

## **REFINING THE TRADITIONAL FLIPPED-CLASSROOM MODEL TO OPTIMISE STUDENT PERFORMANCE ON UNDERGRADUATE DEGREE PROGRAMMES**

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### **Abstract**

*A paper which advocates the use of online lectures and face-to-face workshops, together with an innovative third element – the skills-based face-to-face lecture – which is designed to improve and enhance students' critical reasoning skills. Critical reasoning, in law and beyond, is defined as the combining of qualitative, subjective argument, or hypothesis, with supporting quantitative, objective, authority. The enhancement of this key skill is vital for not only academic success while students are undertaking their undergraduate degree courses, but has value to future employers in legal practice and many cognate fields.*

### **Introduction**

Traditional 'flipped-classroom' models invert the student→lecturer face-to-face contact/at home elements, from the standard 'lecture/homework' method, to the 'online lecture/classroom' method. In schools, where content-based learning is an appropriate methodology, this has been proved to be an effective way to improve understanding, increase student engagement and raise academic standards in a way which has proved difficult in standard classroom teaching methods. However, at university level, there is an additional benefit to the refined flipped-classroom which goes beyond that of merely improving efficiency in dissemination and assimilation of information: it allows and encourages students to develop critical reasoning skills in a way which the standard classroom method of delivery does not explicitly provide for, and the traditional flipped classroom has difficulty achieving

In university legal education assessments, students are expected to construct qualitative arguments, supported by quantitative authority. In essence, the symbiosis between quality (subjective argument) and quantity (external authority) is rewarded, where a student has demonstrated that they have considered social, political and economic factors, and then supported their position using appropriate legitimate authority. The crucial difference between university and school, therefore, is that authority can never be used to construct an argument, but merely to support it, as the argument itself must derive from the student. The reason for this, is that states of quality and quantity are not mutually exclusive – meaning that a person's beliefs are informed by the world around him, and a 'leap of faith' is required to believe that the world around him is true. Therefore, at school level, the assumption is that the average pupil does not possess enough 'quantity' to be able to make an unaided qualitative argument, but, at university, a student should have accrued the necessary skills to do so. This stance is supported by the Quality Assurance Agency (QAA) for Higher Education's aims for a law graduate's attributes, which should include the...:

- Ability to produce a synthesis of relevant doctrinal and policy issues, presentations of a reasoned choice between alternative solutions and critical judgment of the merits of particular arguments
- Ability to apply knowledge and understanding to offer evidenced conclusions, addressing complex actual or hypothetical problems (QAA, 2015)

...but not in the English school's statutory national curriculum for key stages 3 and 4 framework document, which merely states as its main aim:

The national curriculum provides pupils with an introduction to the essential knowledge that they need to be educated citizens. It introduces pupils to the best that has been thought and said; and helps engender an appreciation of human creativity and achievement.

(gov.uk, 2014)

But how does the university student derive his own qualitative argument? The authors assert that this must come from the student's own experiences and knowledge of the world. Authority can do no more than resonate with the student, and no authority can ever be considered 'right', which is why content-based learning, which might be useful at school - where a pupil's knowledge and experience is unlikely to be sufficiently fully formed – is not appropriate for undergraduate degree assessment, where the better student is expected to bring a novel contribution.

It is this 'novel' contribution, supported with authority, which the authors assert in this paper is at the heart of critical reasoning – a key skill, which when utilised correctly leads to legal assessment success – and which is best developed in a 'refined' version of the flipped-classroom model. The authors assert that by adding a tutor-led skills lecture element, which acts as a mirror to a student-led workshop, this crucial refinement provides the optimum framework to allow students to increase their critical reasoning skills, and excel in their assessments.

### **Critical reasoning**

Within the sphere of legal education, the student's argument must come from his own experiences of the world and the society in which he lives. It must also be supported by authority. This is not 'authority' in the strict 1651 Hobbesian vernacular (as law emanating from a sovereign), but more as 'authority without an author', which as van Roermund (2000, p.214) argues is '*irreducibly first-person bound*' within a legal system as a '*socio-political institution*' and therefore:

...one can attack and deny legal authority in certain procedures. Legal authority makes itself vulnerable by providing in advance for counter-action. In yet other words: exercising legal authority requires, among other things, arguing, convincing, persuading and, in general, confronting the audience that imputes authority to a certain body.

This first-person argument, using legal authority to support it, provides the perfect balance between qualitative and quantitative studies, and is not only the foundation of legal argument, but that of the common law system itself. For this reason, we can say that the perfect legal essay is one which makes a novel contribution to the legal system and in itself becomes 'authority'.

It is important to appreciate that the student must pick one side of the argument and use the law to support it, not the other way around. It would be poor assessment practice to simply research the available law and to then decide which principle proves to be the best 'fit'. Indeed, if there is no legal authority to support a student's answer, but the student is still able to demonstrate that they have 'left no stone unturned' looking for it, then the assessment piece should be good enough to publish in a highly regarded legal journal.

Each legal problem will have two sides, even if the assessment simply asks the student to 'discuss' or 'explain' an issue. Within legal education, the term 'explain' does not have the same connotations as it might for other disciplines. Rather, it means 'construct an argument'. It is a polite invitation for the student to defend their position. In other words, once the student has looked at the argument from both sides and has done the required research, he/she must decide which side is more compelling and then explain why this is the case. In the words of Thomas Cowan:

The burden of all pragmatic philosophy is that to arrive at final truth is fatal. But equally fatal is failure to know whether our striving brings us nearer or farther from the truth. In a word, our task is to define truth in such a way that, although we must never arrive at it, yet we must be able to approach it indefinitely...We accept then the fundamental tenet of pragmatism. No generalisation or law remains final. It becomes fact or datum in the further pursuit of truth. No fact is final. Its meaning becomes absorbed in law or generalisation. There is no fixed starting point for science.

(Pound, 1999, p.xiv)

In other words, in a legal assessment, as with other disciplines, there can never be a 'right' answer.

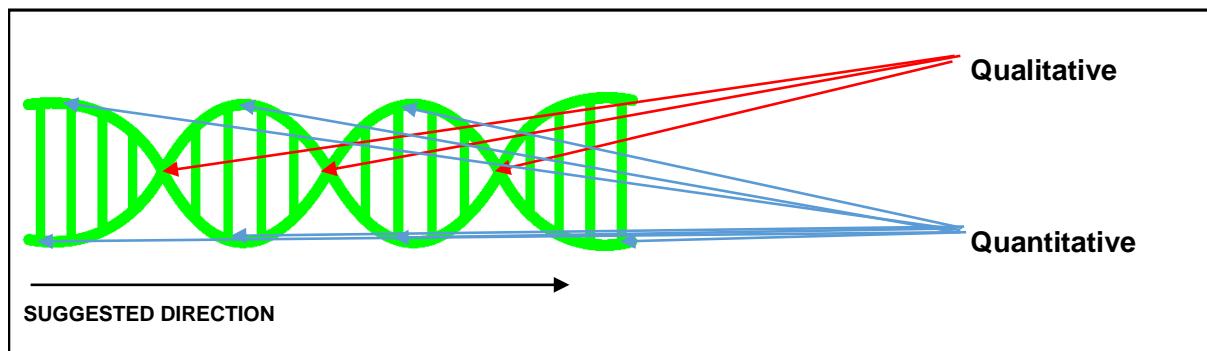
Inevitably, this will entail the student providing an opinion, but not in the sense of it being a rhetoric based on a vague gut feeling. Rather, as noted above, it should be an expert opinion based on research, knowledge of legal principles and an appreciation of policy

considerations. At the very heart of this opinion is the student's own qualitatively constructed argument based on knowledge and balance of the guiding master principles of the common law – justice, fairness and the common good – due to the fact that there is not a legal authority in the world that can provide the perfectly correct answer (Dworkin, 1978). Nevertheless, the student's careful consideration of all of the available source material will ensure that their answer should have both resonance and legitimacy.

In these contexts, qualitative evidence is anecdotal, meaning that it is based on subjective experiences, not being empirically tested or combined in any formal way with other like-for-like evidence to derive a quantitative study. However, as we can appreciate, the more similar qualitative evidence is gathered, the more quantitative it becomes. Likewise, even if a huge quantity of evidence is gathered, a qualitative hypothesis must be derived in order to give the evidence context and to decide its accuracy and validity. Therefore, we can say that qualitative and quantitative states are not mutually exclusive, but are necessary to give each other resonance. It is the symbiosis between these two paradigms which provides 'best' answers to problems, even if not completely 'right' answers.

It is proposed that a 'good' answer is one which follows the double-helix framework for assessments:

**Fig. 1:**



As we can see from this diagram, qualitative and quantitative study is dependent on, and feeds, each other. If either state is missing or unequally represented, the assessment is either too quantitative ('too descriptive'), or too qualitative ('unsupported by evidence').

By developing the diagram in a double-helix motif, we can see that the process of critical reasoning is an ongoing process without beginning or end, and we can see that qualitative arguments are informed by quantitative knowledge. The corollary, of course, is that quantitative knowledge is set strict parameters by the quality of the context of the initially constructed argument. Lastly, we can see that there are no definitively 'right' answers in academic problem scenarios, as in real life, but that it is the ongoing attempt at the

construction of logically sound arguments, supported by authority, which provides ‘good’ answers.

Constructing an answer in the common law means balancing the rights of the individuals in the case against the welfare of the wider society that those individuals reside and operate in. As Pound himself argued in his seminal work ‘The Spirit of the Common Law’ (1921, pp.100-101): ‘...It follows that, following assertions made in the 1776 Declaration of Independence, the common law was taken to be a system which gives effect to the individual natural rights of man.’ However, Pound continues: ‘Men are not asking merely to be allowed to achieve welfare; they are asking to have welfare achieved for them through organised society’... which leads naturally to the conclusion: ‘...although we think socially, we must still think of individual interests’. It is the ongoing attempt at striking a balance between these two seemingly impossible-to-reconcile paradigms, which makes a ‘good’, if not the ‘right’, legal answer. Aristotle (1949) accepts that legal decisions must ‘best’ serve the needs of justice in any society at that specific given time, given that deliberative (policy) arguments and forensic (legal) rhetoric must both be addressed. Making deliberative arguments involves consideration of future society and forensic rhetoric considers today’s societal needs (Rieke et al, 1997), and these states are not mutually exclusive. For this reason, ‘right’ answers, which can never be found or applied, must be eschewed in favour of an ongoing process of critical reasoning.

So, if we were to take the left of the double-helix diagram as a starting point (there is no difference which end is designated the ‘start’), we can see that each crossed ‘qualitative’ point takes us to a new and deeper ‘truth’. The further along the double-helix structure the student moves, the deeper the answer provided, until eventually a completely unique answer is formulated. These subjectively constructed answers are, the authors assert, at the very heart of legal critical reasoning.

### **Flipped v traditional classroom models**

Pioneered by Bergmann and Sams in 2008, the traditional flipped-classroom is not a ‘model’, as such, but a means by which time may be saved (Tucker, 2012). By allowing students to watch instructional videos at home instead of in face-to-face lectures, the student has flexibility when choosing the time they wish to be taught, the lecturer has flexibility when choosing a time to record the lecture, and the student has a cache of stored information to refer back to, when it is time to revise for exams or write coursework.

Of course, it is not enough to simply watch the video and be done with it, as Bergmann and Sams (2012) observes, the tutor must check their notes and requires each student to come to class with a question. This method has proved to be effective in increasing student engagement and academic performance in subjects as diverse as mathematics (Moore et al, 2014), pharmacology (Pierce and Fox, 2012) and multimedia studies (Enfield, 2013).

However, at undergraduate degree level in law, simply checking notes and asking questions of the students would not be sufficient to elicit the required level of critical analysis needed to excel on the course. Since the practice of ‘asking questions’ is problematic, as it creates arbitrary barriers around the subject area and hinders wider investigation, the authors assert that, at most, *‘critical analysis points’* should be embedded into the online part of the model for self-reflection and to explain where the widest parameters of the debate might lie. These points are merely areas for consideration, or perhaps, colloquially, ‘something to think about’.

### **The refined flipped classroom model**

The University of Hertfordshire’s School of Law has, since 2010, largely adopted the flipped-classroom model, but has added a crucial third part – the Skills Based Lecture (SBL). The ‘skill’ to be developed, is that of critical reasoning. The three elements therefore are: (i) Knowledge Based Lectures (KBLs) - the online portion of the model to be viewed at home; (ii) the SBL, which is delivered in 40-50 student face-to-face lectures; and (iii) the Workshop, which is delivered in 12-15 student face-to-face groups.

The decision to depart from the standard classroom lecture and seminar method to the traditional flipped classroom model was made following the School’s revalidation of the LLB programme after consulting with student representatives, who relayed the message from the student cohort that live lectures were not providing them with the necessary tools to critically analyse. The problem, the authors discovered, was that there was a propensity towards accepting the lecturers’ views on the subject matter as qualitative instead of quantitative. At the end of the lecture, when questions would normally be fielded, the problem was that the lecturers’ qualitative view was being questioned, rather than the students’ own stance. In essence, the opportunity for the student to form their own view was irretrievably lost, and subjugated in favour of the lecturer’s, for the reason that the content of the lecture had been arbitrarily drawn at parameters set by the lecturer themselves. No amount of explanation, as to the true nature and value of the lecture, could then be adequately made.

After four years, following the adoption of the traditional flipped classroom, the decision to move to the refined flipped classroom was made on the basis the online lectures were being treated similarly to live lectures, by not only the students, but the staff. The students were still being taught quantitative content as if it were qualitative, thereby negating the need for the students to have any qualitative input. In essence, the students were being taught **WHAT** to think, not **HOW** to think. When it came to assessment later in the academic year, many students, naturally regurgitating the taught content, were surprised and dismayed to not be awarded marks for critical analysis – a key component of any higher education marking

criteria. The University's benchmark of 20% or fewer fails across the cohort had not been met, so, therefore, the refined flipped classroom was developed.

Since the new KBL element is treated merely as a cache of information, it becomes quantitative information, which when twinned with an SBL, ensures debate is made on the critical analysis points of the topic. The SBL element ensures that students are led by the tutor into qualitative debate, while the Workshop element ensures that the students lead the debate.

Arguably, the time-saving aspect of the flipped-classroom model is compromised by having the SBL delivered in class, but this is (a) necessary, to ensure that the students engage in lively debate of the critical analysis points in order to learn the qualitative aspect of the topic from the tutor and each other; and (b) is mitigated against, by having the SBL and Workshop parts running on alternate weeks, rather than in each week, as a traditional classroom model would likely specify. This allows for students to watch the KBL and have the SBL in 'even' weeks – it does not matter in which order the student engages with each of these two parts – and the Workshop in 'odd' weeks.

**(i) Knowledge Based Lectures (KBL):**

The content of this element is a combination of critical analysis points, designed to encourage qualitative enquiry and quantitative authority (such as case law principles, statutory provisions and some academic authority), and are delivered online through the medium of lecture slides (PowerPoint, etc.) together with a voice file commentary per slide, allowing students to pause playback at any time and take notes or watch linked resources. The advent of exciting modern technology has allowed hyperlinks to videos, text and picture files, and other resources, to be embedded within the slides themselves, thereby allowing lecturers to post extra required material to be viewed alongside the lectures.

As well as providing flexibility in allowing students to watch lectures at times to suit them, the KBL is accessible by the student for the full term of the course, so that it can be used as a revision aid. In essence, the material in the KBL provides the backbone of the content element of the course, which augments any written materials provided to the student by way of module guides or other written materials.

**(i)(a) Module Guides:**

Traditionally, these would contain the lecture materials and prescribed questions for students to prepare and answer before classroom sessions. At the School of Law, we have sought to dispense with prescribed questions, as we believe that this promotes a narrow view of the subject area, and discourages further research outside of the parameters of the debate.

The legal content of the module guides has also been refined, but not wholly changed. Instead of disclosing key principles, each topic area commences with a series of critical analysis points, which are areas meriting the deepest discussion. The student is immediately trained to construct arguments, rather than merely learning principles by rote. For example, instead of lecturing the constitutional principle that the '*separation of powers exists to stop corruption and abuse of power*' and citing Aristotle as authority for the statement, it would be preferable to provide the critical analysis point that '*It may be preferable to NOT have a clear separation of powers*'. Taking the latter approach, there is no authority for the statement, it fosters value-led normative enquiry, it engenders debate and it increases engagement.

The problem with providing 'black letter law' principles in lectures, is it does not explain methodology behind their inclusion. Why has the lecturer told us this principle? Is it the most important? Is the principle unchangeable or arguable? Although a content-based approach might be useful to start, and then narrow, the thought process to allow for efficient learning, the problem for the student is that without an explanation as to why the parameters have been arbitrarily drawn at the stated content, the student struggles to understand the relevance of it. Further, when it comes to assessment, the student may misconstrue the relevance and weight of some parts of the course, and apply weak or wholly unsupported quantitative reasoning to their own qualitative argument.

**(i)(b) Final examinable topics:**

Since the student now has an understanding that quantitative content is arbitrarily drawn at the parameters set by the compiler of the module materials, and there can never be all content in a given topic disseminated (which is why educators who teach unusable, unassessed principles 'for completeness' are, in effect, short-changing students), it is crucial that the module materials set boundaries as to the widest parameters of the debate expected in an assessment. These, we call 'final examinable topics'. These topics explain to a student the questions which *may* arise in an exam. In our Constitutional and Administrative Law module, the final exam contains six questions, with the student expected to answer a prescribed number within – normally a range between two and four. The list of final examinable topics numbers eight to nine in total, which means that the student understands at the outset of the course that they must focus their attention on a limited number of topics.

The effect of this is that the student is: (a) unconcerned that they be caught-out by not having learned enough content for the final exam; and (b) engaged at a deeper level with the topic area. The idea that the final examinable topics list in some way 'gives the game away' as to what may be in the exam, and therefore favours the weaker student, is fallacy. Students regularly create amateurish algorithms, by researching past papers, to attempt to predict which types of questions are likely to come up in the forthcoming paper; so by disseminating the topic list at the beginning of the course, it levels the playing field among

the student cohort, and develops the notion that stronger students will excel by performing strongly in the exam, rather than merely being lucky or vigilant.

**(i)(c) No ‘model’ answers**

It is our assertion below that there are no ‘right’ answers in law, and for this reason the practice of giving ‘model’ answers – a set of bulletpoints which sets out how a previous or mock question should be answered – is counterproductive and should be eradicated.

In a ‘model answer’, the qualitative argument and quantitative content and structure is dictated by the assessor, which allows no input from the student, and therefore the student does not feature in the piece. The student is tempted to learn the content and structure by rote, which means that the essential skill of critical reasoning is not developed or honed.

In any case, since exam questions are never reused, a model answer can only have limited use, as a way that a past student has answered a past paper – which, in law, means that the answer will not be relevant to the current political, societal and economic considerations, and the balance between the guiding master principles of the common law could not be struck in any case.

**(ii) Skills Based Lectures (SBLs) – the vital new element:**

The SBL element must be geared towards the academic law degree and assessment strategy, is tutor-led, and has three equally weighted key elements:

- (a) Knowledge element: Tutor-led Q&A and class discussion on the critical analysis points in the correlative KBL(s);
- (b) Research element: The tutor will demonstrate a research pathway to a specified, in the module guide, of a legal or academic source on online search engines such as Google Scholar or Westlaw. The tutor explains in a step-by-step manner how to reach the source, and most importantly, explains why the source is important to the topic – this marries the quantitative aspect of the topic with the student’s qualitative argument;
- (c) Structure element: The tutor will demonstrate how an answer to a specified question, should be structured, but not answered. The tutor will explain that there is no ‘right’ answer or structure, but will explain good and bad practice.

By delivering the SBL in this way, there will never be repetition of the KBL content, which have now become nothing more than an extension of the module materials. The students have been led, through a Socratic Method-style debate through the critical analysis points of the KBL and have had demonstrations of how to research and structure exam answers. There have been no model answers demonstrated, as the students have been encouraged to engage

in critical analysis of the topic. In essence, they have been taught HOW to think, not WHAT to think.

**(iii) Workshops:**

The Workshop element must be geared towards the academic law degree and assessment strategy, is student-led, and has three equally weighted key elements:

- (a) Knowledge element: Student-led class debate on the critical analysis points of the KBL and the tutor-led discussion in the correlative SBL;
- (b) Research element: Students must bring to class either a newspaper article or other legal / academic source, which is relevant to the critical analysis points in the KBL. They must also be prepared to debate and discuss the material in class;
- (c) Structure element: Class debate on how to structure a ‘good’ answer to a specified question in the module guide (a different question from the SBL) or an exam/coursework question.

By delivering the programme this way, the students will wish to engage with all three non-repeated parts, which increases student engagement, for the benefit of both students and educators. The KBL is merely a cache of information, while the SBL and Workshops carry the same three elements: knowledge, research, structure. The difference between the SBL and Workshop parts, is who leads the discussions. In SBLs, the tutor leads the discussion, to build confidence and demonstrate ‘best practice’, but in the Workshops, the students lead the discussion, with the tutor there to simply keep the students on-course to best practice.

**A contract law example**

The concept of ‘consideration’ – a vital element in an English contract - in contract law, is not any easy one to grasp. Students must demonstrate that they understand the underlying principles in order to excel in an exam question on the topic. The problem is that there are many rules, but a better student will understand that they amount to the same thing: the law is attempting to balance the guiding master principles of the common law, rather than slavishly adhering to any other ‘rule’.

One key rule derived from the ancient Pinnel’s case (1602) 5 Co Rep 117a, is that ‘part payment of a debt will never be good consideration’. For example, if I agree to pay someone £100 to mow my lawn, then paying £50 will never discharge remainder of the debt. There might arguably be lots of reasons for this rule:

- (i) To satisfy the need for certainty in contracts;
- (ii) To uphold the technical argument that, without the rule, the £50 in the debtor’s hands is a windfall profit;

- (iii) To prevent unfairness;
- (iv) To protect vulnerable parties from potential ransom demands;

...and so on.

However, the underlying reason for this rule is that the law has developed the best balance between protecting the rights of individuals in the case (in this case, favouring the person who mowed the lawn) against the wider welfare of society. There are also other consideration ‘rules’: ‘That a pre-existing contract cannot be good consideration’, or the notable ‘that it must be sufficient but not adequate’. These rules may all seem different, but they all amount to the same rationale as the part payment rule.

However, immediately after the Second World War in the seminal 1947 *High Trees House* [1947] KB 130 case, Lord Denning allowed the common law rule of consideration to be subverted by the equitable doctrine of promissory estoppel, by ruling that, in some cases, a party may be absolved from paying the remainder of his debt if he can prove that he detrimentally relied on a promise from the creditor that he would not be pursued for it. The underlying reason was that the common law part-payment rule created an imbalance between individual rights and society rights, in some circumstances. How does a student reconcile the common law part payment rule with the promissory estoppel rule? Does simply promising that you will not pursue a debt preclude you from an action? No, of course not, otherwise the part payment rule would have no application.

The answer is in the critical analysis. The student must understand that promissory estoppel was developed to mitigate against the harshness of the common law rule. If a party can demonstrate that they have been lulled into making part payments of their debt on the promise that the remainder would not be pursued, on the basis that they would have chosen forfeiture of the benefits of the contract otherwise, then the debtor wins. Otherwise, the creditor wins. The balance in the guiding master principles of the common law has now been re-struck.

Is this the ‘right’ answer? No, this is simply an attempt to balance the guiding master principles of the common law. Therefore, for now, until a better balance might be struck elsewhere, it is a good answer. What this example also proves, is that there is no such thing as a ‘hierarchy’ of legal principles. The principle from *Pinnel’s case* was established in 1601, yet it was subverted in 1947 by Lord Denning. Neither case has been overruled, nor have unequal authority. The excellent student will not be bothered by learning these principles by rote, but will merely use the law to support, rather than construct, his own answer.

In this topic area, a provided critical analysis point in the KBL might be: ‘The rules of consideration are there to protect some contracting parties, but not others’. This is a better

approach than the more prescriptive, and less useful, prescribed principle: ‘Part payment of a debt is not good consideration’, or the prescribed, and narrow, question: ‘Why is part payment of a debt not good consideration?’

### **Conclusion and recommendations**

The flipped classroom model was adopted in the School of Law, following the revalidation of the School’s law programme in 2009-10, and saw a 10% improvement, from 68% to 78%, in terms of student progression, engagement and assessment results, from the previous standard live lecture/seminar university teaching delivery plan.

Starting in the 2014-15 academic year, the refined three-element flipped classroom model (the focus of this paper) was adopted in a pilot module – Constitutional and Administrative Law – chosen as it is a compulsory module in the current qualifying law degree, and therefore contains the largest student cohort. It is also a first year module, allowing the authors to chart the impact that the refined model had on students with no prior university experience or opportunity to accrue the QAA-specified critical reasoning skills elsewhere.

The results in this module in 2014-15 were improved from the previous year, from 78% to 83%, despite there being no alteration year-on-year to the content of the course, assessment strategy or teaching personnel. The university benchmark fail rate for an individual Year 1 module, including Constitutional & Administrative Law, is set at 20% - this indicates that implementation of the refined flipped classroom model has allowed the university to meet this benchmark for the first time.

The final data to note, is that students entering university, in which their graduation year was 2010, 2013 and 2014, entered at the same UCAS tariff rate – 340 – which indicates that despite the improved graduate performance, the student cohorts in each of these years possessed similar incoming educational capability.

Following the success in the pilot module, the refined flipped classroom module is being utilised in all compulsory law modules in 2015-16. However, the authors assert that this model is not tailored towards law academic programmes, despite the current use of it on the LLB degree, but has wider application towards any subject which values developing students’ critical reasoning skills. In fact, the university is now seeking to extend and embed the refined flipped classroom model in a number of programmes across the various Schools. The authors hope that this collaborative, cross-disciplinary approach will further enhance the model.

A further benefit of this refined model, as noted by the authors (Berger and Wild, 2015), is that it has the useful by-product of improving teaching standards by ensuring that the essential elements of the critical reasoning skill is subdivided into its composite parts, into a

simple checklist, for use in legal assessments. This checklist, when applied by the assessor, has two main purposes: (i) to ensure that the student has achieved the appropriate grade for the assessment; and (ii) to ensure consistency and maintenance of quality in the assessment method.

**Fig. 2:**

Year of entry	UCAS entry tariff rate	Standard teaching model	Traditional flipped-classroom model	Refined flipped-classroom model	Pass rate (%)
2010-11	340	✓	X	X	68
2013-14	340	X	✓	X	78
2014-15	340	X	X	✓	83*

(Source data: The University's Academic Registry Department)

\* The university benchmark fail rate for this module, is set at 20%.

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