T*he Proposed Teaching Excellence Framework (TEF): A Formula for Teaching Excellence*

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Introduction

The key aim of the November 2015 consultation paper '*Fulfilling our potential: Teaching Excellence, Social Mobility and Student Choice*' ('the green paper'), presented to Parliament by Jo Johnson, the Secretary of State for Business, Innovation & Skills, is to introduce a Teaching Excellence Framework (TEF) to higher education institutions. The TEF is designed to raise teaching standards, reduce the burden of self-regulation on the sector and, in doing so, offers better value for money to students, who, following recent statutory reforms on tuition fees, are now fully funding their education.

The problem, the government identifies, is that employers have raised concerns about the skills and '*job-readiness*' of many graduates, due to institutions viewing teaching as being the '*poor cousin*' to academic research. For those providers who meet and surpass the proposed threshold, there will be '*reputational and financial incentives*'; and for students, there are promises of wider participation of people from '*disadvantaged backgrounds*', and greater competition from '*new high quality providers*' who will be placed to take advantage of a '*faster route to becoming a university*'.

The government argue that universities may be guilty of '*degree inflation*' – which artificially increases the number of students achieving higher degree classification awards, supposedly to improve the reputation of the institution – but this, quite rightly, carries '*reputational risks*', as employers face the challenge of differentiating between applicants, and students worry that they are not being fairly rewarded for their efforts. To remedy this, the TEF should provide consistency in degree standards and awards.

The authors identify, from these aims, that, regardless of any other tangential benefits, the TEF has three main features:

(i) To encourage students from disadvantaged backgrounds, who would otherwise not have done so, to enter higher education;
(ii) To improve the employability of these, and other, students; and
(iii) To allow institutions, who achieve this main task, to charge higher tuition fees.

It might be argued that the key aim of TEF is to merely raise teaching standards, but this cannot be true if it simply taken in isolation. The government plainly seeks to ensure that higher education is linked to employability and that employability should not be the preserve of the elite. The **financial incentive** is interesting, because it adds an objectively-assessed yardstick across all institutions – after all, a student will expect value for money and is unlikely to select a failing university simply because it offers cheaper fees, nor will a successful institution elect to keep fees low if it is allowed to raise them – which means that any assessment of a university's teaching 'excellence' must carry an element of objective valuation. The government's encouragement of **widening participation** must indicate that the average student from a disadvantaged background has much to offer the commercial sector. The lean towards **employability** as a key factor for teaching success shows that many current graduates are leaving university with plenty of knowledge, but lack the means to transfer that knowledge into productivity. For these reasons, perhaps, this initiative has been launched by the Secretary of State for Business, Innovation and Skills, rather than by the Secretary of State for Education.

Therefore, the challenge is three-fold:

(i) Providers must agree on the key skill(s) which enhance student employability;
(ii) Providers must then establish undergraduate degree teaching excellence, or 'best practice', across all subjects, to elicit and enhance these skills; and
(iii) Providers must acknowledge that the current model is flawed; that widening participation students have much to offer, and that the new teaching strategy should seek to appreciate and enhance these unique attributes.

This challenge is not trifling. A major hurdle needing to be crossed is for providers to agree on the purpose of higher education and its correlative assessment strategy. Some institutions may argue that taught subject matter should be expansive ('for completeness') with assessments geared towards content or rules-based outcomes, while others may say that assessments should be geared towards developing a student's transferable skills, leaving taught content to be minimally disseminated, within narrow and arbitrarily-drawn parameters. The authors take the latter view, since the main concern of the government is not to ensure that graduates leave university with copious amounts of knowledge, unusable in the marketplace, but to ensure that graduates are properly equipped with a practical, useful education, to rise to any challenge they face in their postgraduate work lives.

The authors assert that they have identified a formula which addresses the three main aims of the TEF, and seeks to answer crucial questions in Part A, chapters 1-4 of the green paper, entitled: '*Teaching Excellence, Quality and Social Mobility'*. The authors argue the following:

(i) That the key transferable skill, which leads to enhanced student employability, is that of **critical reasoning** - the ability to apply subjectively derived (qualitative) logical argument to solve problems, supported by objectively researched (quantitative) authority - which provides legitimacy to the answer;

(ii) That the development of the critical reasoning skill does not favour those who come from a traditional educational background, and rewards students from all walks of life who bring to their degree studies a wealth of valuable **life experience** derived from a variety of diverse sources;

(iii) That the critical reasoning skill is possible to be **objectively assessed**, utilising a universally adopted checklist.

In this paper, the authors' have formulated a simple three-part checklist, which subdivides the essential elements of the critical reasoning skill into its composite parts, for use in 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. This checklist not only raises teaching standards (Berger & Wild, 2015a), but, as the authors have found also increases student academic performance (Berger & Wild, 2015b), on undergraduate degree programmes, in-line with the government's proposals. Cambridge University's consultation response to the TEF proposal, agrees with the authors' stance of the significance and importance of developing

students critical reasoning skills, recognising '*The core research skills of evidence assessment, problem-solving, creativity, teamwork and critical thinking are those that employers of our undergraduates value, and not necessarily subject - specific knowledge or technical ability*' and that '*The 'long-reach' aim of universities is to help students grow into thoughtful and critical citizens*', but that this aim should not merely enable them to become '*earners and consumers*'. The authors, in this paper, argue that the TEF's aim to improve student employability should be through the development of critical reasoning skills, and does not adversely interfere with Cambridge University's long reach aims. This paper serves to define this key skill and explain the way in which it might be objectively charted and assessed.

Critical reasoning

'Critical reasoning' means constructing unique answers, supported by authority. It is the ability to recognise and identify key issues in any problem scenario, and then solve the problem using logic, common sense, experience and knowledge. This will not entail giving answers based on some sort of abstract gut feeling, but will be an expert opinion based on an appreciation of the 'best' thinking – subjectively and objectively derived - available. When we say 'subjectively' derived, we mean that the student must derive his own hypothesis from his own derived thought processes; and when we say 'objectively' derived, we say that the answer must have legitimate force from external authority, or '*authority without an author'*, as Van Roermund (2000), puts it. The combination of these two elements allows a student to deliver a unique answer with the support of, or criticism of, the best other thinkers in any particular field. Of course, these states are not mutually exclusive – external knowledge informs our inner beliefs, and even the most extensive evidence requires a 'leap of faith' for us to accept that even the most empirical of data is true – but unless a student embraces these two paradigms in equal measure, the student has not produced a first class answer. More importantly though, in the business world, employers and customers will not pay a graduate for mere knowledge, but will require critical reasoning as a matter of course.

What we can say then, is that all critical reasoning is a combination of qualitative and quantitative study. This may sound simple and trite, but it is a state of affairs which may not be universally recognised or accepted among institutions. In the Green Paper, we can see that at pages 23 and 33, the government itself has seen fit to reference these two key states, to 'prove' their hypothesis of 'teaching excellence':

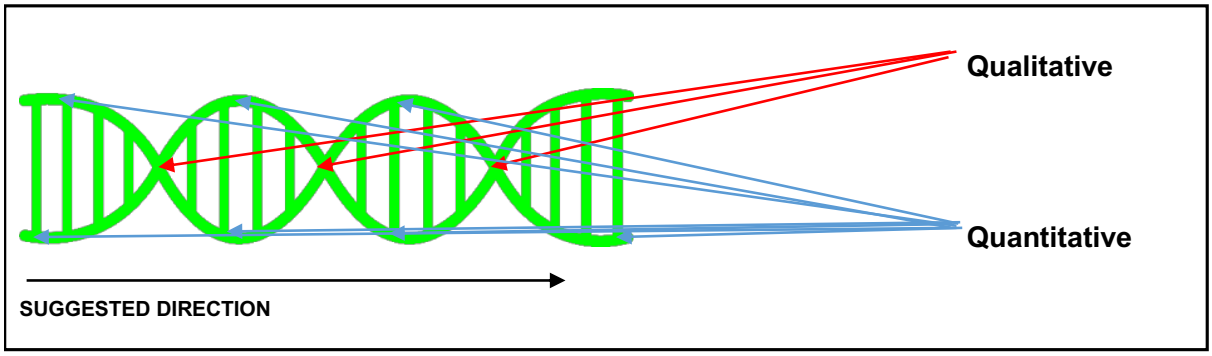
At page 23: '*As there is no single measure of teaching excellence, whether the approach for year two and beyond of TEF should be to develop a set of common metrics in order to measure aspects of teaching excellence. This would be combined with a qualitative element: providers would submit additional evidence of their case for excellence, including the amount and quality of student study, their contribution to social mobility and how they encourage and reward excellent teachers*'.

At page 33: '*To measure performance against* [these aspects] *of excellence we propose to use a set of common metrics derived from national datasets, alongside qualitative and quantitative evidence submitted by the institution*'.

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.

Without wishing to be too abstract about this, 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. In the legal context, Dworkin (1978) supports the notion that there are no 'right' answers in legal assessments, and the authors in this paper accept that this stance carries over to assessments and problems in cognate disciplines in the social sciences sphere, and even beyond.

If we were to take the left of the 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. It is for THIS reason that this technique favours no demographic of student, regardless of their background, as varied life experiences will produce uniqueness. Qualitative answers are derived from all

sources available to the student – not just those taught quantitatively in schools or further education courses – and are authentic to the student. These constructed answers are at the very heart of critical reasoning.

The authors 'refined flipped classroom' model

The traditional flipped classroom model, originally developed by Bergmann & Sams in 2008, saves time and expense (Tucker 2012) and promotes flexibility in educational delivery, by reversing the contact time/homework course delivery elements to allow students to receive part of their course at home through online lectures, and then has them come in to class to develop their learning. In the modern technological age, this has been seen as a huge advance, and has been proved to be a highly effective way to increase student engagement in a wide range of subjects from mathematics (Moore et al, 2014) and pharmacology (Pierce & Fox, 2012), to multimedia studies (Enfield, 2013).

However, as the authors have asserted (Berger & Wild, 2016a), by further developing the model to allow a revolutionary new 'skills based lecture' (SBL) element, a refined flipped classroom model can be used to improve the qualitative aspect of students' argument construction skills, while the traditional part of the model, the 'knowledge based lecture' (KBL) element, is left to develop quantitative knowledge and learning. By combining the SBL, the KBL and a workshop small-class workshop element, the student is better equipped to construct subjective arguments supported by objective authority – thereby developing the key critical reasoning skill.

The format is as follows:

(i) Skills based lecture (**Contact - Qualitative**)
(ii) Knowledge based lecture (**At home - Quantitative**)
(iii) Workshop (**Contact - Qualitative/Quantitative**)

In essence, this method teaches students *how* to think, rather than *what* to think - which the authors assert is in-line with the TEF's main aims.

By proposing that all course delivery is formatted this way, it will be a simpler method to chart teaching excellence by providing all institutions with a consistent foundation. The authors assert that without consistency in educational aims, course delivery and assessment strategy, it will be impossible to ascertain whether the TEF has had any impact, or whether the aims have been met. This is not to say that there will be no academic freedom for each institution to deliver courses in what they believe is the most effective way, but that this freedom should be set within the wide parameters proposed by the authors. Without at least *some* objectively-set framework, the 'teaching excellence' accolade will be based on metrics containing institutionally subjective – and therefore uncertain, fraught with risks of accusations of unfairness and/or inaccuracy – elements within each category. To ensure consistency in teaching methods, these must be also aligned with a correlative assessment strategy to promote effective development of the key critical reasoning skill.

Assessment strategy

Creating a universal assessment strategy under the aims of TEF does more than simply establish a consistent framework to test best practice; it provides an opportunity to enhance the critical reasoning skill. The authors argue that the best approach is to use authentic assessment techniques for all assessments, together with their intrinsically combined formative and summative elements.

Formative assessments are those which allow students to improve their performance, by providing feedback mid and post assessment, between the assessor and the student. Summative assessments are those which gives a final mark. Traditional 'one-shot' paper based assessments, while pragmatically used to enable assessors to mark *en masse*, are mainly summative in nature, with the only formative element existing as feedback comments. These comments do not allow the student to improve their grade mid-assessment, and are only useful, on the most superficial level, for future assessments. Conversely, formative assessments allow a student to develop an argument further from the point they started at – at whichever point they started at. As long as the assessor is trained to elicit the correct answers, a student has the opportunity to demonstrate that they have considered deeply the key issues of the subject matter. For this reason, mid-assessment formative techniques are the best way to identify, develop and enhance the key critical reasoning skill.

For this reason, multiple choice question (MCQ) and short answer tests are certainly not best placed to adequately test critical reasoning skills. Written exams and coursework are also not as effective as authentic assessments, while oral assessments are only useful as long as the assessor is adequately trained to as the right questions, mid-assessment.

Authentic assessment

Authentic assessments are aligned with workplace activities, as opposed to the more artificial, largely exclusively summative and austere, nature of traditional university assessment methods. It is a method that presents a task for students to perform and a way to measure their performance on the task. It tests a student's ability to solve hypothetical problems, which then assesses how effectively a student solves a real world problem, and requires students to apply a broad range of knowledge and skills. Doing more than simply avoiding the saturnine, authentic assessments improve students' academic performance (Berger & Wild, 2015b) and employability rates, (Berger & Wild, 2016b) by developing critical reasoning skills through formative mid-assessment communication in a way which is less effective or impossible in traditional 'one-shot' paper-based exams or coursework.

We argue that authentic assessment provides an unparalleled opportunity to delve deeper into the psyche of the student, to explore areas of social, political, economic, or other, interest which may not have been apparent from the outset. This two-way communicative strategy allows students to improve or lower their grade mid-assessment as the lines of enquiry are developed.

Assessors will no longer be able to rely on 'model answers' or 'marking bulletpoints', as no guidance will exist at the heart of the assessment, beyond that of the attempted balance between the qualitative and quantitative elements of the problem (if model answers to past questions

were provided, this might increase the quantitative aspect of the learning process, but not the qualitative). Authentic assessment is normally a two-way communication scenario, which means that students are able to you respond to their assessor mid-assessment and make tweaks and minor adjustments to their performance as familiarise themselves their assessor's demands, personality and character traits. This means that the assessment is within a constant formative framework with a summative assessment at the end, followed by further formative assessment when post-assessment feedback is provided.

A traditional paper-based assessment has only one formative aspect – the feedback at the end – which as Montgomery (2002) notes '*are done after rather than before the writing, so they cannot serve as guidelines, compromising the value of writing comments at all*'. Equally, this mode of assessment is primarily used in a summative way '*to differentiate between students and rank them according to their achievement*' (Gulikes et al, 2004) – the testing culture - and, as such, does not sit easily with current educational goals which focus to a greater extent on the development of '*competent students and future employees*' as opposed to solely on the acquisition of knowledge (Gulikes et al, 2004).

The checklist

In order to ensure that assessors are trained to ask the right questions, mid assessment, the authors assert that a simple three-part checklist may be utilised. This checklist can be used in any discipline which values critical reasoning skills, but example provided has been specifically developed for use in humanities and social sciences subjects, such as law, politics, economics, business and criminology.

Essentially, the test echoes and subdivides the critical reasoning skill into its composite parts:

(i) Has the student constructed a qualitative argument which encapsulates the key issue(s) of the subject matter?
(ii) Has the student appreciated the qualitative and quantitative aspects of the key issue(s)?
(iii) Has the student used quantitative evidence to support his answer?

For example, in a legal assessment, the three parts would be subdivided as follows:

(i) Has the student constructed an argument? (**Qualitative**)
(ii) Has the student considered the guiding master principles of the common law – justice, fairness and the common good, and, in doing so, has the student sought to balance the rights of the individuals against the welfare of society as a whole? (**Qualitative**/**Quantitative**)
(iii) Has the student supported their answer with legitimate authority? (**Quantitative**)

In other disciplines, Question (ii) will alter to take into account different factors. In law, as with economics, politics, and other humanities/social sciences, the factors which might be considered are political, social and economic, but this is not to say that they will be definitive in other subjects, such as those in science, technology, engineering and mathematics (STEM) - but the general structure of the qualitative and quantitative question elements holds true.

Once uniformity in practice has been achieved through implementation of the checklist, best practice can be charted. Without any checklist at all, universities will have to rely on a number of subjective 'metrics' to ascertain best practice. This is fraught with problems, as it means that the TEF will not level the playing field, even though the institutional financial incentives for success would require it to do so. It also means that the TEF objectives will have no guarantee of working, nor can the overall success of the TEF be ascertained against its main objectives.

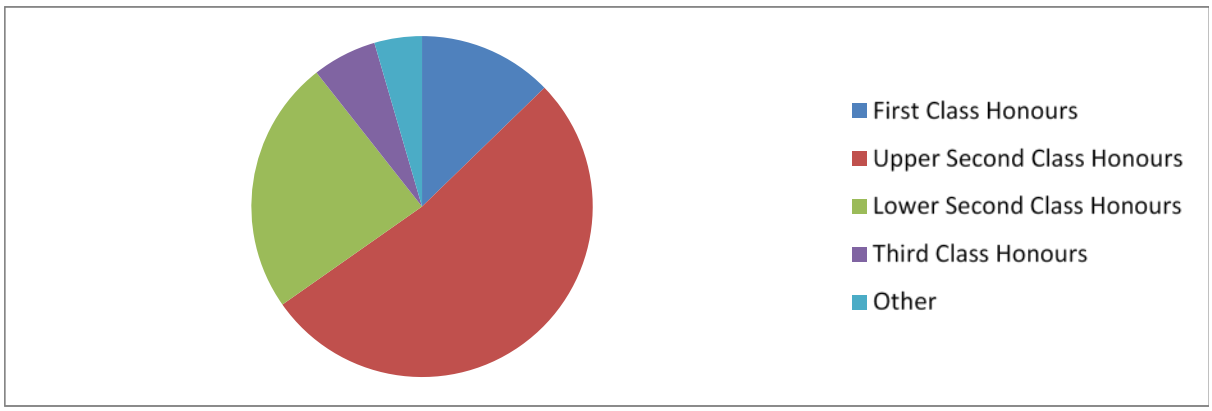
Authentic Assessment in Extra and Co-Curricular Activities (ECCAs)

The authors have developed a range of extra and co-curricular activities (ECCAs), including, among others, Mooting; War of Words (WoW); Mock trials; Debating; and Mediation. Each course incorporates formative and summative authentic assessment methods and is delivered in at least three separate assessment stages and involves an element of public speaking. ECCAs have traditionally been used to merely increase student engagement, but as the authors have found, they also can be used to augment academic degree education (Berger & Wild, 2015b) and improve employability (Berger & Wild, 2016b), as long as they are run by trained educators (rather than as the traditional student-led club or society), and accredited separately to the degree, by way of a Certificate or Diploma in Professional Development.

It is this formative-rich, authentically assessed environment which improves student performance in not just ECCAs, but on the academic degree, and beyond, in terms of their employability. The student is made to, in effect, students constantly review their performance and enter a mind-set which tests 'wicked' competencies such as flexibility, confidence, critical reasoning, psychological evaluation skills, and response skills. Interestingly, these are also all skills which help the student who is studying for a paper-based assessment (Knight 2007).

Fig. 2

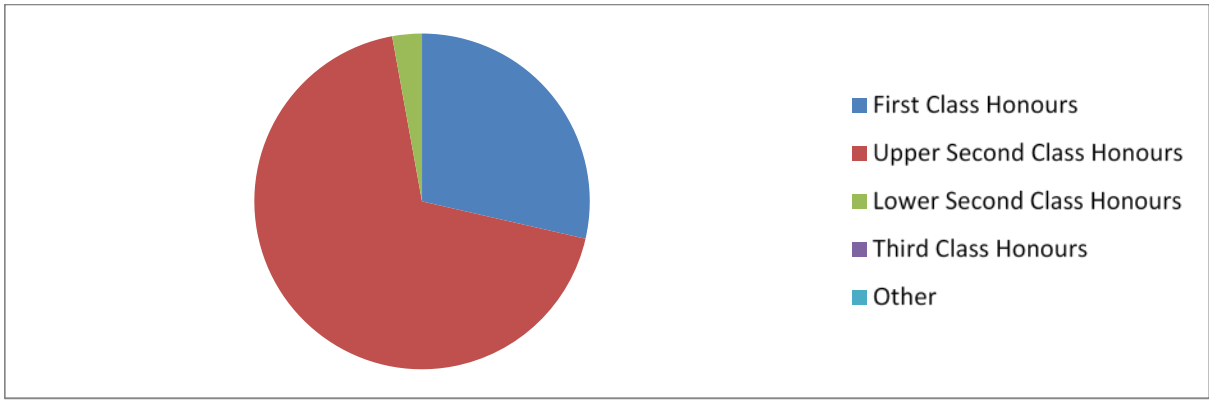
Academic Performance of the entire cohort (2014/15):



Source: Own University's academic registry

Fig. 3

Academic Performance of the ECCA engaged cohort (2014/15):



Source: Own University's academic registry

As may be noted from Fig. 2, 65.2% of the entire cohort graduated with a good honours degree (defined as being either a first class honours or upper second class honours degree). A further 24.2% achieved a lower second class honours degree, with a further 10.6% either achieving another exit award of choosing to resist the following year. By comparison Fig. 3 illustrates that 97.2% of the student cohort which engaged with ECCAs during their academic studies achieved a good honours degree. A further 2.8% achieved lower second class honours, with no-one receiving either a third class honours degree.

Based on this data, the authors assert that there is a direct and positive correlation between exposure to authentic assessment techniques, and the improved academic performance of students engaged in ECCAs.

Improvement in academic performance

Students' improved student academic performance, with the utilisation of the authors' refined flipped-classroom model, has been demonstrated by the authors (Berger & Wild, 2015a). In their study, a level 4 pilot module – Constitutional & Administrative Law - was used to test the model, and the results were clear: The traditional flipped-classroom model improved the level of student academic performance from that of the traditional mode of delivery – the last year in which it was used by the authors was on the student cohort whose year of entry was 2010-11 (it should be noted that the university's recommended benchmark fail rate for all level 4 modules is 20%). In the inaugural year of the adoption of the refined flipped classroom model in this pilot module, the university met this benchmark for the first time in recent history.

The authors' refined flipped-classroom model further improved the level of student academic performance from that of the traditional flipped classroom model - the last year in which it was used by the authors was on the student cohort whose year of entry was 2013-14. It was also established that any of the results were not the product of a more or less 'able' cohort, since the Undergraduate Courses at University and College (UCAS) entry tariff rate for each cohort was found to be at the same 340 point level for all three entrance years of the study.

Fig. 4

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

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

Source: Own University's academic registry

Conclusion

As has been argued in this paper, the proposed Teaching Excellence Framework (TEF) is a commendable idea, insofar as the need to make students from a wide range of backgrounds employable, makes good business sense. However, without identifying the key skill(s) which increase employability, nor the means by which to objectively chart whether these skills have been developed or enhanced, the TEF does not provide the 'framework' of 'teaching excellence' that it promises.

The authors have also established, through academic results of a 'pilot module', that their 'refined flipped-classroom model' enhances critical reasoning skills, which thereby improves student academic performance.

Lastly, the authors assert that by developing the critical reasoning skill in this expressly qualitative/quantitative manner, students from all walks of life, including widening participation students from disadvantaged backgrounds, will enter and succeed in assessments without demographic disadvantage.

For these reasons, this paper addresses the key issues of the proposed TEF to higher education institutions, as encapsulated within Part A, chapters 1-4 of the green paper, entitled: '*Teaching Excellence, Quality and Social Mobility'*.

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