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Right turn for Gove; wrong turn for Initial Teacher Education?

**A quantitative study examining the assumption that there is a direct causal link
between the classification of a person's first degree and their ability to teach.**

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Right turn for Gove; wrong turn for Initial Teacher Education?

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In this paper the authors will present the results from a small-scale quantitative research project examining the assumption that there is a direct causal link between the classification of a student teachers first degree and their ability to teach. Alongside this, they will extend the study nationally using Teaching Agency data. The evidence presented in the paper indicates that there appears to be no correlation, relationship or link, between the classification of a student teachers first degree and their ability to teach or their NQT outcome. The authors believe that these results are relevant and pertinent to today's education landscape and indicate that current government policy on attracting potential teachers into the profession is resulting in the wasting of limited financial resources in Initial Teacher Education.

Keywords: Teaching; Initial Teacher Education; Subject Knowledge.

Introduction & Background: The rhetoric

The background to this research involves the rhetoric of the current Secretary of State for Education, Michael Gove. On several occasions and in various government papers Mr. Gove has demonstrated an epistemological assumption that there is a link between the classification of a person's first degree and their ability to develop professionally as a teacher. This assumed link is often repeated, second hand, in press and media reports without challenge. The evidence for the existence of this epistemological assumption will be established in the following paragraphs.

'The Importance of Teaching' was published in November 2010 by the Department for Education. In the foreword, David Cameron and Nick Clegg openly state that: 'There is no question that teaching standards have increased in this country in recent decades and that the current cohort of trainees is one of our best ever. But we have much further to go.' It would be difficult to argue with that statement or with other statements in the paper, for example: '...no education system is better than the quality of its teachers'. However, after Mr. Gove has offered his foreword to the report, which includes such statements as '...comprehensive plans ... involving improving teacher quality' and '...a vision of the teacher as our society's most valuable asset' we begin to see clear evidence that Gove believes raising standards of teaching can be achieved by merely raising the entry profiles of first degree applicants.

'All the evidence from different education systems around the world shows that the most important factor in determining how well children do is the quality of teachers

and teaching. The best education systems in the world draw their teachers from among the top graduates.....' (DfE, 2010, p9)

'Continue to raise the quality of new entrants to the teaching profession, by: ceasing to provide Department for Education funding for initial teacher training for those graduates who do not have at least a 2:2 degree; expanding Teach First; offering financial incentives to attract more of the very best graduates in shortage subjects into teaching; and enabling more talented career changers to become teachers.' (DfE, 2010, p9)

'The best education systems draw their teachers from the most academically able, and select them carefully.....' (DfE, 2010, p19)

'In this country, the evidence about who is being attracted into teaching now is encouraging: where once the average degree class of those joining postgraduate initial teacher training was below average for the graduate population, it is now above average. But we still have some way to go before the status of teaching here matches its status in the highest performing countries: some 43 per cent of teachers here rate the status of teaching as low, and 66 per cent of final-year students at 30 top universities believe that teaching offers slow career progression and limited chances for promotion.....And while some countries draw their teachers exclusively from the top tier of graduates, only two per cent of graduates obtaining first class honours degrees from Russell Group universities go on to train to become teachers within six months of graduating from university.' (DfE, 2010, p19)

'We want to continue to improve the quality of teachers and teaching, and to raise the profession's status. Part of the solution will be to recruit more of the most talented people to the profession. Top-performing countries consistently recruit their teachers from the top third of graduates. Some go further: South Korea recruits from the top five per cent and Finland from the top ten per cent of the cohort who graduate from their school system. Evidence also suggests that prior academic attainment makes the biggest difference when combined with a high level of overall literacy and numeracy, strong interpersonal and communication skills, a willingness to learn, and the motivation to teach.' (DfE, 2010, p20)

'More generally, we wish to provide stronger incentives for the best graduates to come into teaching, especially in shortage subjects.....' (DfE, 2010, p22)

Having evidenced that there is a narrative within the rhetoric of Gove, and the current government, which openly links the ability to teach in a causal relationship to prior academic attainment, measured as a first degree classification, the authors wish to look a little closer at what 'evidence' may be leading Michael Gove to this line of thought.

Introduction & Background: The so-called 'evidence' for Change.

In 'The Importance of Teaching', Mr. Gove states: 'The importance of teaching cannot be over-stated. And that is why there is a fierce urgency to our plans for

reform.’ (DfE, 2010, p7). While Gove may be faulted for deliberately ignoring the very real importance of learning, he cannot be faulted on his zeal for change.

Gove enthusiastically quotes from Barber and Mourshed (2007) alongside Auguste, B., Kihn, P., Miller, M. (2010); both reports are known collectively as *the McKinsey Reports*. Gove quotes these sources approvingly seven times in the first twenty pages of his white paper; in fact a great deal of the justification and so-called ‘evidence’ for change within the white paper appears to hang almost entirely on these documents. To critique Mr. Gove’s current approach to Initial Teacher Education, and its reliance on ‘prior academic achievement’ in professional teaching, is to critique the McKinsey Reports.

The most worrying problem in examining Barber and Mourshed (2007) and Auguste, B., Kihn, P., Miller, M. (2010) is that they do not locate any of their findings within any relevant academic literature; there is no bibliography, only nine incomplete references to other books and articles and only two to policy documents. There is no mention of the large, critical bodies of research on cascade training, or the transfer of training, or the psychology and sociology of teaching and learning. Without locating their work in relevant literatures or exhibiting new or relevant evidence it is hard to take their work seriously as evidence based academic research.

The McKinsey Reports have been heavily criticised as oversimplification; Coffiel (2012) in particular found the McKinsey Reports deficient in 10 respects. It is the opinion of the authors that these deficiencies rule the McKinsey Reports out as serious academic ‘knowledge’. In addition, a short google search reveals that the funding for the McKinsey Reports can be linked to US Governor Jack Markell who has political and business links to the US Department of Education. The McKinsey Reports cannot really be termed ‘independent’. It is the opinion of the authors that the McKinsey Reports should be treated as ‘right-wing’ political policy pamphlets.

If Gove is to be criticised on his epistemological assumption that there is a link between the classification of a person's first degree and their ability to develop professionally as a teacher; it is that he has naïvely accepted the McKinsey Reports as being evidence based and peer reviewed ‘knowledge’ when they clearly are not.

Introduction & Background: The Wrong Turn?

There is evidence, using degree result data that teachers joining the profession are better qualified in terms of first degree result than at any time previously. Smithers & Robinson (2011) put forward the statistics that there has been an increase in the percentage of trainee teachers with first-class and upper-second degrees (46% to 58%) entering the profession over a recent 14 year period. However, they also point out that this increase appears to mirror the increased rate with which universities are awarding these classifications of degree (50% to 61%) over the same period. They state: ‘...teaching is holding its own against other graduate occupations’ while also lamenting that teaching ‘is not increasing its share of the good graduates’. (page i).

Ignoring the statistics that teaching has, and still is, attracting people with higher classifications in their first degree, the Secretary of State for Education has recently

implemented bursaries for teacher shortage subjects linking them directly to the outcome of their first degree: £20,000 for a first, £15,000 for a 2:1 and £12,000 for a 2:2. He appears to be incentivising change which is already happening. However this incentive scheme also appears to explicitly demonstrate a belief, on his part, that students with higher class degrees will make better teachers.

In addition to the incentive scheme, we have seen a prioritising of students into Teach First ahead of those on PGCE courses in both terms of funding and course provision since May 2010. This process pushes what may be termed an 'elite' agenda based on higher degree classification taking precedence over other teacher education requirements. For example, a potential trainee mathematics teacher with an A-level in mathematics and a 2:1 in a non-mathematical subject, say 'Education', can gain direct entry into secondary mathematics teaching through Teach First and be teaching mathematics in a secondary school classroom two months after graduation with little subject knowledge support simply on the basis of the class of their degree. That same graduate applying to teach mathematics through a PGCE or GTP route would usually have to complete, at the very least, a full-time, six-month mathematics subject knowledge enhancement course followed by a PGCE or GTP before being given the equivalent level of responsibility within the teaching of mathematics.

The bursary scheme and emphasis on Teach First represent major resource re-allocation within the initial training of teachers. One would hope that this re-allocation of resources had an evidential basis which can stand up to scrutiny. One would also hope that an increased emphasis on degree classification, held by postgraduate entrants, to Initial Teacher Education would lead to higher quality teaching; but does it really?

The elitist agenda of Gove has not always been so clear. One of Gove's early changes to Initial Teacher Education was to stop the public finance of any PGCE candidate with less than a 2:2 degree; effectively stopping anyone gaining Qualified Teacher Status with a 3rd class degree. This has had a significant impact on teacher recruitment in shortage subjects (Howson, 41). A contradictory message, within Gove's elitist agenda, appeared when Carol Vorderman, a TV presenter with a 3rd class degree, not in mathematics, and with no teaching experience, was asked to chair and produce a report into mathematics teaching (Vorderman, 2011). On one hand the message was that people with 3rd class honours cannot operate within the teaching system as teachers, but on the other hand the teaching system was being advised and led, at a strategic level, by people with 3rd class honours degrees. These two views are difficult to hold simultaneously.

One final point is worth making. Gove appears to have contradicted his own rhetoric on higher first degree qualifications for teachers by removing the need for academies and free-schools to employ teachers with Qualified Teacher Status. On the opening day of the Olympics in the summer of 2012 (a good day to bury bad news?) academies and free-schools gained the ability to employ anyone as a teacher. The authors find it hard to understand this decision when taken against Gove's rhetoric. In Local Authority controlled schools only people with a 2:2 degree and above can now be employed via the PGCE /QTS route, but in academies and free-schools anyone with any level of qualification can be employed. This one legislative move appears to

be a move against elitism in academies and free-schools while pushing an elitism agenda in Local Authority schools.

The Research Question and Methodology

The main research question initially was: Is there a link between the classification of a student teachers first degree result and the classification of their PGCE outcome for Initial Teacher Education students in one particular Higher Education Institution?

At a later point the authors included a further research question to shed more light in this area, namely: Is there a link, nationally, across all ITE providers between the classification of a student teachers first degree result and the award of Qualified Teacher Status?

The authors' initial study involved quantitative analysis of student entry and exit data for a single cohort of secondary PGCE students. Initially, the whole cohort was analysed using simple data correlation methods. This analysis was then refined to look at the group of PGCE mathematics students. The analysis was also extended by taking stratified samples of the whole PGCE cohort. In addition, a stratified sample for the PGCE students preparing to teach mathematics was analysed in order to address possible relationships within shortage subjects. Descriptive statistics were used throughout the research.

The data used for simple correlations involved assigning numerical values representing the degree classification and the 'summative' exit grades on completion of the PGCE for each student in the cohort.

Degree classifications were reclassified as number values:

Degree class	Ordering number
1 st	1
2:1	2
2:2	3
3 rd	4
Pass Degree	5

The 'summative' exit grades used were the internal PGCE course exit-grades aggregated from assignment and school experience/teaching placements. These are on a scale of E1 to E4; E1 being the highest, in terms of completion grades, and E4 representing "unsatisfactory", which equates to PGCE fail. In this study, only trainees who successfully completed the PGCE course (E1, E2 and E3) were included. The authors feel that the E1-E4 grades are no more, and no less, subjective than degree classifications. In terms of this particular research; they are considered to be equally valid and equally reliable.

The second part of the study involved the analysis of publicly available data from Teaching Agency sources.

Findings of the Authors Study

Simple correlations between degree class and exit grade for both the full cohort and the mathematics sub-cohort were undertaken.

Scatter diagrams showed that the data was spread widely both for all PGCE subjects and for mathematics as an individual subject. In all cases the correlations were close to 0, indicating no real linear correlation: for the full cohort the coefficient was -0.04, whilst for the mathematics sub-cohort it was +0.1.

The data was then sorted into 2 way tables (for both the full cohort and the mathematics sub-cohort), showing the breakdown of each exit class (E1, E2, E3) for each degree class. These tables were then displayed as simple bar charts and accumulated bar charts (see Appendices 1 and 2).

	E1	E2	E3	
1	5	7	5	17
2.1	18	36	15	69
2.2	16	38	16	70
3	0	9	4	13
Pass	5	11	1	17
	44	101	41	186

Table 1 - 2 way table – full cohort – raw data

	E1	E2	E3	
1	2	1	3	6
2.1	3	7	2	12
2.2	1	9	2	12
3	0	2	2	4
Pass	0	2	1	3
	6	21	10	37

Table 2 - 2 way table – mathematics sub-cohort – raw data

Table 1 and 2, above, and the bar charts in Appendices 1 and 2 suggest no link between teacher quality and degree classification. In addition this view was also supported by in Table 3 and 4, below, looking at the measure of spread of the data and considering the mean and standard deviation of both groups. Effectively all students leave with a mean grade of E2 regardless of their initial degree classification.

Degree class	Mean exit grade	SD
1	2	0.79
2.1	1.96	0.70
2.2	2	0.68
3	2.31	0.48
Pass	1.76	0.56

Table 3 Mean exit grade for full PGCE cohort (n=186)

Degree class	Mean exit grade	SD
1	2.17	0.98
2.1	1.92	0.67
2.2	2.15	0.55
3	2.5	0.58
Pass	2.33	0.58

Table 4 Mean exit grade for Mathematics PGCE cohort (n=37)

For the whole cohort the Pearson product moment correlation coefficient of the original data linking degree result (1, 2, 3, 4 and 5) to exit grade (1, 2, and 3) was, as previously stated, effectively zero. The authors concluded that there was no evidence of any relationship between the two variables.

It was noted that approximately one third of the trainees held degrees which did not match the subject area for which they would be teaching (eg someone with a Psychology degree teaching Mathematics). The authors changed the degree result data on these trainees to read a 4 and this resulted in a product moment correlation coefficient of -0.072. The authors continued to conclude that there was no evidence of any relationship between the two variables.

It was also noted that the numbers of trainees holding 1st, 2:1, 2:2, 3rd and pass categories were not equal. This could theoretically have an effect on the product moment correlation coefficient. The smallest grouping in any one category was 13. The authors randomly selected groups of size 13 from each of the five categories to form evenly balanced categories, by size, resulting in a stratified sample from the original 186 students of $n=5 \times 13=65$. This process of random selection was repeated ten times. The product moment correlation coefficient on most of these occasions was close to zero but did go as large as +0.245 and as small as -0.320. The authors concluded that, varying numbers in each category to produce various stratified samples did cause a variation in the value of the Pearson product moment correlation coefficient; there was still no evidence, however, of any linear, or otherwise, relationship between the two variables.

Limitations of the Authors study

The authors' study was undertaken in just one ITE provider; the authors cannot state with any degree of certainty that these results are universal across all providers.

The research is theoretically underpinned by elementary statistical work. The authors are aware that in any study which rationalises the attributes of a potential teacher to a single pair of discrete numbers can be considered as naïve. The authors are also aware of many disadvantages of using discrete scales to quantify human attributes and the problems of treating ordinal scaled data as a continuous ratio scale for the purposes of doing any statistical analysis. However, to paraphrase Rorty (1994, 59) they are attempting to obey 'the normal conventions of (their) discipline', while 'not fudging the data too much' but also 'not blocking the road to enquiry.' In other words, the

authors know that their statistical work is not entirely robust, but they continue to analyse it pragmatically.

Additional Teaching Agency Data

Over the summer of 2012 a web-page appeared on the Teaching Agency web-site (TA 2012) entitled: 'Why degree quality matters'. Two tables of data are reproduced in Appendix 3 from this web-page. These tables were offered by the TA as a way for potential ITT students to estimate their chance of 'success' in Teacher Education; as well as a justification for an increased emphasis by the TA, under the direction of Michael Gove, on 1st, 2:1 and 2:2 candidates in ITT.

The authors noticed a fundamental flaw with the data in the TA Table 1 (Appendix 3). This table contains aggregate data over the period from 1998 to 2010, concerning the classification of degrees. We know, however, from Smithers & Robinson (2011) that during this period 'grade inflation' took place within the university degree classifications rendering any conclusions from the Teaching Agencies aggregate data meaningless. (A simple analogy to this would be to aggregate data concerning student's height in metres over the same period but using a differing definition of a metre each year with an extendable metre rule; while specific results in one year may have meaning any conclusion about trends in height from the aggregated data set would be meaningless.)

Ignoring the flaw above, the authors were rather surprised that these tables were offered as evidence from the TA that degree classifications 'matter' in Teacher Education as the data appears to offer evidence to the contrary. The authors were worried about the statistical integrity of the statement made by the Teaching Agency: 'For training providers and employers, the reliability of degree classifications helps to make informed recruitment decisions, but the process is not just about trying to choose 'the best'. It is about making the best decisions for the teaching profession, and latest figures.....show that qualified trainees with a 2:1 or 1st class degree have a higher likelihood of becoming teachers than others.' (TA, 2012)

Firstly, within TA Table 1 (Appendix 3) there appears to be no difference between the outcomes for 1st and for 2:1 degrees across all categories; that in itself removes variation and therefore any correlation. It also removes any potential cause-and-effect relationships; effectively 60% of the whole cohort got exactly the same outcome regardless of their first degree result.

Secondly, on TA Table 1 (Appendix 3) the variation around the mean values across all classifications for QTS and not-QTS was very small and without knowing actual values for the individual variances, or standard deviations, across all these figures there seems little evidence to imply any of these differences are statistically significant. All fluctuations may be explained by variance within the population and without further analysis nothing can be inferred concerning 2:1 or 1st class degree holders having a higher likelihood of becoming teachers than other degree classifications. (A simple analogy to this would be to measure the height of people sat on the front row of an audience and compare that with the height of people sat on the

back row of an audience. Concluding that tall people always sit at the back of a room without looking at ‘statistical significance’ would be meaningless.)

Thirdly, it is noticeable how few 3rd class honours degree results there are in total. (In addition, the figures in this category may also include ‘pass’ degree results and/or overseas degree results; we aren’t told). One would need to question if the minor discrepancies between 3rd class degree results and the others were statistically significant, again using analysis of variance, or if they could be accounted for by the statistical variations in awarding QTS across the sector. (There may, for instance, be less variation between 2:1 or 1st class degree compared with other degrees than, say, between individual HE institutions. Alternatively there may be more variation between individual PGCE subject areas than between various degree classifications. Without looking at all the variables, and the variation associated with them, we could find that other variables have a greater influence on the likelihood of achieving QTS than just degree classification.)

Taking all the points, above, into consideration the authors feel that TA Table 1 (Appendix 3) is no evidence to support the hypothesis that there appears to be a causal link between degree classification and teacher quality.

The second table, TA Table 2 (Appendix 3), is interesting; and it would be more interesting if compared with employability across other professions. The authors agree that there could well be ‘discrimination’ from employers concerning degree classification; they have anecdotal evidence of this from their own professional lives. (When large numbers of people apply for posts, arbitrary differences are used to produce short-lists for interviewing.) The authors cannot see, however, how this discrimination can be seen as measuring teaching ‘quality’; surely it is measuring the propensity of employers to discriminate in favour of 1st and 2:1 degrees. (There may well be greater propensity to discriminate, by employers say, between pre-92 university degrees and post-92 university degrees which render the minor fluctuations found in TA Table 2 (Appendix 3) as insignificant.) Without further data this second table adds little to the debate.

The TA appear to have provided evidence that degree classification has little or no effect on gaining qualified teacher status, though it may have an effect in gaining employment following QTS qualification.

Overall Conclusions.

The authors would like to make it clear that they are not saying that secondary subject teachers do not need ‘subject knowledge’ or that teachers should not be ‘good’ at their subject. They are stating that for teachers, who are graduates, their evidence supports the hypothesis that, for one ITE provider, there is no link between the classification of a student teacher’s first degree result and the classification of their PGCE outcome. In addition, data published by The Teaching Agency supports the hypothesis that, for all ITE providers, there does not appear to be any evidence to suggest a link between the classification of a student teachers first degree result and the award of Qualified Teacher Status.

The policy implications of these conclusions are enormous. Money spent on attracting graduates with higher degree classifications into ITE is potentially being wasted if the aim is to raise 'teacher quality'. (If the aim isn't to increase 'teacher quality' this aim should be explicitly stated.) The money now spent on various schemes could be more usefully directed towards the teacher quality aim if it were spent on improving ITE in general, or providing more ITE in total, rather than merely attracting higher qualified ITE students into ITE.

The authors believe that their results may also have implications on publications such as: 'The good Teacher Training Guide' which is published annually by the University of Buckingham. This publication relies heavily on degree entry data to nationally rank Initial Teacher Education providers; it uses this data alongside Ofsted reports and the trainees' take up of teaching posts both of which appear to be functions of degree entry data. If degree classification has no direct link to teaching outcomes; one must ask why it would be used to rank ITE providers and the content of a course. Entry qualification data may accurately reflect competition for places onto individual HEI courses; but the data may not be considered an appropriate measure of how 'good' the teacher education is during the course. In addition, the authors would also question the purpose of a link from the previously mentioned Teaching Agency web-page (TA, 2012) which leads to a pdf document listing ITE providers by the percentage of entrants with 2:1 and above degree class (Teaching Agency, 2012a). If this is meant to aid course selection, by prospective students, one needs to ask the question: What evidence is being used to inform students on their basis of selection? Even those in favour of a 'market' in Teacher Education cannot support a 'market' structured around flawed comparison tables.

It is hoped that these research findings shed light on naïve ideas of raising teaching standards by merely recruiting so-called better *qualified* graduates. It is hoped that they may encourage other ITE providers to examine their own data and add to the weight of evidence against simple solutions for complex situations.

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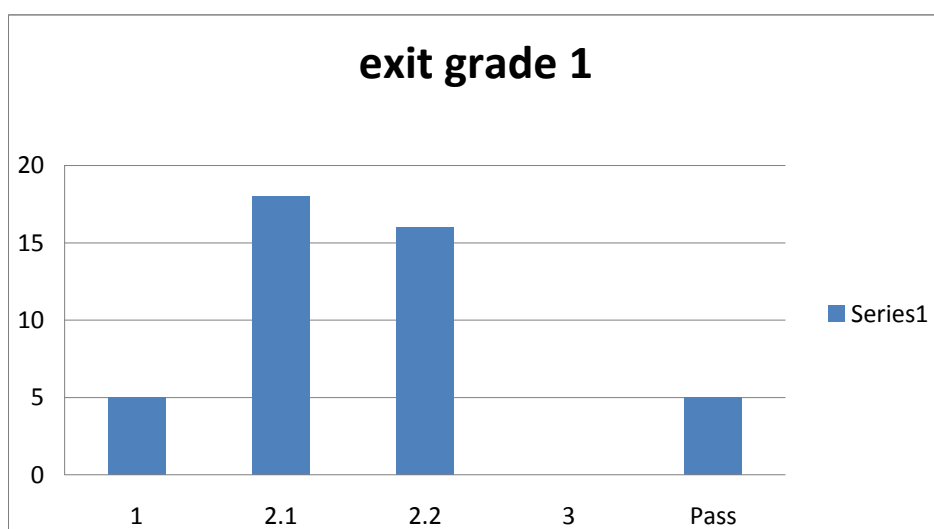
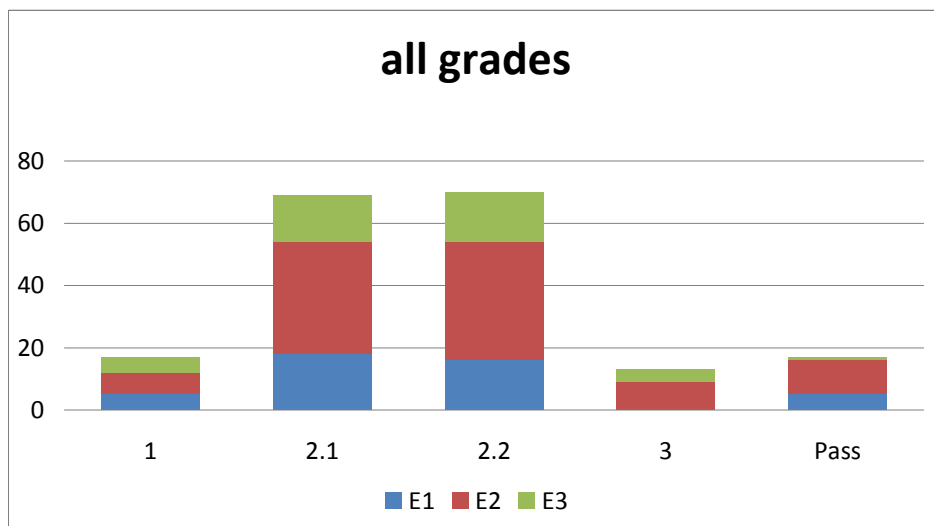
John has presented at BERA every year since 2008. He is a Senior Lecturer in Mathematics Education (Secondary) at the University of East London (UEL) and is the programme leader for the Mathematics Enhancement Course (MEC); in addition he teaches on the PGCE and GTP courses. John joined UEL from being Head of Maths at a large, beacon status, sixth-form college in the Thurrock area in January 2007. Prior to this he had been a mathematics teacher for 25 years in a wide variety of schools and had taught up to A-level Maths & Further Maths standard. During his teaching career John taught in comprehensive schools, grammar schools, single sex schools, independent schools (including a HMC 'public school') and finally in the FE sector before arriving in HE. John is currently studying for a Ph.D at UEL having been awarded a B.Sc. from UMIST in 1981, a PGCE from Manchester University in 1982 and a M.Sc. from Leeds University in 1988. In addition to his university degrees John became a Fellow of the Higher Education Academy (FHEA) in 2009, a Chartered Mathematics Teacher (CmathTeach) in 2011 and was awarded a UEL Teaching Fellowship by peer review in 2010. More details of him can be found at: <http://www.uel.ac.uk/cass/staff/johnclarke/>

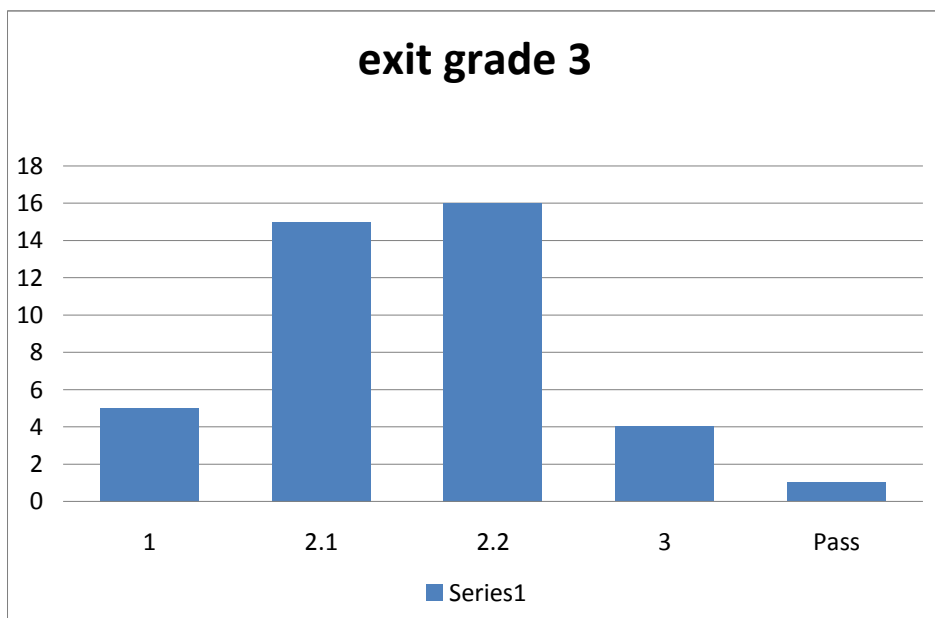
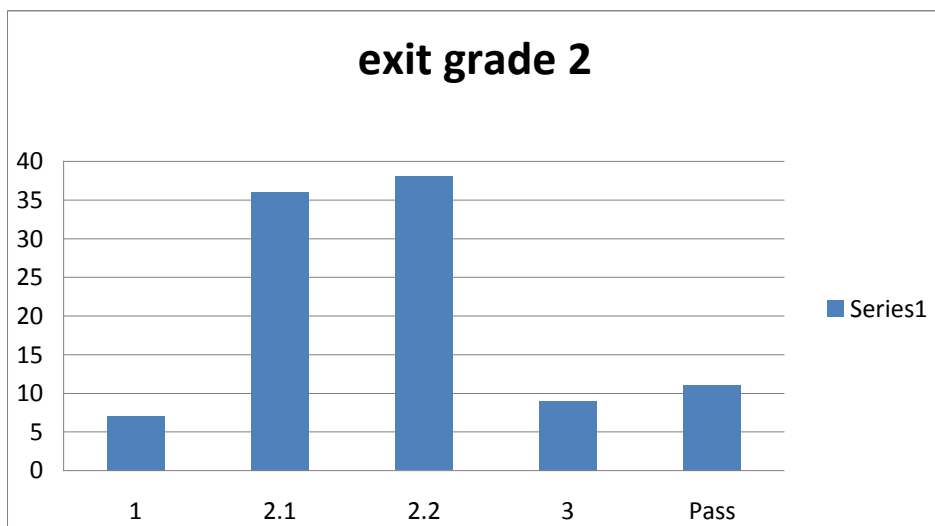
Tony is also a Senior Lecturer in Mathematics Education (Secondary) at the University of East London (UEL) and teaches on the PGCE, GTP and the MEC. This is the first time Tony has presented at BERA. Tony taught Secondary Mathematics in schools for 35 years and has held many school positions of responsibility up to and including Deputy Head Teacher. Tony has a BA from the Open University and a MEd from Kings College, London; he became a Fellow of the Higher Education Academy (FHEA) in 2012. More details of Tony can be found at: <http://www.uel.ac.uk/cass/staff/tonypye/>

The authors would like to state that the opinions in this paper are their own and may not reflect those of their employers.

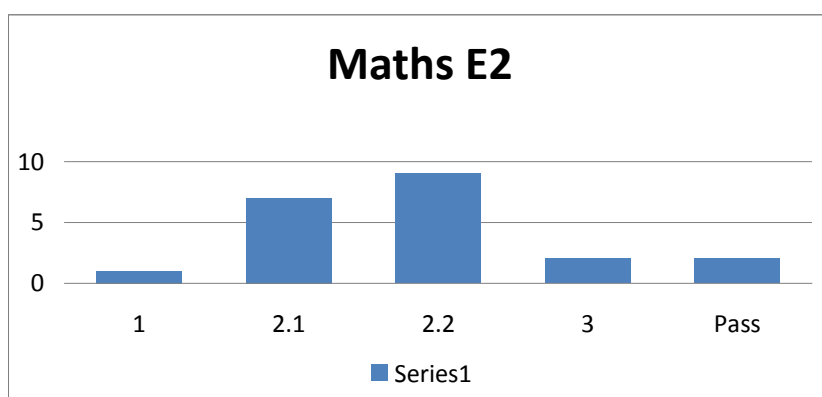
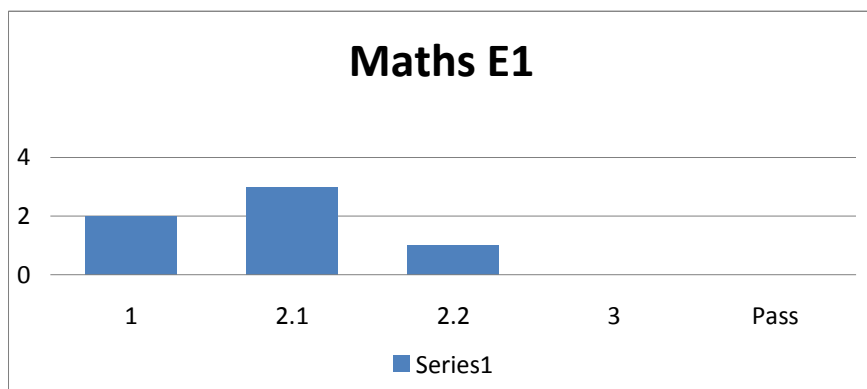
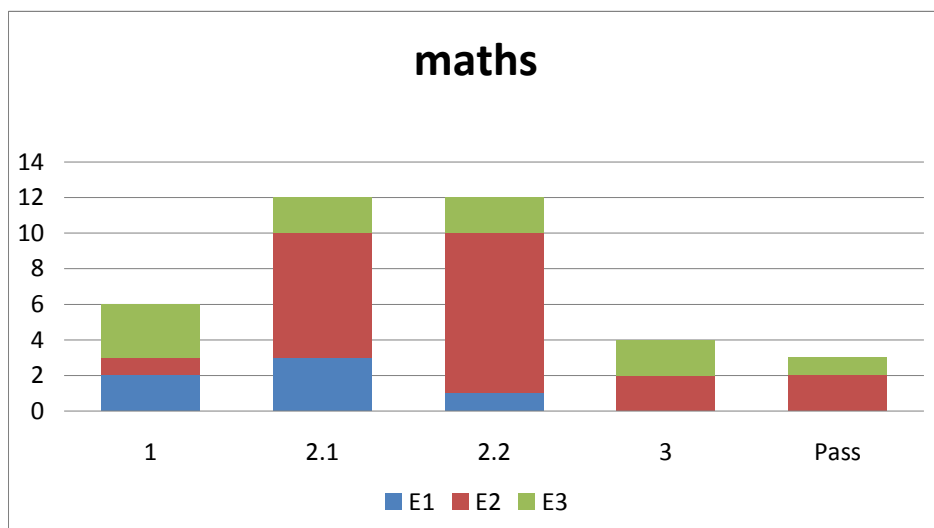
Appendices

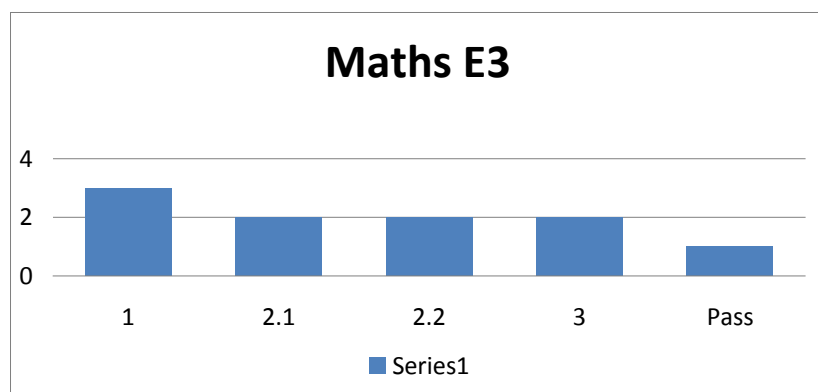
Appendix 1: Four bar charts of the exit grades E1, E2, E3 of all PGCE trainees plotted against their degree classification for all subjects





Appendix 2: Four bar charts showing the exit grades E1, E2, E3 of trainees plotted against the degree classification for PGCE mathematics trainees





Appendix 3

TA Table 1: Qualified Teacher Status (QTS) outcomes by degree class for mainstream postgraduate secondary trainees.

Degree class	Awarded QTS	Not awarded QTS	Total
1 st	10,741 (89%)	1,290 (11%)	12,031 (8.6%)
2:1	64,268 (89%)	7,545 (11%)	71,813 (51.4%)
2:2	42,149 (85%)	7,434 (15%)	49,583 (35.5%)
3 rd	4,927 (77%)	1,441 (23%)	6,368 (4.6%)
Total	122,085 (87%)	17,710 (13%)	139,795 (100%)

Source: Training and Development Agency for Schools (TDA) Performance Profiles 1998 to 2010

TA Table 2: Net employment rates of mainstream postgraduate secondary trained newly qualified teachers (NQTs) by degree class.

	1 st	2:1	2:2	3 rd
First year after ITT	81%	81%	75%	73%

Source: TDA Performance Profiles 2010

(Both tables taken from <http://www.education.gov.uk/get-into-teaching/apply-for-teacher-training/why-degree-quality-matters> (accessed 23/08/2012) on the Teaching Agency web-site.)

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