

WHEN SIGNALS ARE LOST IN AGGREGATION: A COMPARISON OF LANGUAGE MARKS AND COMPETENCIES OF FIRST-YEAR UNIVERSITY STUDENTS

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ABSTRACT

Although English Home Language (HL) and English First Additional Language (FAL) marks from the National Senior Certificate (NSC) are used for university admission in South Africa, no studies have explored their predictive value. This



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article sheds light on English language marks and English language competence through a comparative analysis of NSC marks and National Benchmark Test (NBT) Academic Literacy (AL) test results for a cohort of first-year education students at the University of the Witwatersrand (Wits), Johannesburg, South Africa. To provide in-depth insight, the analysis includes fine-grained analysis of specific academic language competencies. The results of the analysis of this study showed that the same mark in English HL and FAL does not necessarily reflect the same level of English language academic competence as measured by the NBT AL test. On average, students who wrote the FAL papers scored between .5 and .9 of a standard deviation below students who wrote the HL papers.

Keywords: university admission, English language competency, Home Language, First Additional Language, National Senior Certificate, National Benchmark Test

INTRODUCTION

Almost all South African universities set a minimum English National Senior Certificate (NSC) mark for admission. Why do universities impose a language proficiency requirement? The obvious answer is that universities want to ensure that admitted students have the ability to communicate effectively within the university environment in the language of instruction. Without academic language proficiency, first-year students are at a disadvantage from the outset. But what does the research literature reveal about the predictive value of examination language marks and first-year students' language competencies?

Student selection and admission to particular university programmes is a complex process, which requires reliable information on the students' academic ability. Predominantly – but not exclusively – admission offices rely on the observed correlation between pre-university performance signals, such as school-leaving marks, and the subsequent performance of the accepted students during the academic year in their respective university programmes when setting minimum admission criteria. However, this admission practice assumes that there is a relationship between the pre-university performance signals and academic ability, and that this relationship remains relatively constant over time. When admission offices are uncertain about the relationship between the pre-university performance signals and students' academic readiness – for example, as a consequence of changed school-leaving examination assessment procedures – the admission offices look for other indicators that will enable them to establish the ability of university applicants to succeed in their chosen programmes. The most recent such systemic change in the South African context was the implementation of the new NSC in 2008.

It was in this context of change that the National Benchmark Tests Project (NBTP) was commissioned by Higher Education South Africa and implemented

from 2009, with the aim of developing an instrument to assist with the assessment of the academic readiness of high school learners for university study. The NBTP assesses learners' academic readiness in three domains, namely: Academic Literacy (AL), Quantitative Literacy (QL), and Mathematics (MAT). A full rationale for and description of the NBTP is provided in Griesel (2006, 4), as summarised in the following excerpt:

The purpose of the NBTP is four-fold:

- To assess entry-level academic and quantitative literacy and mathematics proficiency of students;
- To assess the relationship between entry level proficiencies and school-level exit outcomes;
- To provide a service to HE [higher education] institutions requiring additional information in the admission and placement of students; and
- To inform the nature of foundation courses and curriculum responsiveness.

The NBTP was conceptualised and designed to be used by higher education institutions (HEIs) in course development, programme planning, and academic placement decisions. The domains of AL, QL and MAT were selected for focus, as these had been conceptualised as core areas of competency, without which entry-level students would be unable to cope with the demands of higher education study. Evidence of this inability to cope is to be found historically in the research of the Alternative Admissions Research Project (AARP) at the University of Cape Town, and in a number of other independent studies conducted across a range of South African HEIs (see, e.g., Cliff and Hanslo 2009; Cliff, Ramaboa and Pearce 2007; Prince et al. 2013; Visser and Hanslo 2005; Yeld and Haeck 1997).

Given the paucity of published evidence of students' language marks and language competencies, this is the first article to shed light on these issues by using the NBT AL test. We begin by reviewing the literature on the predictive value of the national examinations, and the various alternative assessment measures that are used. The empirical part of the article starts with a description of the case study, highlighting the academic profile of the entering class of 2014 at the Wits School of Education (WSoE). This is followed by an analysis of the findings of the AL component of the NBT, administered to the 2014 class at the commencement of their studies. The fourth section of the article explores the relationship between the students' performance on the NSC Home Language (HL) and First Additional Language (FAL) examinations and the NBT AL test. To provide more nuances, this is extended to a more fine-grained analysis of specific academic language competencies. The final section presents some of the conclusions and implications for the literature on performance signals in South Africa.

LITERATURE REVIEW

While little has been written on language competencies of first-year university students in South Africa, there is a long history of research on the relationship between the school-leaving examinations in general and academic performance at university. Since the shift in South Africa from the Senior Certificate to the NSC examination in 2008, this literature has grown (Du Plessis and Gerber 2012; Hunt et al. 2011; Jansen 2012; Marnewick 2012; Mashige 2014; Nel and Kistner 2009; Potgieter and Davidowitz 2010; Rankin et al. 2012; Schöer et al. 2010; Wilson-Strydom 2012). This literature can be divided into two groups or categories. The first group focuses on the predictive value of the NSC for academic success at university; the second focuses on the value of using alternative measures to enhance fair access. Both groups are responding to wider public concerns, most clearly articulated by Jansen (2012), about the conceptual and skills limitations of school leavers.

The Schöer et al. (2010) study was one of the first studies to provide robust evidence that mathematics results in the 2009 NSC examinations were not reliable predictors of learners' performance in commerce-related university programmes. Subsequent studies have confirmed this finding. Marnewick (2012) found no correlation between learners' high school results and first-year university performance for information technology (IT) students. Mashige (2014) had similar findings for first-year Bachelor of Optometry students. Using data from 2009 to 2011, the study found only a weak correlation between matriculation results and first-year university marks.

The Nel and Kistner (2009) study was the first in the recent group of studies that focused on the auxiliary testing and academic performance of first-year students who completed the NSC examination. While the authors were cautious in their claims, given that their analysis was based on the first year of the new NSC, when they compared the results of their existing university access test with those of the NSC, they found the results of the latter to be inflated, particularly for the poorer-performing group of students. Potgieter and Davidowitz (2010) evaluated the competencies and levels of preparedness of first-year students studying chemistry at two universities. The strength of their study was that it used longitudinal data to compare the level of preparedness over time. Wilson-Strydom (2012), making use of an auxiliary testing instrument, shifted the focus of the debate by suggesting that NBT testing at the University of the Free State showed that the majority (as high as 75%) of students, despite their NSC results, may be 'underprepared'. Rankin et al. (2012) explored the predictive power of the NBT test for economics performance in the first year of study. They found that for students whose scores are close to the minimum admission requirements, the NBT scores are better measures of academic potential. This emerging body of research, both the study of the predictive value of the NSC for academic success in the first year of study and the study of the auxiliary

testing, provides a consistent picture of the problems with the instruments currently used for student selection.

The vast majority of these studies have focused on quantitative matric subjects, such as mathematics and physical science. This focus might be due to the nature of the disciplines that use these quantitative matric subjects in their admission processes, and themselves use quantitative methods in their research, as is the case with most science- and commerce-related disciplines. Very little has been published using less quantitative subjects as the research focus, including matric English scores. This is surprising, considering that universities generally require students to have achieved a relatively high level of English competency prior to being admitted to their degree programmes.

Smith and Edwards (2007) point out that, where studies have been focused on relationships between results on the English school-leaving examination and subsequent academic performance, the study results have been uneven, that is, there are times when performance on the English examination is associated with academic performance, and times when it is not. Smith and Edwards' (2007) study showed that a good (70% or above) English HL examination result contributes positively to variation in academic performance for economics students in a conventional (mainstream) curriculum context. For economics students whose English HL examination performance is below 70 per cent, however, or who have taken English FAL, the relationship between the English examination and subsequent academic performance is insignificant.

Cliff and Hanslo (2009) found that a weighted admission point score (APS) (secondary school examination result which includes English) is significantly associated with academic performance for engineering students, but that English on its own is an insignificant contributor to variation in academic performance for these students. However, in the context of Wits Faculty of Humanities, scores on a standardised academic literacy test designed to measure students' language proficiency were found to be associated with average academic performance: higher test scores were associated with higher-than-average academic performance scores at first-year level, and higher test scores were associated with improved academic performance beyond first year.

In relation to the NBT domain of AL – the focus of the current article – two recent studies covering the period from 2008 to 2011 argue, from complementary theoretical viewpoints, the differences between the cognitive demands, and hence the extent of measured language proficiency of the NSC examinations for HL and FAL matriculants. Kapp and Arend (2011) found evidence of a considerable mismatch between the target learning outcomes (as reflected in the National Curriculum Statements) for the NSC subject English FAL and the assessment of these learning outcomes in the school-leaving examination for the subject. Their analysis of the content of the examination paper concludes that it is cognitively undemanding when

analysed against the putative learning outcomes for the subject. The study by these authors supports the findings of the analysis conducted by Yeld et al. (2004), and Kapp and Arend (2011, 8) conclude that

[t]he importance of language as a tool for critical and creative thinking is acknowledged at a rhetorical level, but not in practice. For the students who are educated under the system and who need to use English as a first language in their content curricula and in higher education, learning the language in such a functional manner is likely to contribute to constraining their futures.

Moodley's (2014) study assessed the cognitive demands embedded in the visual literacy component of the school-leaving examination for six dominant HL examinations, namely: English, Afrikaans, isiXhosa, isiZulu, Sesotho and Sepedi. Visual literacy, as a significant component of the school-leaving language examination, is assumed to require significant language, verbal reasoning and contextual interpretation engagement on the part of matriculants who sit this examination in any one of the 11 official South African languages. Two findings from the Moodley study are relevant to the current argument: (1) the cognitive demands of the visual literacy component of the English HL examination (expressed in lower- to higher-order taxonomic classifications) are higher in both quantity and nature than are the demands of the other HL examination papers analysed; and (2) for other than English HL, there is a mismatch between the expected learning outcomes for visual literacy, as expressed in the National Curriculum Statements, and the outcomes required in the school-leaving examination assessment tasks.

Taken together, the studies suggest that matriculants taking the English HL examination are more likely better prepared to cope with the language demands they will face in future learning situations where English is the language of learning and teaching. Furthermore, the language proficiency of matriculants who have graduated in HL examinations other than English cannot be regarded as equivalent to the language proficiency of students who have graduated in English HL. These studies point to the likelihood that students who write the English HL examination will be better prepared to cope with future English language proficiency demands they will face.

While there is a growing body of research on the predictive value of secondary school examinations, the review reveals a lacuna, specifically in quantitative studies that examine the relationship between examination performance and actual academic language competencies. This is clearly an important area requiring scholarly attention, and one that has direct and substantial policy and programmatic implications.

PERFORMANCE SIGNALS OF THE FIRST YEAR INTAKE AT THE WSoE IN 2014

In 2014, 759 students – 707 new and 52 returning students – were registered for the Bachelor of Education (BEd) degree at the University of the Witwatersrand (Wits). The intake was substantially higher than the university target of 550 first-year BEd students, and almost double the intake of the previous few years. As is illustrated in Table 1, of the 759 students, 291, or 39.4 per cent, were admitted with an APS below 34, which was stipulated as the minimum automatic admission point for students to be accepted into the BEd programmes.¹ This very large intake, and the equally large number of students with an APS below the automatic admissions cut-off, raised the dual concern about the teaching of large classes and the need for intensive academic support for weak students.

Table 1: Numbers and percentages of the 2014 intake by APS

APS	<i>n</i>	%	Cum
Below 30	58	7.5	7.5
30	60	7.8	15.3
31	59	7.6	22.9
32	54	7.0	29.9
33	73	9.5	39.4
34 (Humanities minimum admission score)	84	10.9	50.3
35	68	8.8	59.1
36	64	8.3	67.4
37	55	7.1	74.5
38	47	6.1	80.6
39	33	4.3	84.9
40	44	5.7	90.6
41	25	3.2	93.8
42	18	2.3	96.1
43	13	1.7	97.8
Above 43	17	2.2	100.00
Total	772	100.00	

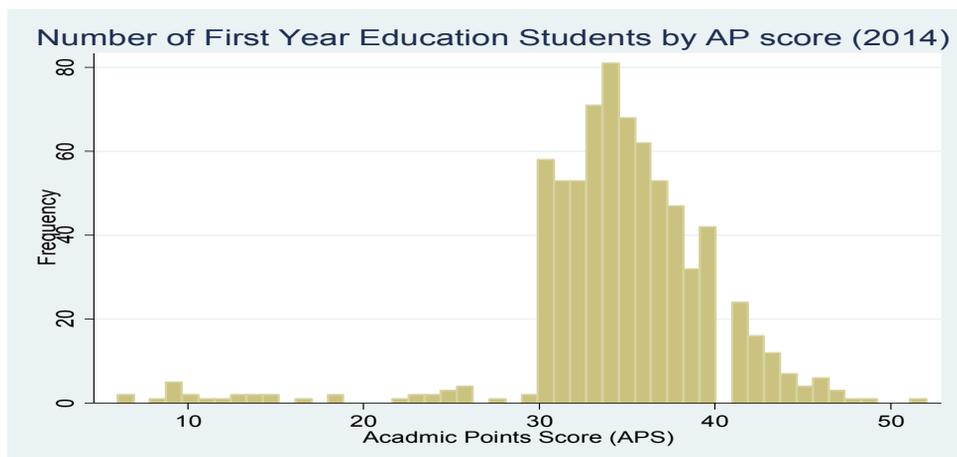


Figure 1: Number of first-year students by APS at WSoE (2014)

The Writing Centre of the WSoE was identified as a possible support structure to help first-year students to cope with the language demands of their studies. However, it was not clear which students might be most in need of support. Following concerns raised in the literature on possible differences in competencies of students that wrote the English FAL examination (Kapp and Arend 2011; Moodley 2014), the WSoE decided to investigate whether such differences might be obtained for its 2014 intake. This study was therefore motivated by the pedagogical and programmatic challenge of understanding and developing appropriate support for a large number of first-year education students.

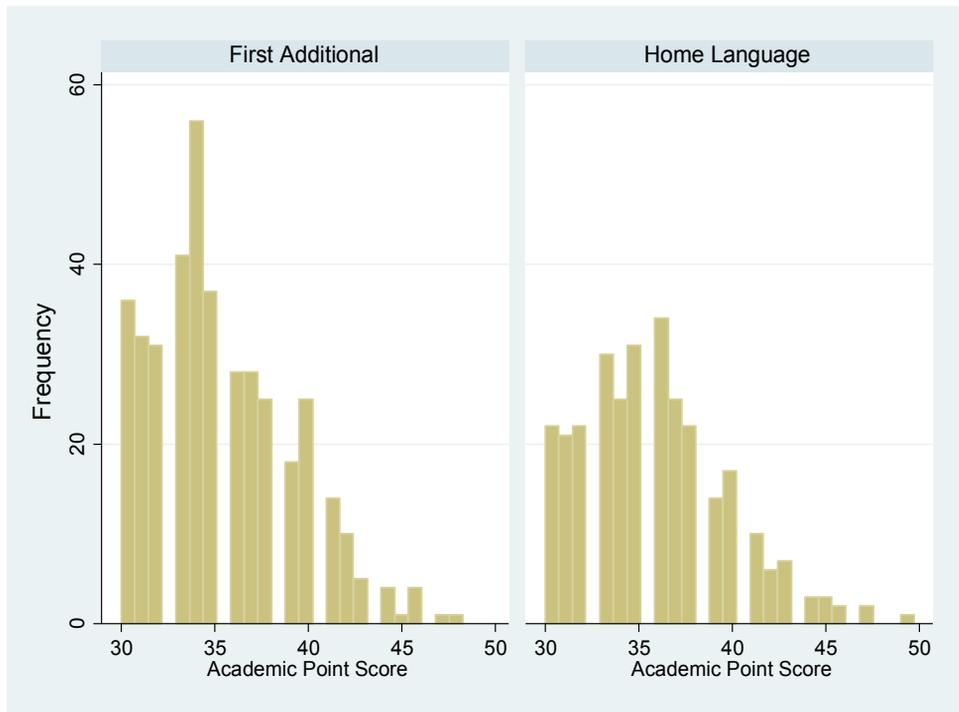


Figure 2: APS (FAL versus HL)

A larger number of English FAL matriculants applied with a lower APS than English HL matriculants (see Figure 2). Thus, on average, of the first-year students accepted into the Education programme, the English FAL students performed more poorly in their matric subjects compared to the accepted English HL students. However, the APS is a composite score of a number of matric subjects, which are not the same across all students. Even for students who apply with the same APS, the mix of matric subjects, as well as the individual performance in each subject, can vary significantly. To unpack such differences, we looked at the distribution of English marks by APS for the two English streams.



Figure 3: Matric English percentages against APS (FAL versus HL)

Figure 3 shows the distribution of matric English marks against the students' APS with which they applied to the WSoE. What is noticeable is that students who applied with the same APS can differ widely in their matric English performance, ranging from the minimum 60 per cent to above 80 per cent. This considerable variation in English marks is evident across the APS and reflects the composite nature of different matric subjects captured in the APS. However, the average English score in each APS range (shown by the solid line) increases as the APS increases. When we look at the difference between the English HL matriculants and the English FAL matriculants, the pattern looks very similar. However, the English FAL students who applied with an APS in the range 30–35 achieved, on average, a higher matric English mark than their English HL counterparts. This is reflected by the fact that the solid line of the English HL matriculants who applied with an APS of 30–35 lies below the broken line.

In summary, while more English FAL students applied with a low APS compared to English HL students, their matric English scores did not differ significantly. Nevertheless, these two groups might still exhibit significant differences in language competencies, given that English HL and English FAL are listed as two different matric subjects. In order to investigate possible differences in language competencies,

we use the same test instrument for both groups, namely the National Benchmark Test Academic Literacy (NBT AL) section. In our reporting of the results of the NBT AL section, we divide the results into three subsections. The first subsection explores the overall performance of these university students on the NBT AL. The second disaggregates the performance and investigates the relationship between the NBT results and results on the NSC examination. In the final subsection, we drill down further to explore the relative performance of students on the nine competencies in the NBT AL test.

PERFORMANCE ON THE NBT AL TEST

Given the concern about admitting students below the 34-point cut-off, the Witwatersrand School of Education (WSoE) administered the NBT AL as part of an attempt to inform the design of first-year courses and to identify students in need of additional academic support from the WSoE Writing Centre. Due to logistical problems, around 16 per cent of the new first-year students did not write the NBT. However, the probability of not writing the NBT test that was administered at the WSoE does not seem to be correlated with our variables of interest. Thus, we assume that our sample of students that actually wrote the NBT is likely to be a random, representative sample of the 2014 cohort (see Appendix A: Sample selection bias).

Figure 4 shows the distribution of NBT scores for the 2014 intake. There is a very wide distribution of scores. While there is a large cluster in the range 44–50 (the lower intermediate level), there are sizable clusters in the ranges of the upper intermediate level and the proficient level, respectively.

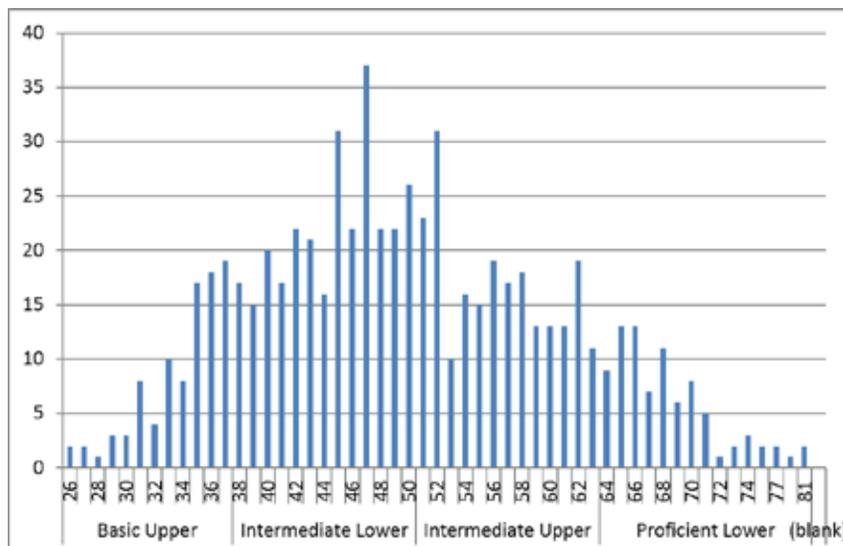


Figure 4: Distribution of Wits education students, Year 1 NBT AL scores (2014)

These results need to be considered in the context of the NBT's core aims. The NBT provides information to assist in the placement of students in appropriate curricular routes, and to place students in one of three performance categories: proficient (i.e., the student can cope in a regular programme of study, without an augmented or extended programme), intermediate (i.e., the student will require augmented or extended support, as learning challenges were identified in the specific literacy competency areas), and basic (i.e., the student will not cope in the mainstream without 'extensive or long-term support', as serious challenges were identified) (NBTP 2014). The large number of students ($n = 84$) in the basic category could be of serious concern, given the fact that the NBT indicates that scores in this range suggest that students will have difficulty coping in a traditional university programme.

Given the classification breakdown of competencies above, Table 2 reports how English HL and English FAL students performed.

Table 2: Wits education students, NBT AL (2014)

Level	All students (Number)	All students (%)	First Additional Language only (%)	Home Language only (%)
Basic (0–37)	84	14.1	24.6	0.4
Lower Intermediate (38–50)	244	41.0	55.2	22.5
Upper Intermediate (51–65)	213	35.8	19.3	57.4
Proficient (66 and up)	54	9.1	0.9	19.8
Total	595	100.0	100.0	100.0

Almost 25 per cent of the English FAL students performed in the Basic classification of the NBT AL, compared to less than 0.5 per cent of the English HL students. If one adds the Lower Intermediate category, then close to 80 per cent of the English FAL students would be in need of extensive and long-term support, compared to roughly 24 per cent of the English HL students. While a significantly larger portion of the English HL students fell in the Upper Intermediate and Proficient classifications, respectively, only 20 per cent of the English HL group managed to obtain scores that would classify them as proficient. These aggregate results, nevertheless, might be driven by the fact that a larger proportion of the English FAL students applied with a lower APS. We, therefore, unpack the performance of the HL and FAL students in the NBT AL in more detail by looking at the NBT AL scores relative to the students' APS and matric English marks.

RELATIONSHIP BETWEEN NSC MARKS, APS AND NBT AL PERFORMANCE

Figure 5 shows the spread of performances in the NBT AL relative to the students' APS. The broken line indicates 50 per cent score in the NBT AL test. Similar to what we could see between the matric English marks and the APS, there is substantial variation in the students' performances within each APS. Nevertheless, it is also noticeable that the English FAL students consistently underperform compared to the English HL students across the APS. Thus, while the mean performance (represented by the solid line) in each APS of the FAL students consistently lies below the 50 per cent minimum (represented by the broken line), the mean performance of HL students is consistently above 50 per cent.

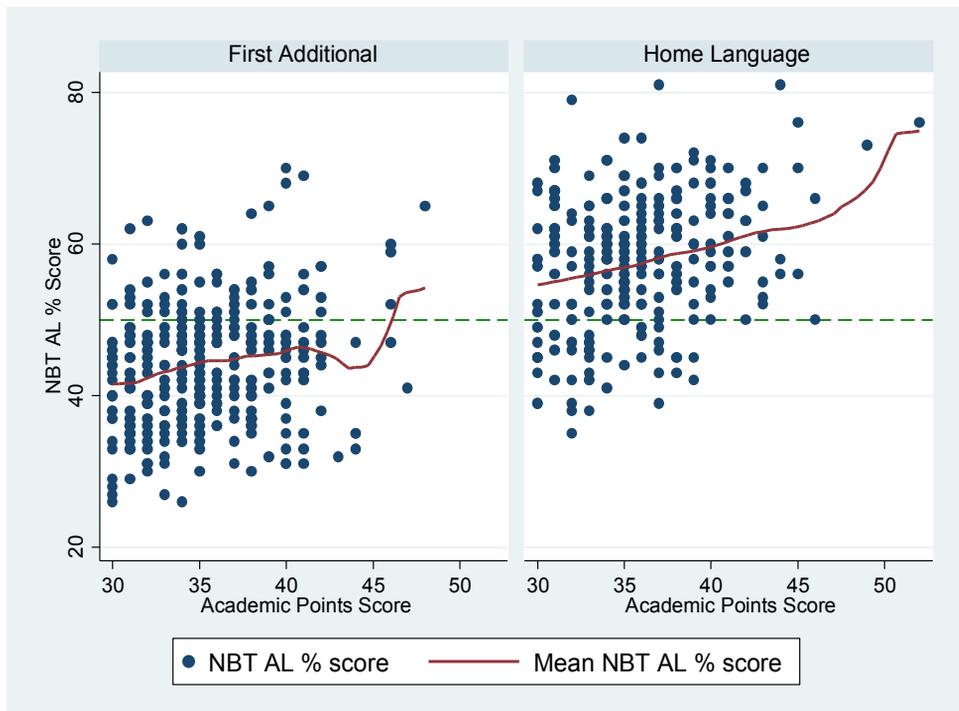


Figure 5: Distribution of NBT AL scores against APS (English FAL versus English HL)

The same basic pattern is evident when we compare English marks with NBT AL scores, disaggregating by FAL and HL (see Figure 6). Although students' English marks were very similar (as illustrated in Figure 3), the students that wrote the English FAL exam had AL scores that clustered below the average. The trend lines again summarise this pattern.

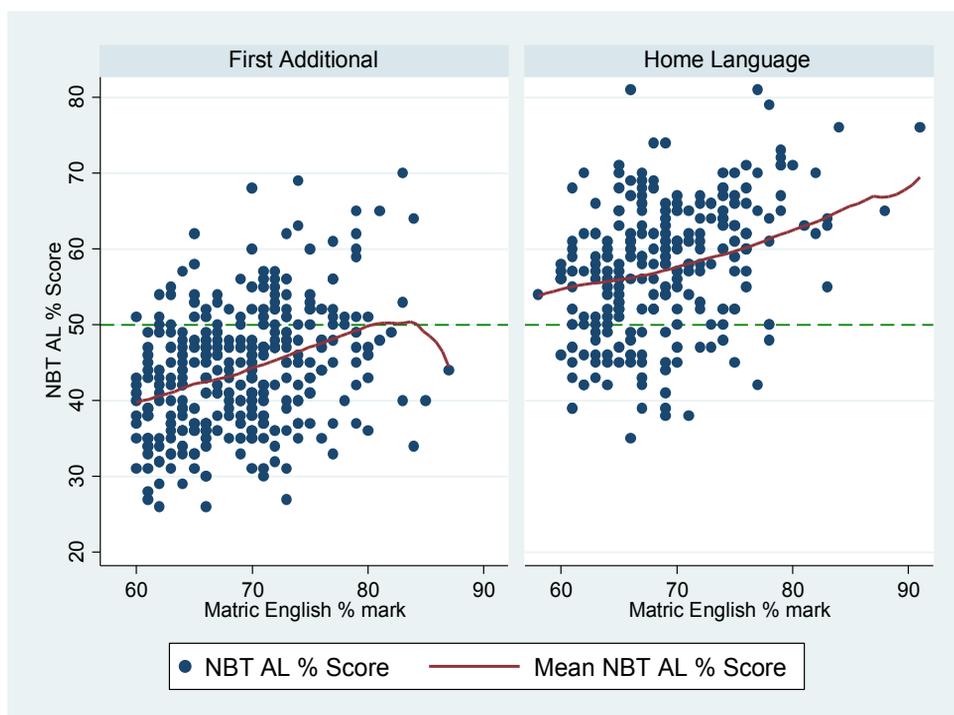


Figure 6: Matric English percentage distribution of NBT AL scores against English mark (FAL versus HL)

Thus, the findings show that neither the APS nor English scores by themselves allow universities to identify students who need support. While English FAL students, on average, perform poorly in the NBT AL section across their matric English and APS, the large variation within each APS and matric English mark does not justify that all English FAL students are in need of support, nor does it follow that all English HL students do not need support. A more nuanced test instrument, such as the NBT AL, seems better at identifying language problems, in that: (a) the test is targeted at an assessment of entry-level students' capacity to cope with the demands of higher education study, that is, it is not an assessment of school-level exit outcomes, but an assessment of higher education entry-level capacity, (b) a standardised assessment instrument such as the NBT AL allows for more meaningful comparisons between students that come from different educational backgrounds and different levels of proficiency and preparedness in terms of the language of teaching and learning, and (c) the measurement of students' performance on the NBT AL in terms of a set of validated and measurable literacy competencies allows for targeted intervention programmes, which cannot be developed from results on a school-leaving examination, which do not reflect these nuances.

In the subsection which follows, we explore the signalling ability of the NBT AL further by making use of the competencies of the test. A full discussion of the theoretical and conceptual underpinnings of the NBT AL construct is given in Yeld (2001), Cliff and Yeld (2006), Cliff, Ramaboa and Pearce (2007), and Cliff and Hanslo (2009), and hence will not be repeated here.

ACADEMIC LANGUAGE COMPETENCIES

The following subsection uses the individual responses to the NBT AL test items to investigate differences in the students' competencies in nine academic language skill and knowledge areas (the competencies of the test). In particular, we look at students' relative performance on cohesion, communicative function, essential versus non-essential, grammar (syntax), inferencing, metaphorical expressions, relations discourse, text genre, and vocabulary.

How does academic performance vary in terms of competencies between students who wrote the English FAL exam and students who wrote the English HL exam? We found large variability in performance both between the various language competencies and, for our purposes, between students who wrote the English FAL exam and students who wrote the English HL exam that had the same mark.

The next two figures present – for illustrative purposes – the performance of HL and FAL students on two academic literacy competencies assessed in the NBT AL. Table 3 and Figure 9 unpack students' performance on all academic literacy competencies. As Figure 7 shows, the gap between students around 60 per cent is less than .5 of the standard deviation, but widens as students' marks increase. In other words, for the cluster of questions that require students to possess a lexicon of vocabulary related to academic study or to be able to work out word meaning from context, there is consistently a substantial gap between students who wrote the HL examination and those who wrote the FAL examination. When we compare the gap in Figure 7 (vocabulary) to the achievement gap in Figure 8 (metaphorical expressions), we observe that the gap is substantially wider, suggesting that inequity in achievement is exacerbated for higher-order academic literacy competencies, in this case ability to understand, or work out from context, which is the basis of analogous reasoning, understanding non-literal language, and understanding the sociolinguistic meanings of idiomatic language.

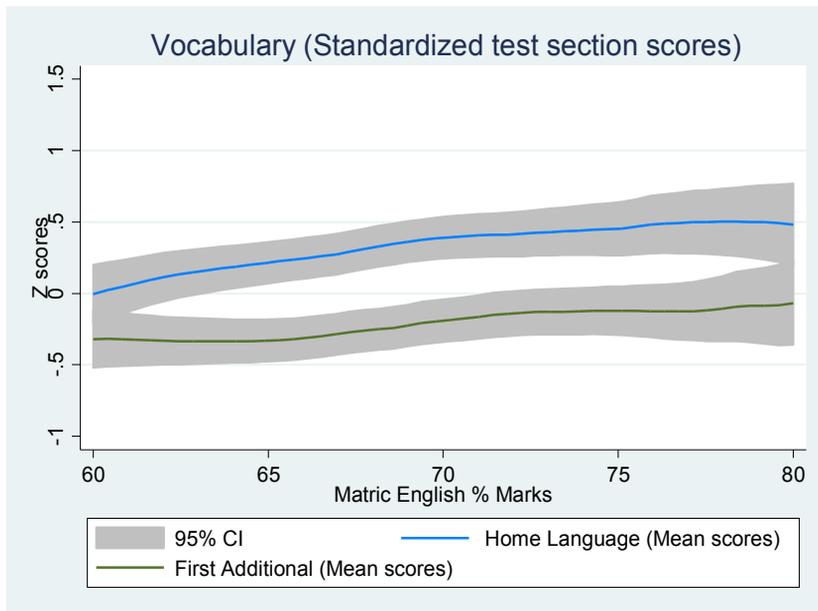


Figure 7: Language competencies by matric English marks: Vocabulary (restricted sample 60–80% matric)

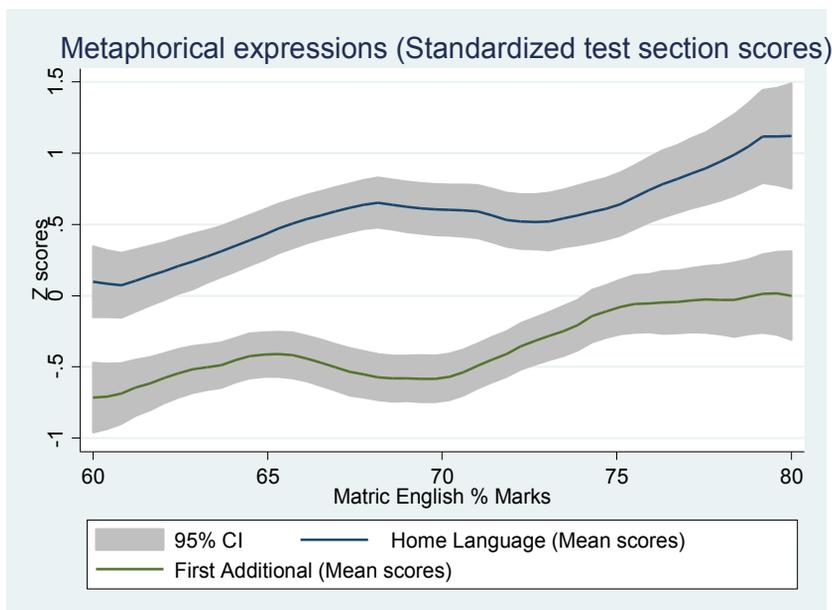


Figure 8: Language competencies by matric English marks: Metaphorical expressions (restricted sample 60–80% matric English)

To control for the possible impact of the outliers, we restricted the sample to students with English matric marks of 60–80 per cent, and we tested whether, on average, students who wrote English HL outperformed students who wrote English FAL in each language competency separately. The regression output (see Table 3) shows, on average, for each language competency the difference in performance between HL and FAL results (shown by the row ‘Home Language’) when we control for the students’ English matric performance and their overall APS. Thus, we hold the students’ English marks and APS constant in order to see if the type of matric subject (HL versus FAL) still accounts for differences in the students’ performances in the various language competencies.

As can be seen from the regression output, students who wrote English HL consistently outperform students who wrote English FAL, on average between 0.5 and 0.9 of a standard deviation, even when we control for their English matric marks and their overall APS. When we compare the performances in each language competency separately, we see that students who matriculated with English HL performed on average around half a standard deviation higher than students who matriculated with English FAL when it comes to understanding language cohesion, essential/non-essential, text genre, and vocabulary. In competencies such as grammar (syntax), inferencing, metaphorical expressions, and relations discourse, the difference is almost one full standard deviation. Figure 9 clearly shows how the gap widens in relation to academic literacies that relate to the ability to understand how and why (a) syntactic patterns in language affect meaning; (b) academic discourse structures and patterns are signalled and organised in text; (c) implications and inferences that extend beyond the immediate text are signalled in-text; and (d) analogous and non-literal language is signalled and used to make illustrative points.

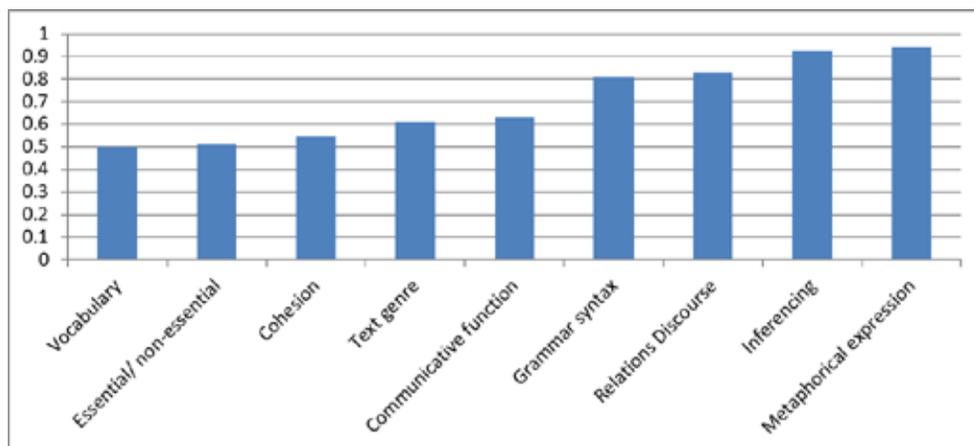


Figure 9: Differences between HL and FAL: Z scores by academic language competencies (restricted sample 60–80% matric English)

Table 3: Ordinary least squares of standardised language competencies by HL versus FAL (restricted sample: English mark of 60–80%)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Standardised language competency scores (Z scores)	Cohesion	Communicative function	Essential/non-essential	Grammar: syntax	Inferencing	Metaphorical expressions	Relations discourse	Text genre	Vocabulary
Home Language	0.545*** (0.0803)	0.631*** (0.0777)	0.514*** (0.0813)	0.811*** (0.0753)	0.927*** (0.0741)	0.942*** (0.0733)	0.829*** (0.0759)	0.611*** (0.0809)	0.500*** (0.0804)
NSC English mark	0.0316*** (0.00830)	0.0337*** (0.00803)	0.0339*** (0.00840)	0.0189** (0.00778)	0.0202*** (0.00766)	0.0336*** (0.00757)	0.0283*** (0.00784)	0.0124 (0.00836)	0.0170** (0.00830)
APS	0.00838 (0.0110)	0.000819 (0.0106)	-0.00332 (0.0111)	0.0238** (0.0103)	0.0132 (0.0101)	0.0134 (0.0100)	0.0143 (0.0104)	0.0122 (0.0111)	0.0342*** (0.0110)
Constant	-2.699*** (0.554)	-2.621*** (0.536)	-2.440*** (0.561)	-2.468*** (0.520)	-2.260*** (0.512)	-3.194*** (0.506)	-2.809*** (0.523)	-1.550*** (0.559)	-2.598*** (0.555)
Observations	575	575	575	575	575	575	575	575	575
R-squared	0.102	0.129	0.090	0.190	0.228	0.252	0.196	0.098	0.097
Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$									

CONCLUSION

The original purpose of the current study was to provide insights for programmatic purposes from the 2014 BEd student intake at Wits through an analysis of their APS, English marks, and NBT AL scores. In the processes of analysis, the researchers identified a series of patterns that contribute to the scholarly literature on university admissions in South Africa and the English academic language competencies of secondary school graduates.

The initial analyses suggested a number of programmatic insights. First, although the 2014 cohort was much larger than previous cohorts, the 2014 cohort contained a high proportion of students (around 60%) with a relatively high APS of 34 points or more, compared to approximately 30 per cent in 2010. Second, the NBT AL test results suggested that a significant portion of the entering class of 2014 needed extensive and ongoing academic support.

From the perspective of the scholarly literature (Kapp and Arend 2011; Moodley 2014), our analysis contributes to more generalisable findings related to the relationship between English HL and English FAL on the NSC examinations. Save for a small group of students who were admitted on the basis of a special admissions process (and therefore were excluded from the study), the overwhelming majority of first-year education students were admitted because they had achieved a mark of 60 per cent or more on either the HL or the FAL matriculation examination. The results of the analysis in the study, however, show that the same mark in HL and FAL does not necessarily reflect the same level of English-language academic competence as measured by the NBT AL test. On average, students who wrote the FAL papers scored between .5 and .9 of a standard deviation below students who wrote the HL papers. Furthermore, as the particular academic language competencies increased in complexity, so did the achievement gap.

What does administration of the NBT tell us with regard to the current selection criteria? At a more technical level, our analysis suggests that the APS as a composite index may be inadequate as a predictor of language proficiency (as suggested by the disjuncture with the AL scores). Similarly, a matric English mark that does not distinguish between the English HL matric exam and the English FAL matric exam may also be a weak predictor of language proficiency (measured by the AL score). That said, we do not have sufficient evidence that the NBT AL test is a better discriminator of competency at this point in time. This will only become evident once we have results from the academic performance in the first year of university study.

The NBT AL scores of most of the English FAL students fell far below the standardised mean, and a substantial portion fell below one standard deviation. This may suggest that the two levels of the English exam are not comparable, and that many students who have been accepted into the university based on their English FAL marks may need academic support irrespective of their overall performance in

their matric exams (shown by a high APS and low academic literacy performance). At the same time, we found that there were a significant number of English FAL matriculants who applied with a low APS, but who demonstrated high academic literacy competency in the NBT.

NOTE

1. According to the Wits website, all students with 34 points or above will be accepted into one of the three BEd programmes. Applicants with 30–33 points will be waitlisted. <http://www.wits.ac.za/prospective/undergraduate/admissionrequirements/11644/matricnsc.html>

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APPENDIX A

Sample selection bias

As we have 707 first-time first-year students who have registered at the Wits School of Education in 2014, but only 594 observations on students' performances in the NBT literacy test, we need to test whether our findings are likely to be biased by sample selection. That is, are students for whom we do not have NBT scores systematically different? We test this against their English matric performance and their admission point scores (APS) to see if these students are different.

Figures 10 and 11 show the distribution of the APS and English matric marks for students with and students without NBT scores. As can be seen, both groups have a similar distribution of APS and English marks. However, we test this by running a probit regression, where the binary dependent variable is whether we do or do not have a NBT score for the student, controlling for the student's APS and English

mark, and whether they wrote the English matric exam as Home Language or as First Additional Language. The regression output (see Table 4) shows that the APS and the English marks are not differently distributed between these two groups of students. Furthermore, neither English Home Language students nor English First Additional Language students were more likely to participate in the NBT literacy test. In that respect, the student group for which we do have NBT scores, and on which the language competency analysis is based, is not different in terms of its overall matric performance (as represented by the APS), its performance in English, or which level of English the students in the group took in matric, compared to the group of students for which we do not have NBT scores. Therefore, assuming that there are no other significant unobserved characteristics that would explain why we do not have NBT scores for these students, their exclusion from the analysis is not likely to bias our findings.

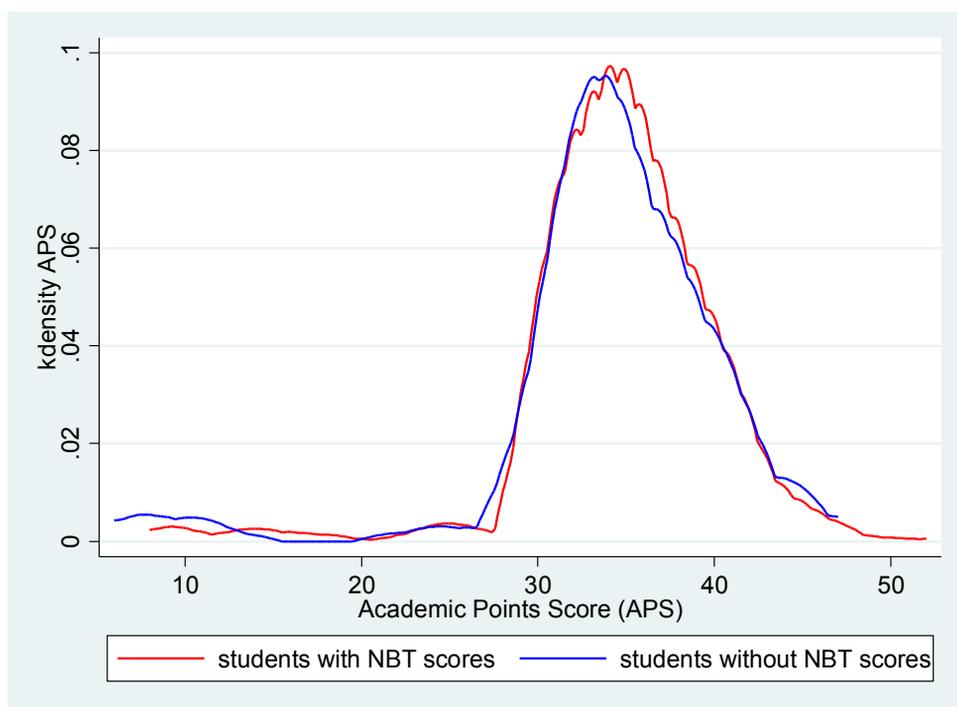


Figure 10: Distribution of APS of students with NBT scores, compared to students without NBT scores (2014)

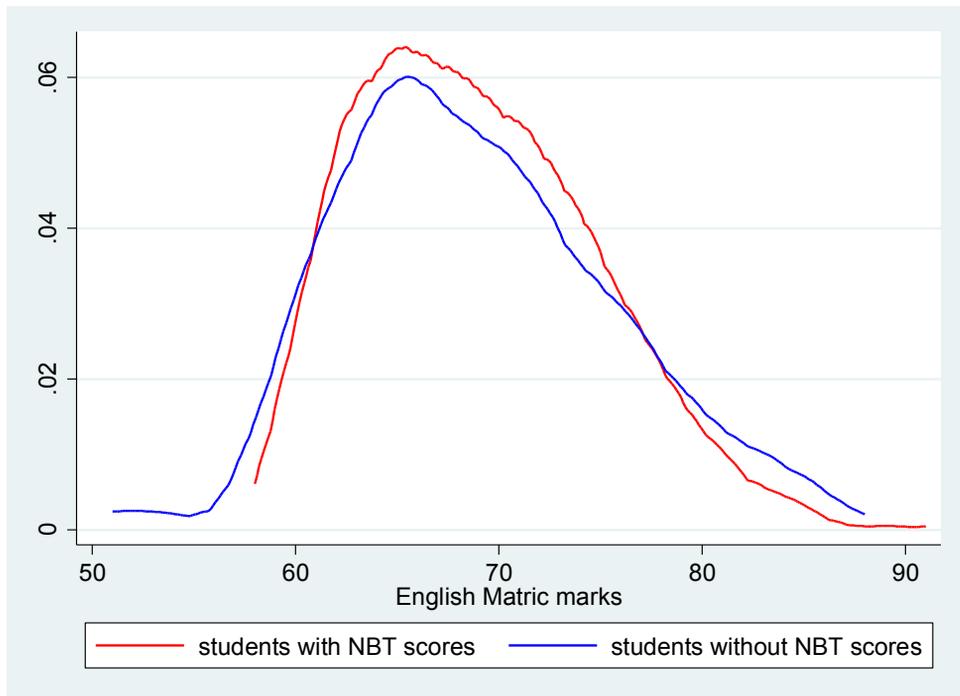


Figure 11: Distribution of English matric marks of students with NBT scores, compared to students without NBT scores (2014)>

Table 4: Probit regression of students with NBT scores

Probit regression	Dependent variable
	NBT score? (Yes/No)
English Home Language	-0.0203 (0.115)
English matric mark	0.000213 (0.0104)
Admission point score (APS)	0.00387 (0.0154)
Constant	0.862 (0.704)
Observations	705

Standard errors in parentheses
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$