Improving the Academic performance of non-native English-speaking students - the contribution of pre-sessional English language programmes

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Abstract: There is an established, if weak, inverse relationship between levels of English language proficiency and academic performance in higher education. In response, higher education institutions (HEI) insist upon minimum entry requirements in terms of language for international applicants. Many HEI now also offer pre-sessional English courses to bring applicants up to the designated language requirement. Our paper revisits the research into language proficiency and academic performance using data on all full-time students (17,925) attending a major UK HEI in the academic year 2011/12, 4,342 of whom were non-native English speakers. Our findings confirm that while higher International English Language Testing System (IELTS) marks at entry translate into higher grade point averages (GPA), students who undertake pre-sessional courses do notably worse in GPA terms than students who arrive with acceptable (for the course) IELTS scores. These findings suggest HEI (and, by extension, international students) could benefit from a review regarding the appropriateness of current pre-sessional English Language proficiency programmes.

Keywords: academic performance, international students, language, university entry system, adjustment to university.

Introduction

In August 2012 the *Times Higher Education* reported that almost two-thirds of Higher Education Institutions (HEI) in the UK were admitting international students onto their undergraduate degree programmes with language standards below those recommended by the British Council (THE, 23/8/2012). Guidance offered by the International English Language Testing System (IELTS), one of the most commonly employed language admission benchmarks, suggests a band score of 7.0 is 'probably acceptable' for linguistically demanding academic courses like Medicine, Law, Linguistics, Journalism, and Library Studies (6.5 for less demanding courses), with candidates registering lower scores needing

supplemental English study if they are to perform effectively (IELTS Guide, 2013:13). Yet the standard minimum IELTS undergraduate requirement was anchored at 6.0 in at least 58 UK HEI (THE, 2012), while investigation shows that of the 48 UK HEI in the top 400 of the THE2014 World University Rankings 16 had a standard IELTS entry requirement of 6.0 for undergraduate courses, while a further 11 recruited students onto selected courses with such an IELTS score (Table 1). Moreover, a growing number of UK HEI now offer pre-sessional or 'top-up' English language programmes which allow them to recruit students with IELTS scores up to one band below that required by their offer letter. At Portsmouth, for example, 'Pre-sessional Plus' English language programmes are offered to those whose IELTS score is either one band (nine weeks duration) or half a band (six weeks) below their offer, and supplemented by enrolment onto an English for Academic Purposes study programme during both teaching blocks in their first year at the institution.

TABLE 1: IELTS Entry Requirements at Top UK HEI (2015)

The drivers behind the setting of IELTS admission standards in the UK are part policy-driven and part market-driven (Hyatt, 2012:1). **Policy-driven** in the sense that successive Prime Ministerial Initiatives for International Education (1999-2005, 2006-2011) were launched to secure the UK's position as a leader in this area by the Labour government. Recruitment targets of attracting an additional 50,000 (by 2005) and 70,000 (by 2011) international students to study in the UK HEI sector were comfortably exceeded, providing a timely boost to an export industry estimated to be worth more than £13.6 billion annually (OBHE, 2006:1; HMG, 2011). Between 2000/1 and 2013/4 the number of international students studying at UK HEI rose from 126,720 to 310,190; the biggest cohorts coming from China (87,895 + 14,725 from Hong Kong) and India (19,750) [3]; the preferred areas of study being business/administrative studies and engineering/technology subjects; with UCL (11,850 students) and Manchester (11,605) the main destinations (UKCISA, 2015). **Market-driven** in the sense that the replacement of a cap on numbers with a ceiling on the level of fees that HEI could charge to students was expected to 'create genuine competition for students between HEIs' (The Browne Report, 2010:8). It was, nevertheless, accompanied by a pledge to ensure minimum quality standards so as to protect quality providers from 'unfair competition by providers who cut corners' (p.47). However, student choice of institution is not only determined by price; non-price factors such as institutional reputation, location and entry requirements (among others) can also be influential. In the case of international students low IELTS admission requirements could potentially be an attractive recruiting tool in the hands

of a 'corner-cutting' HEI intent on capturing increased market share (Hyatt and Brooks, 2009:25ff). Yet if low levels of language proficiency impact adversely upon academic performance as Daller and Phelan (2013) suggest, then the decision to accept a place at an institution requiring a low IELTS score may be rather short-sighted from the student's perspective.

Language testing as a pre-requisite for entry into HEI also exists elsewhere. Within the European Union, almost two thirds of incoming non-European students choose to study across just three member states; the UK (by far the most popular), followed by France and Germany (European Commission 2015). In France, Postgraduate programmes, as opposed to undergraduate study, are the most popular course destinations selected by students from African countries (EMN, 2012). Former colonial links have led to French being a common language of instruction in a number of African countries (ie: Senegal, Niger) enabling students from such countries to apply for HEI study in France without having to undertake a language proficiency test. For other potential students, proficiency in French is a key criterion for admission. Language certification and testing is managed by a national centre (CIEP) on behalf of the French Ministry of Education. Three diplomas (DIL, DELF, DALF) certificate language proficiency, with the highest level (DALF – Advanced French Language Diploma) certifying that the holder has a level of proficiency sufficient to enter into university-level education in France. International students intending to study in Germany are also required to demonstrate their German language proficiency (GLP) prior to taking up a place. Applicants have the option of either completing a centrally administered TestDaF test (as with the IELTS programme) at a licensed test centre in one of eighty countries, or alternatively sitting the DSH German language test at a collaborating German HEI in Germany. GLP requirements are set at the HEI level, and vary from course to course, as in the UK.
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This paper examines the predictive validity of IELTS on academic performance for a large sample of students during the academic year 2011/12 (undergraduate and postgraduate) at a UK HEI. It is novel as it investigates whether recruitment to top-up English language programmes has the expected 'uplifting' effect upon subsequent academic performance. The size of the sample also allows us to investigate whether the academic performance relationship is attenuated or exacerbated by differences in nationality and/or degree pathway choices. The paper is structured as follows. The following section presents an overview of the literature on

the relationship between English language proficiency (ELP) test scores and subsequent academic performance. Section Three details the data and methodology employed in our study, while Sections Four and Five present the results and conclusions.

Language Proficiency and Academic Performance: A Review of the Literature

Early research in the field suggested that while international students with relatively poor English language proficiency (ELP) still graduated (Light, Xu and Mossop, 1987), views were mixed as to whether weak language skills translated into weak academic performance. Sugimoto (1966), Hwang and Dizney (1970), Shay (1975) and Odunze (1982) all found that a 'deficiency in English was not a significant deterrent to scholastic achievement' (Mulligan, 1966:313). However, Burgess and Greis (1970), Heil and Aleamoni (1974), and Ho and Spinks (1985) disagreed, finding that international students with a poor command of the English language were at an academic disadvantage in a university setting. Subsequent research by Kerstjens and Nery (2000) suggested three commonalities evident in the growing literature relating to the predictive validity of ELP vis-a-vis academic performance tests (and, in particular, IELTS after the 1995 test revision). First, the weaker the student in language proficiency terms, the more profound the impact upon academic performance (Ingram and Bayliss, 2007; Cho and Bridgeman, 2012; Daller and Xue, 2012). Second, there is a stronger likelihood of uncovering a relationship when the area of study (business, engineering, science etc.) is controlled for (Bellingham, 1993). Third, while this correlation was significant and positive it was, nevertheless, weak (Elder, 1993; Ferguson and White, 1994; Cotton and Conrow, 1998). Their own study of 113 Business and Management students at RMIT University (Melbourne) confirmed this positive but weak relationship, a factor they attributed to the many other variables likely to affect academic performance (Kerstjens and Nery, 2000:82).

Their call for further research in the field to build up a 'more comprehensive picture of the exact nature of (this) relationship' (p107) was answered by Feast (2002), whose study of 101 international students at the University of South Australia (UniSA) substantiated the positive but weak relationship. Feast went on to recommend that while UniSA maintained an overall IELTS entry score of 6.0, a new codicil should be introduced requiring a minimum grade of 6.0 in both writing and reading modules so as to ensure students had a reasonable chance of success. A review of current entry requirements for UniSA undergraduates suggests Feast's recommendations were implemented, with most courses demanding a score of 6.0 for both

reading and writing as well as an overall 6.0 IELTS score (Law demanded a score of 7.0 for both reading and writing components and overall). This also serves to highlight the principal problem afflicting research in this particular area: by employing ELP in a 'gate-keeping' function, the sample is severely truncated as candidates with low ELP scores are precluded from entering the higher education system (Woodrow, 2006:60; Daller and Phelan, 2013), top-up English language programmes notwithstanding. Moreover a further shortcoming of such research is that it has been largely undertaken on the basis of relatively small sample sizes (<150). The exceptions are Cho and Bridgeman (2012 –2,594 undergraduate and postgraduate students drawn from ten US universities), Oliver, Vanderford and Grote (2012 - 353 undergraduate and postgraduate students entering an unnamed Western Australian university over the period 2006 to 2008), and Dev and Qiqieh (2016 – 200 undergraduate students at Abu Dhabi University).

The idea that certain parts of the IELTS test also provide better indicators of likely academic performance than others has been scrutinised by a number of further studies. Breeze and Miller (2008) found a small positive correlation between IELTS listening test scores and final grades in classes taught in English for 289 students at a Spanish University. Dooey and Oliver's (2002) study of 89 business, engineering and science undergraduates at Curtin University found IELTS reading test scores were the best predictor of academic success. Oliver *et al*. (2012) agreed, finding a significant, albeit weak, relationship between reading scores and GPAs for both undergraduate and postgraduate (for whom listening scores were also significant, but weak) students. This was contradicted by Woodrow (2006) however, whose study involving 82 postgraduate students in education and social work at Sydney University found a strong correlation between speaking, listening and writing scores and student GPAs, while "surprisingly the relationship between reading and GPA was not significant" (p58). Humphreys *et al.* (2012:33ff) moreover have suggested this relationship may weaken over time; their survey of 51 Griffin University undergraduate students drawn primarily from business and communication degree pathways finding that while listening and reading scores were strongly correlated with GPAs in the first semester, this relationship had broken down by the end of the third semester. We might speculate that this was due to additional learning and increased familiarisation with topics, but the relationship between ELP test component scores and academic performance at both undergraduate and postgraduate level merits more detailed investigation. More recently, Jenkins (2014) conversation study with 34 post-graduate international students in a Russell Group university

identified many students did not consider IELTS scores were a reliable indicator of students' ability to study in a UK university, citing, for example, that the listening test does not prepare them for understanding real-life lectures. Students questioned the exam's validity, the artificial nature of much of the IELTS exam with some considering it was a test of technical exam skill and "a matter of luck" (p.190).

Low sample sizes have also inhibited research oriented to examining differences in the predictive ability of ELP tests across both disciplinary boundaries and nationalities. Cho and Bridgeman (2012:435/6) found that while the predictive ability of ToEFL (*Test of English as a Foreign Language*) was small, accounting for around 4 and 3 per cent respectively of the variance in postgraduate and undergraduate GPAs generally, predictive ability improved slightly in the case of Humanities and Arts majors. In contrast, Dooey and Oliver (2002) found no major disciplinary differences when comparing IELTS scores and academic performance at Curtin University. However, they did find that while Chinese speakers had the highest IELTS entry scores their performance in academic terms was poorer than that of their Indonesian or Cantonese colleagues.

Significantly too, despite the proliferation of top-up ELP courses across the UK HEI sector, little academic research has investigated the impact of top-up English language programmes upon subsequent academic outcomes. Green (2007) examined whether preparatory classes helped NNES improve their writing skills using a neural network approach across 15 UK HEI (476 participants). Although his research did not extend to asking how such courses impact upon subsequent academic performance it did 'cast doubt on the power of dedicated test preparation courses to deliver the anticipated yields (p.93)'. A related paper by Banerjee and Wall (2006) explained how pre-sessional assessment practices at the University of Lancaster had evolved to ensure students were linguistically ready to enter their chosen academic pathway. Only Ushioda and Harsch (2011:11) to date however have examined links between pre-sessional top-up courses and academic performance. Their research found that Warwick University students entering with an IELTS 5.5 were unable to cope with their studies, despite having attended a top-up course. However, they acknowledged that the data (3 students) was 'too scarce' to draw any definitive conclusions in this area.

In summary, while there is a general consensus that ELP, and specifically IELTS, test scores may weakly impact upon subsequent academic performance, there is much less agreement as to which (if any) of the four test components has the greater predictive validity. Moreover,

the low sample sizes employed in many studies have militated against examining the extent to which personal characteristics (i.e. gender), academic orientation (i.e. choice of degree), and cultural background (i.e. nationality) have moderated – or accentuated – the predictive validity of ELP test scores. The present study, by virtue of its greater sample size, seeks to throw further light on these relationships and the role of top-up pre-sessional English language programmes in enhancing academic performance.

Data and Method

In collaboration with the Registry of a major HEI in the south of England, anonymised data were collected on all full-time students registered at that university at any point between 1 August 2011 and 31 July 2012. The final sample comprised 17,925 full-time students. 16,513 (92%) were on undergraduate degrees, while the remaining 1,412 (8%) were on postgraduate degrees. The student records system also provided details of academic progress, in terms of marks and credits achieved in each unit studied, during the academic year 2011-12. This enabled us to derive a credit-weighted average (henceforth GPA) for each student from the marks recorded across all eligible units the student studied in that year as part of their degree programme. To measure performance on a consistent basis between students, initial attempt marks were used, and not marks obtained after any resits or for compensated fails.

As students in the sample may or may not be non-native English speakers (NNES) - the student record system does not record this directly - students were assumed to be native English speakers if their nationality appeared on the list of countries accepted by the UK General Medical Council as ones where the first and native language is English [http://www.gmc-uk.org/doctors/registration_applications/english_first_language.asp]. The idea that there are either native-English speakers or non-native-English speakers is obviously a simplification and we do not wish to enter into any controversy over whether native speakers are 'a myth' or only refer to those brought up speaking the language from birth (Davies, 2013). Further, some may regard the concept of 'English as a lingua franca' (ELF) as blurring the distinction even more, there being no single standard of English (Jenkins, 2007). Here we are interested in identifying those who have been (and are) relatively proficient from an early age in communicating in standard English as their first language, and hence use nationality as (an imperfect) predictor. Using this approach, Table 2 shows that while 4,342 (24.2%) of students were NNES, only a minority of these (19.7%) had an IELTS qualification.

Table 2:   Non-Native English Speaking Full-Time Students on Degree Courses by IELTS

All students were classified as either being from a native English-speaking country or as a NNES student from one of the following (sub-)continents – Africa, America, Europe, East Asia, South Asia, South East Asia, or West Asia. The distribution of the sample according to their home region, their Academic Year and whether they were registered on an undergraduate or postgraduate taught degree in shown in Table 3.

Table3:   Non-Native and Native English Speakers by origin, year and degree.

In terms of the ability to speak English, it is noteworthy that only around 30% of full-time taught postgraduate students are native English speakers, compared to 80% of undergraduate students. From Table 3, clear differences in the regional origin of NNES between undergraduate and postgraduate programmes are also evident. The latter are drawn proportionately more from West Asia. East Asian (predominantly Chinese nationals) students make a considerable contribution to numbers at both undergraduate and postgraduate levels, although this is much more pronounced in the final undergraduate years (years 3/4) given the popularity of 2+2 programmes, where they comprise one third of all NNES.

Nearly one-third of postgraduate NNES had undertaken an IELTS test prior to commencing their studies, compared to 22% per cent of NNES on undergraduate courses. There were also marked differences between regions. At the postgraduate level, 23% of students from East Asia have an IELTS qualification, compared to nearly 40% and 50% from South/South-East Asia and West Asia respectively. In sharp contrast, only 5% of African postgraduate students completed an IELTS test. At the undergraduate level, East Asia had the highest percentage with IELTS qualifications (52% of students), followed by West Asia (23%). Students from Europe were much less likely to possess IELTS qualifications, with just 19 of the 1,106 European students acknowledging they had passed an IELTS test.

In order to examine the effect of language proficiency on GPA, a standard regression model was used to explain the variations in GPA scores amongst all students, using IELTS scores and attendance at top-up courses among the explanatory variables. Several methodological points are worthy of mention. First, whether a student undertakes a top-up course in English (or not) will be dependent on the language proficiency of the student at the time of application. This is generally gleaned through recourse to their IELTS score. Thus, in such cases, attendance on top-up courses is endogenous and the [original] IELTS score will no

longer be directly relevant in determining GPA. To arrive at a feasible and estimable model, we therefore adopt a 3-way classification of NNES students for the purpose of explaining variations in GPA: (i) those who have undertaken a top-up course in English (whether IELTS has been taken or not); (ii) those who have IELTS but who have not taken a top-up course; and lastly (iii) those who have neither an IELTS qualification nor have taken a top-up language course. The base category in the model is a native-English speaking student. Second (and ideally) one would control for underlying, or innate, ability. Unfortunately, no direct measure or proxy was available given the myriad of entry qualifications possessed by the NNES group. A FEMALE dummy variable was included however to allow for the possibility that males and females perform differently. Finally, while, ostensibly, one might argue that a Masters degree could be treated as a fourth/additional year of study, in practice there are substantial differences in degree classifications, degree aims and selection criteria (as well as in the motivation of those applying), as compared to undergraduate level. These are likely to cause the relationship between language proficiency and GPA to be sufficiently different from undergraduate degrees as to warrant a separate analysis.

The model estimated took the following general form. For clarity, not all variables are shown here (all additional variables are included linearly):

$$GPA = \alpha + B \cdot YEAR + \gamma SUBJECT + \delta NNES + \theta(NNES \cdot SUBJECT) + \lambda(NNES \cdot CONTINENT) + \varepsilon$$

where YEAR (undergraduate students only) specifies the academic stage of study completed by the student in academic year 2011/12. As there is no reason to assume that average marks increase linearly with the year of study, a dummy variable was therefore used for each year (variables are YEAR2, YEAR 3 and YEAR4 [Only a few students are on a 4-year undergraduate degree programme, but this variable is included to capture the special nature of these degrees], with YEAR 1 the excluded base category). As the HEI in question offers direct entry to EU/international students to the latter years of its degree programmes we employ a further two dummy variables denoted by YR2NNDE and YR3NNDE to capture this. Thus YR3NNDE = 1 denotes NNES students in year 3 who had been at the University for under one year, and = 0 otherwise. Numbers in each category are 407 (year 2) and 336 (year 3) respectively. Only one student was directly admitted to year 4 of a degree programme.

SUBJECT refers to dummies relating to academic subject area. The HEI in question offers over 250 degree titles and these were reduced to seven subject areas, namely Business (incorporating accounting and economics), Culture (including art, film and design), Engineering (including computing), Humanities (incorporating English and languages), Law, Science (including mathematics and geography), and Other (which covers all the remainder such as international relations, sociology). Table 4 shows that there was a clear concentration of NNES students in business and engineering, in accordance with overall trends noted above. This was especially so at postgraduate level.

Table 4. Subject of study (full-time students)

The distribution of IELTS scores for the undergraduate students with IELTS in our sample is shown in Table 5. This is non-normal and positively skewed between a minimum 4.5 and a maximum 8, with a median of 5.5. As noted above, postgraduate students are more likely to have come from abroad and more likely to have taken IELTS. Reported IELTS scores range from 4.5 to 8, with a median score of 6. As for undergraduate students, some positive skewness is identifiable.

Table 5: IELTS score distribution (full time NNES)

Dummies were employed to reflect the English language qualification of NNES. As noted above, most HEI offer pre-sessional or 'top-up' courses for students whose IELTS score falls below the HEI IELTS entry requirement. Only 18 per cent (23 in total) of undergraduates who achieved a score of 6 points in IELTS in our sample attended top-ups, compared to 99 per cent (85) of those attaining a score of 4.5 (see Table 5). The comparative figures for students holding IELTS 5 and 5.5 grades at the time of their entry to the UK are 93 per cent (140 students) and 79 per cent (104) respectively. For post-graduates, just 20 per cent (10 students) of students who possessed an IELTS score of 6.5 completed top-up English classes. Table 6 shows that 58 per cent of NNES undergraduate students with an IELTS qualification undertook one of these top-up courses. Very few (5 per cent) of those with no IELTS took a top-up course. For full-time postgraduates, the overall proportion taking a top-up course was slightly higher than for undergraduates (23 per cent compared to 15 per cent). Top-up courses were predominantly taken by students in the Business grouping at both undergraduate (79 per cent of the 495 top-ups taken) and postgraduate level (73 per cent of 232 top-ups taken).

Table 6. Top-up English uptake vs. IELTS (full-time NNES)

Following the findings of Dooey and Oliver (2002), Oliver et al (2012), and Woodrow (2006), we also examine whether performance in particular components of the IELTS test impacts upon subsequent academic performance. While the overall IELTS test score is made up of 4 main components (listening, speaking, writing and reading) details of these were only fully recorded for 262 of the 611 undergraduate cases. Listening was most highly correlated with the overall score (Pearson correlation coefficient 0.91), followed by Reading (0.83), Speaking (0.80) and Writing (0.79). For post-graduates, many records again had missing sub-scores. Of the 129 students for who full records were available, correlations were somewhat lower than in the undergraduate results, although Listening again had the highest correlation (0.90) and Speaking the lowest (0.73). Where sub-scores were available for a student then these were included instead of the overall IELTS score (to avoid problems of multicollinearity).

A further consideration is whether there are cultural differences in relation to how English is learnt in the home country that may impact upon degree performance. There are certainly differences in the level of English language qualification that NNES students have obtained prior to enrolment in degree courses (Table 8). Of the 474 NNES full-time undergraduates who enrolled onto a top-up course 400 (84%) were from East Asia (393 from China), with the remainder largely from West Asia (32 from Saudi Arabia). In China, for example, Mandarin is the medium of instruction and English is not fully embedded in the education system. Thus while students from China entering into a 2+2 programme in the UK will usually have experienced English tuition within their 2 year home diploma programme, this volume of tuition is generally insufficient to enable them to meet the requisite IELTS standard and so they are obliged to undertake pre-sessional English top up courses. This education approach contrasts, for example, with Singapore where English is embedded as the main language in education and the business world, and in continental Europe where English is generally taught from an early age.

Table 7. English language background by origin (full-time NNES who completed the year)

At postgraduate level, 57 per cent of students from East Asia (mainly from China) come for top-up courses in English, compared to 32 per cent from South East Asia, 23 per cent from West Asia and virtually none from Europe, Africa or South Asia (which includes India and Pakistan). The most notable difference to undergraduate intake is the pronounced numbers of

students undertaking top-up courses recruited from South-East Asia (mainly Thailand and Vietnam). In common with undergraduates, most top-up courses were completed in students drawn from Business-related disciplines (73 per cent of the 232 students).

Results

A. THE PERFORMANCE OF UNDERGRADUATE STUDENTS

The results of a base regression to explain variations in GPA for undergraduate students are presented in Table 8, as Model (a). Students who withdrew during the year for whatever reason, and who have no end-of-year GPA are now excluded. Each dummy variable requires one category to be dropped, so to interpret the model results, the base category for comparison will be a native English-speaking male student in year 1 studying a business-related subject. Several conclusions about performance can be easily drawn. Firstly, marks tend to rise with the year of study. Compared to year 1, year 2 marks are about another 1.5 percentage points higher, and then a further 1 percentage point is added in year 3 (the final year for most undergraduate students). Female students do significantly better than males, with a weighted average mark some 2.5 points higher. It is also clear that native English-speaking students studying humanities or law do notably worse than those studying business subjects, while those in science do significantly better.

Table 8. Regression results. Dependent variable GPA. Full-time undergraduate students who completed the year.

Turning to students who are NNES, notable differences in performance can be discerned. The 3 variables for type of English language study (Top-up English, IELTS (no top-up) and Other English) show the effect on GPA in these categories for NNES students *studying business* related subjects compared to their native English speaking counterparts. **Significantly, NNES GPAs in business-related subjects are predicted to be significantly lower than for native English speakers.** This is an important finding inasmuch as it confirms the existence of a 'linguistic dividend' insofar as, irrespective of personal and/or institutional investment in English language acquisition, NNES of business-related subjects perform less well than native English speakers. Our research suggests this difference moreover is not subject-specific. NNES students who are admitted to Cultural degree programme on the basis of their IELTS score, for example, have a GPA that is 1.696 (-4.656+2.96) percentage points below

that of a comparable native English student (to deduce the effect for a non-business subject, the coefficient for the subject is added to the coefficient for the type of English language study). Similar (negative) differences are also seen for students undertaking a Cultural degree who are admitted after a top-up English course (4.597 percentage points worse off) or with some other English language qualification (2.383 points). Indeed the only case where NNES students may be expected to perform at a higher level than native English–speaking students is in the Humanities area, although reasons for this are not immediately apparent (but may involve, for example, differences in the concentration of foreign students in this category as a whole or within certain degrees, or in levels of support and guidance).

The other important finding from Model (a) is that students, irrespective of subject studied, who undertake a top-up course in English do notably poorer than students who arrive with either an acceptable IELTS score for their programme of study, or with other appropriate English language qualifications. This suggests one of two things. Either the top-up courses undertaken do not bring the student up to the expected IELTS entry score, and/or that these students are in some way inherently weaker academically in any case - and this contributed to their low IELTS score in the first place.

Model (b) of Table 8 shows the results of adding in the IELTS sub-scores, or (only where these were not available) the overall score and allows us to make two further observations. **Thirdly, the overall IELTS score (where there are no sub-scores) does affect the GPA, with higher IELTS scores correlating with a higher GPA.** We estimate that an increase in the IELTS score of half a point can lead to a 1.3 percentage point increase in GPA. While this is important in its own right, it also allows us to compare the expected scores of those undertaking top-ups prior to commencing undergraduate study to those who do not enrol on such a course Taking a 'typical' student as one who is in their third (usually final) year, is male, is studying a business-type degree, and is not a direct entry student, then model 8(b) would predict NNES students with an IELTS score of 6 would have a GPA of 52.8. In sharp contrast, a comparable student who took a top-up course designed to raise them to the same IELTS score is predicted to obtain a GPA of 49.7. In other words, there is a strong possibility that a class difference in degree classification could result. **Fourthly, we find evidence to corroborate Dooey and Oliver's finding (Model 8(b)): that it is just the reading score which materially affects GPA, the coefficients on the other three components being insignificant.**

At a general level, model 8(c) confirms the earlier results– that most undergraduate students who are NNES perform less well than native English speakers. However, this is not true consistently – NNES students from America and Europe (the vast majority of whom do not take top-ups or IELTS) do not appear at a disadvantage. This is also the case for students from South-East Asia (mainly Thailand, Malaysia and Singapore), who are either no different (if taken IELTS) or only one or two percentage points worse (Other English qualifications) than native English speakers. In contrast, NNES students from East (principally China) and West Asia (includes the Arab states of the Middle East) significantly underperform whatever background in English they have. This is most severe in the instance of West Asian students (11 percentage points), and only slightly less severe (8 percentage points) in the case of East Asian students who have undertaken top-ups. African and South Asian students, who typically do not undertake top-ups prior to commencing an undergraduate degree, perform worse when entering with an IELTS (as opposed to an alternative language) qualification.

B. *THE PERFORMANCE OF POSTGRADUATE STUDENTS*

Results of the models predicting GPA for postgraduate students are presented in Table 9. Unlike at undergraduate level (Table 8), at postgraduate level there were no significant differences in GPA achievement across mainstream subject areas. There is also no significant gender difference in GPA performance at postgraduate level. **Significantly, however, while both undergraduate and postgraduate NNES underperformed in GPA terms compared to their English-speaking counterparts, the gulf in performance was much more marked at postgraduate level.** Those arriving with an IELTS (or other English qualification) score deemed appropriate for their programmed course of study experienced a 6 point disadvantage, whilst those who undertook top-up courses were at least 10 GPA percentage points adrift of their English-speaking counterparts. Reasons for this merit further exploration, but could be attributable to the shorter timeframe for cultural and language acclimatisation (typically 1 year vs 2 to 3 years as an undergraduate) and the expectation of a higher level of independent scholarship.

Table 9. Regression results. Dependent variable GPA. Full-time postgraduate students who completed the year.

Model 9(b) investigates the influence of the IELTS score and sub-scores on GPA, finding that (unlike at undergraduate level) neither the overall IELTS score nor any sub-component thereof impacts significantly upon postgraduate GPA performance. In most respects, model

8(c) shows similar findings on continental variation to the undergraduate model, and confirms that the academic performance of certain NNES was consistently worse than their English-speaking counterparts. While NNES students from America, Europe and South-East Asia (5 per cent level of significance) do not appear to be at an academic disadvantage, NNES students from East Asia and West Asia significantly and markedly underperform in relation to native English speakers, whatever method of English study they have pursued. In the case of the East Asian intake, this GPA underperformance varies from 7.5 percentage points (IELTS entry) to 12.5 percentage points (top-up courses). For African students and for South Asian students (where there is virtually no entry based on prior attendance at top-up courses), the GPA is predicted to be 8-11 points lower. Given that East Asian, South Asian and African students were also consistently relatively poor performers at undergraduate level this would suggest further investigation is necessary to find out how far this is a cultural or admissions-related phenomenon.

Conclusion

UK HEIs are operating in an increasingly competitive environment and there may be pressure to adjust IELTS admissions requirements in the quest for capturing market share. However, HEIs need to ensure international students demonstrate an acceptable English language standard, prior to admission, appropriate to the level of degree programme. Many universities set this benchmark at 6.0 (Table 1), a standard below British Council recommendations, and further reduce this benchmark if a pre-sessional top up English language short course is completed. While previous studies have considered the relationships between language level attainment and academic performance, consideration of the impact of top up English language courses has not previously been explicitly addressed. Our findings from this detailed empirical study provides unique insights into the predictive validity of IELTS on academic performance and the impact of top-up English language programmes upon subsequent academic outcomes.

The findings make several key contributions to the literature. Firstly, results indicate that both undergraduate and postgraduate NNES underperformed in GPA terms compared to their English-speaking counterparts. Furthermore, undergraduate students, irrespective of subject studied, who undertake a top-up course in English do notably poorer than students who arrive with either an acceptable IELTS score for their programme of study, or with other appropriate English language qualifications. To set this in context, most top up courses

typically involve six to twelve weeks of pre-sessional English tuition (either in the UK or the home country) and are deemed to improve IELTS scores by half to one point. Our findings however suggest that top-up courses may not improve IELTS scores as much as expected and/or that these students are in some way inherently weaker academically, reflected in their low IELTS score. One interesting area for future research would be to formally test standards on completion of the top up course and then see how these correlate to academic performance.

At postgraduate level, the findings highlight an even wider gap in performance. Students arriving with IELTS at the required level experienced a 6 point disadvantage, whilst those who undertook top-up courses were at least 10 GPA percentage points adrift of their English-speaking counterparts. This differences may relate to the more intense nature of postgraduate study; in terms of both the shorter course timeframe and the required level of academic scholarship. While the international education literature frequently cites difficulties encountered by international students orientating to a different educational cultural context, postgraduate students typically have less adaptation time in their course of study as well as a significant requirement for independent scholarship.

Cultural background may also assist in understanding the differences in results between nationalities. Our research shows that students from certain countries (particularly East Asia) recorded lower GPA scores than their NNES counterparts. This underperformance may relate to the different cultural education contexts which affect a student's ability to adapt to the new educational milieu. In Singapore, for example, English is embedded within the school curriculum and classes are taught in English from an early age. In contrast in China, English language classes are often introduced much later often at, secondary/tertiary level. Students from China entering UK HEI's from a "2+2" programme will typically then only have taken English language classes as part of their two year diploma and, if they fail to meet the requisite IELTS standard, it is perhaps optimistic to expect them to then remedy this through a short pre-sessional English course.

These findings have several important policy recommendations for HEI in the UK if international students are to be successfully integrated into their chosen academic programmes. First, while HE Institutions are at liberty to determine the level of ELP (as represented by IELTS score or equivalent) necessary to enable students to perform well in their chosen programme for the specific year of entry, institutional policy must then ensure

these levels are evidenced and achieved <u>prior</u> to commencement of a programme. Where students fall below the required entry level, institutions should not accept that pre-sessional top up courses provide an acceptable alternative route to entering a programme without <u>further evidence</u> that the required standard has been achieved when exiting the top up course; meeting an exit assessment should therefore be mandatory.

Second, our findings indicate that a half point difference in IELTS is significant in terms of future academic performance and it therefore follows that these differences in entry standards should be minimised. Can short pre-sessional English courses really bridge a significant point difference in the standard of IELTS? In the absence of hard evidence that this is so, we recommend that institutions should only permit international students who are just below the required IELTS entry standard (for example a 0.5 point shortage compared to a shortfall of 1.0 often seen in the authors' own experience) entry to pre-sessional courses as part of a conditional offer.

Third, on the basis of our findings, HEI institutions should institute policies to develop stronger links with students at pre-entry stage (ie: before departing their home institutions) and during their pre-sessional programmes. These initiatives could include developing on-line study resources (and making them available immediately an offer has been made) in aspects such as local culture, teaching approaches and subject specific language, so as to enable students to integrate more swiftly into an unfamiliar academic environment. In addition, pre-sessional programmes should include subject knowledge sessions delivered by subject specialist staff so as to build up a mutual cultural understanding of the disciplinary landscape.

Fourth, while the UK is currently the most popular destination for international students, other European countries (most notably France and Germany) are increasing their intake of international students. A cross-country research study, comparing and contrasting the way different institutions and different systems seek to effectively integrate international students into the HEI habitus, could provide examples of international best practice that UK HEI would be wise to adopt.

On a broader level, institutions should ensure their policies reflect a more holistic approach to supporting international students in their academic studies: from initial entry at pre-sessional courses through to completion of their study programme. Although our research has focussed on the inverse relationship between ELP at entry and subsequent academic performance this

relationship is likely to be mollified if institutions have well-defined policies in place that, *inter alia*; provide ongoing language classes for the duration of study, promote socialisation and cultural adaptation, and integrate these with the development of specific academic skill programmes offered to the wider student cohort. These policies should also, as a matter of course, focus on continually improving both staff and home students' intercultural awareness and understanding of what it really means to be an international student studying in a different language.

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Table 1: IELTS Entry Requirements at Top UK HEI (2015).

IELTS score	Standard IELTS requirements for Undergraduate Courses	Reduced IELTS requirements for certain specified courses
7.5	Cambridge.	
7.0	LSE, Oxford.	Kings, Bristol.
6.5	16- Aberystwyth, Birkbeck, Cardiff, Durham, Imperial, Loughborough, Newcastle, UCL, Edinburgh, Exeter, Glasgow, Reading, Southampton, St. Andrews, Surrey, Sussex.	11 - Brunel, Lancaster, Queen Mary (London), Queens (Belfast), Royal Holloway, Bath, Birmingham, Leicester, Liverpool ,Nottingham, Warwick.
6.0	14- Heriot-Watt, Keele, Liverpool John Moores, Plymouth, Aberdeen, Dundee, East Anglia, Essex, Hertfordshire, Leeds, Manchester, Sheffield, Stirling, York.	Bangor, Portsmouth.

NB: Most HEI do also set higher IELTS requirements for certain courses, while some HEI and/or courses therein also set specific (differential) requirements for parts of the IELTS test (details of this are not shown in the Table above). An extended set of IELTS entry requirements can be obtained from the authors.

Source: Research undertaken across individual HEI web-sites.

Table 2: Non-Native English Speaking Full-Time Students on Degree Courses by IELTS

	Native English Speaker	Non-Native English Speaker	TOTAL
Has taken IELTS	0 (0.0%)	856 (19.7%)	856 (4.8%)
No IELTS	13,576 (100.0%)	3,493 (80.4%)	17,069 (95.2%)
TOTAL	13,576	4,342	17,925

Table 3: Non-Native(NNES) and Native English Speakers by Origin, Year and Degree

	Undergrad.	of which:			Postgrad. (taught)
		Year 1	Year 2	Years 3/4	
NNES – Africa	447 (13.4)	163(18.8)	131(11.3)	153 (11.7)	165 (16.6)
NNES – America (North and South)	26 (0.8)	11 (1.3)	5 (0.4)	10 (0.8)	11 (1.1)
NNES – Europe	1106 (33.1)	320(37.0)	453(39.0)	333 (25.4)	182 (18.3)
NNES – East Asia (includes China and Korea)	761 (22.8)	103(11.9)	208(17.9)	450 (34.3)	266 (26.8)
NNES – South Asia (Bangladesh, India, Iran, Sri Lanka, Pakistan)	189 (5.7)	56 (6.5)	61 (5.3)	72 (5.5)	63 (6.3)
NNES – South East Asia (Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam)	312 (9.3)	40 (4.6)	119(10.2)	153 (11.7)	95 (9.6)
NNES – West Asia (Iraq, Israel, Middle East Arab states, Turkey)	498 (14.9)	173(20.0)	184(15.8)	141 (10.7)	212 (21.3)
TOTAL: NNES	*3339 (20.2)*	*866(15.8)*	*1161(21.2)*	*1,312(23.7)*	*994 (70.5)*
Native English Speakers	13159 (79.8)	4622(84.2)	4303(78.8)	4234(76.3)	417 (29.5)
TOTAL	**16498 (100)**	**5488(100)**	**5464(100)**	**5546(100)**	**1411(100)**

Note: excludes 16 cases where nationality not known (15 UG and 1 PG). Of these, 9 are NNES. China accounts for 96 per cent of students recruited from East Asia. A row for China would read: 734 (22.0); 94 (10.9); 196 (16.9); 444 (33.8); 262 (26.4)

Table 4. Subject of study (full-time students)

	UNDERGRADUATE		POSTGRADUATE	
Subject	**% of NNES students within subject**	**Total Number of students taking subject**	**% of NNES students within subject**	**Total Number of students taking subject**
Business	40.4% (1273)	3152	88.6% (619)	699
Culture	13.9% (409)	2948	52.6% (51)	97
Engineering	27.7% (594)	2141	75.9% (107)	141
Humanities	22.7% (377)	1659	58.5% (24)	41
Law	20.2% (113)	559	53.0% (44)	83
Science	10.7% (441)	4135	35.1% (61)	174
Other	7.3% (140)	1919	50.3% (61)	177
TOTAL	**20.3% (3347)**	**16513**	**70.5% (995)**	**1412**

Note: Numbers in brackets are actual numbers

Table 5. IELTS score distribution (full-time non-native English speakers)

IELTS Score	UNDERGRADUATE		POSTGRADUATE	
	% with Score undertaking top-up English	Number of students with Score	% with Score undertaking top-up English	Number of students with Score
4.5	99% (85)	86	86% (6)	7
5	93% (140)	150	87% (27)	31
5.5	79% (104)	132	68% (41)	60
6	18% (23)	128	49% (25)	51
6.5	2% (1)	61	20% (10)	51
7 and above	2% (1)	50	2% (1)	42
TOTAL	(354)	607	(110)	242

Note: Numbers in brackets are actual numbers. A few students had unknown IELTS scores.

Table 6. 'Top-up' English uptake vs. IELTS (full-time non-native English speakers)

	UNDERGRADUATE			POSTGRADUATE		
	No IELTS qualification	With IELTS qualification	Total	No IELTS qualification	With IELTS qualification	Total
No top-up English	2598 (95%)	254 (42%)	2857 (85%)	628 (84%)	135 (55%)	763 (77%)
Top-up English	138 (5%)	357 (58%)	495 (15%)	122 (16%)	110 (45%)	232 (23%)
TOTAL	2736 (100%)	611 (100%)	3347 (100%)	750 (100%)	245 (100%)	995 (100%)

Table 7. English language background by origin (full-time non-native English speakers who completed the year)

(a). Undergraduate

Sub-continent	English language background			
	Top-up English	IELTS (no top-up)	Other English qualification	TOTAL
Africa	2 (0.5%)	7 (1.7%)	396 (97.8%)	**405 (100%)**
America	0	3 (13.0%)	20 (87.0%)	**23 (100%)**
Europe	3 (0.3%)	17 (1.7%)	1005 (98.0%)	**1025 (100%)**
East Asia	400 (55.4%)	91 (12.6%)	231 (32.0%)	**722 (100%)**
South Asia	3 (1.7%)	18 (10.3%)	153 (87.9%)	**174 (100%)**
South East Asia	6 (2.0%)	29 (9.5%)	269 (88.5%)	**304 (100%)**
West Asia	60 (12.7%)	64 (13.6%)	347 (73.7%)	**471 (100%)**
TOTAL	**474 (15.2%)**	**229 (7.3%)**	**2421 (77.5%)**	**3124 (100%)**

(b). Postgraduate

Sub-continent	English language background			
	Top-up English	IELTS (no top-up)	Other English qualification	TOTAL
Africa	1 (0.7%)	8 (5.4%)	140 (94%)	**149 (100%)**
America	1 (10%)	7 (70%)	2 (20%)	**10 (100%)**
Europe	4 (2.5%)	5 (3.1%)	151 (94.4%)	**160 (100%)**
East Asia	143 (57.4%)	26 (10.4%)	80 (32.1%)	**249 (100%)**
South Asia	1 (1.9%)	25 (48.1%)	26 (50%)	**52 (100%)**
South East Asia	30 (32.3%)	16 (17.2%)	47 (50.5%)	**93 (100%)**
West Asia	45 (23.1%)	35 (17.9%)	115 (59%)	**195 (100%)**
TOTAL	**225 (24.8%)**	**122 (13.4%)**	**561 (61.8%)**	**908 (100%)**

NB: The above Table EXCLUDES students who withdrew in year, hence the totals shown are lower than in Table 5 (ie: Table 6 shows 495 undergraduates and 232 postgraduates completed top-up courses, compared to 474 and 225 in Table 8 – hence 21 undergraduates and 7 postgraduates withdrew during the year)

Table 8. Regression results. Dependent variable GPA. Full-time undergraduate students who completed the year.

Variable	Model (a) Coeff.	P-value		Model (b) Coeff.	P-value		Model (c) Coeff.	P-value	
Constant	54.927	0	**	54.937	0	**	54.98	0	**
Year 2	1.536	0	**	1.521	0	**	1.467	0	**
Year 3	2.385	0	**	2.365	0	**	2.338	0	**
Year 4	7.546	0.011	*	7.538	0	**	7.56	0	**
Culture	-0.802	0.005	**	-0.804	0.011	*	-0.797	0.011	*
Engineering	-1.004	0	**	-1.003	0.005	**	-1.018	0.005	**
Humanities	-3.218	0	**	-3.221	0	**	-3.206	0	**
Law	-3.316	0	**	-3.318	0	**	-3.303	0	**
Science	1.097	0	**	1.095	0	**	1.102	0	**
Other area	-0.717	0.037	*	-0.720	0.036	*	-0.705	0.04	*
Female	2.483	0	**	2.488	0	**	2.44	0	**
YR2NNDE	-0.133	0.815		-0.086	0.880		0.04	0.943	
YR3NNDE	0.144	0.813		0.095	0.878		0.019	0.976	
Top-up English	-7.557	0	**	-7.555	0	**			
IELTS no top-up	-4.656	0	**	-19.746	0.004	**			
Other English	-5.343	0	**	-5.354	0	**			
NNES x Culture	2.96	0	**	2.968	0	**	2.25	0.002	**
NNES x Engineering	3.809	0	**	3.869	0	**	4.219	0	**
NNES x Humanities	7.902	0	**	7.895	0	**	6.188	0	**
NNES x Law	3.039	0.009	**	3.079	0.009	**	3.065	0.009	**
NNES x Science	4.006	0	**	3.974	0	**	3.965	0.002	**
NNES x Other area	3.994	0	**	4.020	0	**	3.095	0	**
IELTS score				2.548	0.024	*			
IELTS listening				-0.840	0.575				
IELTS reading				2.949	0.036	*			
IELTS writing				1.878	0.356				
IELTS speaking				-1.611	0.230				
Top-up x Africa							2.892	0.681	
Top-up x Europe							3.245	0.573	
Top-up x E.Asia							-7.06	0	**
Top-up x S. Asia							-14.783	0.01	*
Top-up x S. E. Asia							-10.071	0.013	*
Top-up x West Asia							-10.823	0	**
IELTS no top-up x Africa							-7.904	0.037	*
IELTS no top-up x America							-10.596	0.067	
IELTS no top-up x Europe							0.213	0.931	
IELTS no top-up x E.Asia							-5.24	0	**
IELTS no top-up x S. Asia							-7.963	0.001	**
IELTS no top-up x S. E. Asia							1.127	0.551	
IELTS no top-up x West Asia							-6.012	0	**
Other English x Africa							-6.173	0	**
Other English x America							-5.05	0.026	*
Other English x Europe							-3.653	0	**
Other English x E.Asia							-8.655	0	**
Other English x S. Asia							-5.229	0	**

Variable	Model (a)			Model (b)			Model (c)		
	Coeff.	P-value		Coeff.	P-value		Coeff.	P-value	
Other English x S. E. Asia							-1.515	0.042	*
Other English x West Asia							-7.948	0	**
N. of cases	15486			15485			15486		
Adj. R-squared	0.062			0.062			0.069		

Table 9. Regression results. Dependent variable GPA. Full-time postgraduate students who completed the year.

Variable	Model (a)			Model (b)			Model (c)		
	Coeff.	P-value		Coeff.	P-value		Coeff.	P-value	
Constant	59.162	0	**	59.156	0	**	59.275	0	**
Culture	0.57	0.799		0.572	0.799		0.547	0.798	
Engineering	2.729	0.244		2.732	0.243		2.678	0.23	
Humanities	-1.638	0.634		-1.641	0.634		-1.575	0.631	
Law	-1.502	0.51		-1.505	0.509		-1.454	0.503	
Science	2.09	0.237		2.088	0.237		2.129	0.206	
Other area	0.419	0.823		0.412	0.826		0.546	0.759	
Female	0.535	0.401		0.554	0.385		0.183	0.771	
Top-up English	-9.982	0	**	-9.932	0	**			
IELTS no top-up	-6.158	0	**	-15.464	0.091				
Other English	-6.215	0	**	-6.151	0	**			
NNES x Culture	2.881	0.302		2.660	0.342		1.594	0.551	
NNES x Engineering	-2.933	0.265		-3.052	0.247		-4.789	0.058	
NNES x Humanities	3.734	0.371		3.540	0.397		1.172	0.769	
NNES x Law	2.041	0.486		2.050	0.484		2.344	0.409	
NNES x Science	2.786	0.124		2.569	0.283		1.557	0.621	
NNES x Other area	3.488	0.243		3.233	0.155		1.088	0.497	
IELTS score				1.237	0.390				
IELTS listening				-1.921	0.388				
IELTS reading				1.632	0.354				
IELTS writing				4.230	0.077				
IELTS speaking				-1.837	0.389				
Top-up x Africa							7.836	0.456	
Top-up x America							-2.758	0.793	
Top-up x Europe							0.919	0.864	
Top-up x E.Asia							-12.499	0	**
Top-up x S. Asia							0.641	0.951	
Top-up x S. E. Asia							-3.654	0.122	
Top-up x West Asia							-5.496	0.01	*
IELTS no top-up x Africa							-9.092	0.021	*
IELTS no top-up x America							3.525	0.399	
IELTS no top-up x Europe							-2.115	0.664	
IELTS no top-up x E.Asia							-7.556	0.002	**
IELTS no top-up x S. Asia							-8.25	0.001	**
IELTS no top-up x S. E. Asia							-1.299	0.659	
IELTS no top-up x West Asia							-5.32	0.017	*
Other English x Africa							-7.775	0	**
Other English x America							-5.228	0.484	
Other English x Europe							1.057	0.52	
Other English x E.Asia							-11.345	0	**
Other English x S. Asia							-10.709	0	**
Other English x S. E. Asia							-3.527	0.084	

Variable	Model (a)			Model (b)			Model (c)		
	Coeff.	P-value		Coeff.	P-value		Coeff.	P-value	
Other English x West Asia							-7.113	0	**
N. of cases	1277			1274			1277		
Adj. R-squared	0.101			0.102			0.184		