they can pay their debts when they are due in full in the next quarter. Over the last two weeks the company's server has crashed several times, and as a result they have received almost no online orders for fresh fruit and vegetables. Johnny suggests that they simply continue as per normal, and place more orders for produce from suppliers for the next month. Johnny says 'things are bound to pick up so let's just place orders for next month, and if we can't pay those invoices we can stall paying the suppliers for a few months.' Jodie and George express concern about doing this as placing additional orders now will in all likelihood mean that they cannot pay the suppliers when the invoices are due. Which of the following decisions is the most appropriate in the circumstances?

- a. *Jodie, George and Johnny should resolve to place more orders for produce because they owe a duty to the company's shareholders to attempt to make a profit.*
- b. *If Jodie, George and Johnny reasonably believe that the company is, or may become, insolvent by placing more orders they should commence a winding up process as soon as possible as they owe a duty to the company's creditors to do so.*
- c. ***If Jodie, George and Johnny reasonably believe that the company is, or may become, insolvent by placing more orders they should refrain from placing orders this month and monitor the company's financial situation.***
- d. *They should weigh up the probability of their actions incurring a civil penalty, and the possible amount of such a penalty, and be guided by this when making their decision about whether or not to place more orders.*

To engage in legal reasoning to reach the most appropriate answer students must first identify that s 588G of the *Corporations Act 2001* (Cth) is the appropriate rule that needs to be applied. They must understand the intricacies of the law regarding a director's statutory duty to prevent insolvent trading. They must apply the specific elements of the duty to the factual scenario provided, and engage in legal reasoning to reach their conclusion. The law provides that if a director has reasonable grounds for suspecting that, at the time of incurring a debt, their company is insolvent, or by incurring the debt their company would become insolvent, and they incur the debt, then the director has breached their duty to prevent insolvent trading. Engaging in legal reasoning students can rule out option a. as an appropriate answer given that the directors have knowledge that they will 'in all likelihood' be

unable to pay for any orders they place when the debts falls due. Students who have a nuanced understanding of this area of law should also be able to rule out option b. as placing the company into a winding up process at this stage is too preemptive. Also the duty contained in s 588G is not a duty technically owed to creditors. Furthermore, students should be able to reason to reach the conclusion that d. is also inappropriate as ethically, directors' decisions should not be made based on the amount of a penalty that might be incurred for a breach of duty.

3 Example C

In workplace health and safety claims the legislative 'reasonably practicable' standard requires what level of precaution?

- a. An employer to take all possible precautions to minimise a risk.
- b. A business owner to consider the cost only of minimising a risk.
- c. **A business owner to consider the harm that might result from injury along with the likelihood of risk and other factors.**
- d. An employer to consider only the likelihood of the risk leading to an injury

This question is an example of legislative interpretation as opposed to rule-based reasoning. To respond to this question students are required to know what is meant by a 'reasonably practicable standard'. There is no fact scenario to consider, however they need to reason through the answers provided to determine which is the most correct example of the application of this standard. This question can be contrasted with Example D where a fact scenario is inherent in the question.

4 Example D

James is employed by a window washing company. He frequently needs to scale large buildings to complete his work. What is the standard required of his employer in ensuring his safety?

- a. The employer would need to ensure that James is never injured.
- b. The employer would need to weigh the costs of preventing injury.
- c. **The employer must consider the harm that might result from an accident and the risk of that accident occurring.**
- d. The employer would need to consider the options for eliminating the risk.

Example D includes a fact scenario. In contrast to Example C this scenario does not identify the specific employer's duties in workplace health and safety legislation, and therefore the students would need to understand that this question is in reference to that particular subject matter.

This question requires that students know that an employer's primary duty is to ensure that they take precautions that are reasonably

practicable. Second, students need to understand that this standard does not require that all forms of harm be prevented, but that the employer engages in a reasoning process. This process requires that the employer consider the harm that could result and the risk of the accident occurring. Example D is made more difficult through the inclusion of other answers that are also correct, but not the best choice when all options are considered.

It follows that in this instance the answer is c.

VI CONCLUSION

Traditionally, multiple choice questions have been considered an effective method for assessing information recall and knowledge development on a fundamental level across multiple disciplines. In this article the authors have advocated for an extension of the use of multiple choice exams and suggest that established principles for designing effective multiple choice questions are transferrable to the law discipline. Further, as demonstrated in the examples above multiple choice questions can specifically assess law students' legal reasoning abilities.

This article has provided an examination of established principles for drafting effective multiple choice exams, and applied them to present illustrative examples of different multiple choice questions that have been written with the purpose of assessing legal reasoning. Where multiple choice question development is based on sound pedagogical principles of assessment design, significant advantages can be gained. The ability to assess legal reasoning with the convenience of incorporating a diverse number of topics into one short exam, and the removal of subjective marking and the need for moderation and reviews of grade where a large cohort is present, all arguably support the authors' assertion that multiple choice exams have an important place within the suite of assessment forms available in law courses.

This article does leave some issues unexplored. For instance the question of whether multiple choice exams are as effective as traditional problem solving questions will be explored empirically in stage two of this case study. At this stage the authors suggest anecdotally that the literature and findings presented here support the preliminary hypothesis that multiple choice exams are just as effective, however the conclusions in this regard are reserved for the time being.

Finally, this article does not claim that multiple choice exams can replace other methods of assessment.⁴⁵ Rather, their inclusion can enhance the metaphorical teaching and learning toolbox. The enhancement of this toolbox is more important for contemporary students than it has been in the past as these students face significant challenges in higher education through large cohorts and diverse backgrounds. It is the role of academics to acknowledge these

⁴⁵ McCoubrie, above n 6.

challenges and employ strategies within the design of coursework and assessment to address them. The use of multiple choice exams, if done correctly, can be one such strategy.