The design and use of 'alternate' assessments of academic literacy as selection mechanisms in higher education

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Abstract: In a context where applicants to higher education study vary widely in terms of their prior educational, linguistic and socio-economic backgrounds, it becomes extremely important to assess the extent to which these applicants might be said to be ready to cope with the typical academic reading and writing demands of higher education study. This assessment becomes even more crucial in a country like South Africa, where issues of equity of access, selection and redress remain a central challenge. Put simply, the challenge is to identify academically talented students from educationally diverse backgrounds, especially in cases where the educational backgrounds of these applicants may have militated against them, fully demonstrating their talent in conventional (e.g. school-leaving) examinations. This article describes the theoretical basis for the development of tests of academic literacy that downplay the role of prior learning in the assessment of academic readiness. The uses of these tests as selection mechanisms complementary to conventional academic assessments are also outlined. Empirical data are presented that demonstrate associations between these tests and academic performance in higher education. Issues and challenges regarding the validity and reliability of these tests are presented, and the implications of major research findings on the tests debated and deliberated upon.

Introduction

Questions about what criteria to use in making selection decisions about applicants for higher education study are of vital importance. It goes almost without saying that higher education institutions worldwide, and the co-ordinators of the study programmes these institutions offer, need to adopt a coherent and defensible approach towards the selection of students to these institutions. And the choice of particular admissions criteria by which applicants are deemed worthy of being offered a place in these institutions is a very important component of such a selection approach. The admissions criteria by which applications are judged will almost inevitably have implications for (1) questions of access (which applicants get into an institution and which do not, and why they do or do not); (2) academic standards (whether applicants chosen are sufficiently prepared to meet the typical demands of higher education study, and whether these demands are appropriate); (3) curriculum (what successful applicants should be taught, how they should be taught and what and how they should learn); and (4) throughput (the rate at which selected students graduate with a meaningful and portable qualification). It follows from this last set of points that the choice of admissions criteria, and the selection of students on the basis of these criteria, are highly likely to have at the very least political, economic and educational consequences.

Typically, the basis for selecting students for programmes of higher education study has a strong academic component. Applicants' academic scores on standard school-leaving examinations of one form or another are taken into account in judging these applicants' suitability for study. These scores are deemed important to the extent that it is assumed they are indicative of the requisite levels of knowledge, academic readiness and thinking ability that would be required of students in a generic or discipline-specific sense in a higher education context. There is abundant research

evidence internationally that demonstrates that school-leaving examination results considered on their own do indeed appear to have consequential and predictive validity in a higher education context. For recent examples of these findings, see Garton et al. (2000); Albanese et al. (2003); Cliff et al. (2004). In a general academic sense, what students have learned at secondary school appears to make them better prepared to cope with the academic demands they face in higher education, and secondary-school learning appears favourably associated with academic success and graduation.

However, the studies mentioned in the previous paragraph and many others also emphasise that the relationship between conventional school-leaving examination results or certification and academic performance is not necessarily linear and that there are many additional factors that may contribute to variation in students' academic performance once they are enrolled in higher education. These studies also emphasise that relationships between school-leaving results and academic performance may be dependent upon factors such as the quality of schooling of individuals or cohorts; the population group to which an individual belongs; the socio-economic status of individuals or groups; motivational and dispositional orientations of students; their approaches to learning; and so on. Indeed, many studies of relationships between school-leaving and academic performance argue that, precisely because these relationships are related to a complex set of variables, these variables should actively be included as part of the process of assessing an applicant for selection.

Over and above the use of academic achievement scores for assessing higher education applicants, and the assessment of these scores as predictors of subsequent academic performance, research studies suggest a number of other measures may be useful determinants of academic performance. For example, West and Gibbs (2004) investigated the possible use of a selection test similar to the American Scholastic Aptitude Test (SATs) for use in the selection of undergraduate students for degree study in the UK. Of interest in their study is the finding that student results on SATs appear to vary according to the social background of the test-takers – a finding that raises politically contentious issues about the extent to which scores on the SATs replicate traditional school achievement scores and are accordingly not contributing anything new in terms of selection criteria. A possible implication of their research findings is that SAT results may not contribute to understanding whether students from 'non-traditional' social backgrounds (working-class, from poorly-resourced schools and under-represented minorities) are worthy of being selected for, and able to succeed in, higher education study. On tests such as the SATs, it is hypothesised, these students appear to be unsuitable for higher education study because of inherent biases towards traditional academic achievement – and particular social backgrounds – in the tests themselves.

In addition to their finding that school achievement scores were good predictors of first-year academic performance, Garton et al. (2000) also found American College Test (ACT) scores to be predictive of academic performance in higher education. Their study however also found evidence of association between academic achievement, academic readiness, academic persistence and field-independent and field-neutral learning styles. Their findings imply that the assessment of variables other than secondary-school academic achievement – including such variables as generic academic preparedness and learning approach if they are predictive – may be useful in assessing an applicant's suitability for selection.

Studies exploring the use of a range of selection criteria for selecting students for teacher education programmes (e.g. Mikitovics & Crehan, 2002; Byrnes et al., 2003) have found associations between higher education academic performance and variables such as ACT scores, Pre-Professional Skills Test (PPST) scores, and student teaching ratings. These relationships were, however, found to be uneven: PPST and ACT scores appeared well-correlated with each other, but PPST scores were found to be weakly predictive of academic performance in teacher education programmes. In addition, the Byrnes et al. (2003) study found the group-level assessment of teacher education students' verbal, interpersonal and leadership qualities to be more strongly predictive of teaching performance than were academic criteria. In essence, what these studies of teacher education students imply is that measures such as pre-admissions skills tests and tests of interpersonal qualities might be assessing generic or non-academic elements important in the

selection of students, but that the consequential validity of these elements (whether they matter or are important) in relation to curriculum may need to be established.

Other research investigating associations between academic achievement, demographic background variables (such as population group) and non-academic factors (such as motivation and personality) in a context where students selected are from diverse school-education backgrounds, showed that factors traditionally regarded as predictive of academic success functioned differently for students from different population groups (Zaaiman et al., 2000; Bryson et al., 2002). Bryson et al. (2002) also concluded that non-academic variables as well as academic ones were predictive of academic success. Similar findings have been described in research conducted by the University of Cape Town's Alternative Admissions Research Project (AARP) (Cliff et al., 2003a). For a cohort of white Engineering students, the variable of secondary-school achievement was found to explain substantial amounts of variation in academic performance at the end of first-year Engineering studies. For the cohort of black Engineering students enrolled in the same class as the white students, secondary-school achievement explained a far smaller percentage of variation in first-year academic performance. For the black cohort, demographic factors such as home (first) language and school background, and scores on tests of academic readiness (developed by the AARP), contributed to explaining more substantial amounts of variation in academic performance than they did for the white cohort. This research is elucidated further on in this article. The point being made here seems important for research into the development of selection mechanisms for applicants. If academic, demographic and non-academic factors are predictive of academic performance – as they appear to be (see also Chang, 2000, and Thompson, 2002) – the process of selecting students for higher education study should include assessment of all these factors as far as is practicable. This seems especially so for students such as educational minorities or students from under-resourced school backgrounds if it has been shown that school academic performance is weakly – sometimes unreliably – associated with subsequent academic performance in higher education. At the very least, selection mechanisms need to be as comprehensive as possible, if higher education programmes are going to ensure that students historically under-represented are going to be selected (the access issue) and are going to have a reasonable chance of success (the throughput issue).

Admissions models advocated for use in the selection of medical students emphasise the points made in the foregoing paragraph. In a review of factors assessed in the selection of medical school students, for example, Albanese et al. (2003) point out the challenges involved with using academic assessments, including the use of more generic skills-based assessments of readiness for studies in medicine (such as the Medical College Admission Test – the MCAT). They also highlight the use of the assessment of medical students' personal qualities and the admissions interview and the problems of reliability and validity in the use of these measures. Edwards et al.'s exploration (2001) provides substance for the use of more qualitative assessments for selecting students for medical schools, especially in a context where diversity of student intake is seen as important and desirable. A study by Patrick et al. (2001) found evidence that it was possible to use a structured admission interview in a statistically reliable manner: they found good inter-rater reliabilities for the interview schedule. This finding implies that the use of what are perceived as more qualitative forms of assessing applicants does not necessarily mean that reliability is compromised. A further finding of these researchers, which is of importance in the context of the research described further on in this article, was that correlations between selection information obtained from the structured interview and other selection criteria were moderate to low. The structured interview appeared to provide useful extra information not necessarily provided by other selection processes.

Further studies investigating the choice of selection criteria for medical students, and the association between these criteria and academic performance, have focused on the challenge of admitting medical students from diverse (linguistic, educational, experiential) backgrounds and from groups typically under-represented in medical programmes (see, for example, Tekian, 2000 Edelin & Ugbolue, 2001; Kreiter et al., 2003; James & Hawkins, 2004). Tekian's survey (2000) of admissions processes to medical school focused on the use of academic and non-academic factors in selection processes, as well as on the use of selection interviews and enrichment programmes

as foundational routes for under-represented students to gain entry to medical study programmes. The conclusion was that there was arguably a lack of sufficiently coherent evidence to date to affect policy in relation to the selection of under-represented students.

Edelin and Ugbolue (2001), on the other hand, found that typically under-represented students with higher scores on tests of readiness and generic skill (the SATs and the MCATs) more successfully completed the first two years of medical school programmes than those with lower scores on these kinds of tests. The question of what is meant by 'success' is relevant here, and will be explored further in the research described later in this article. Longitudinal studies conducted by the AARP (Cliff et al., 2003b; Visser & Hanslo, 2005) have shown that educationally disadvantaged students – students who share similar background and demographic characteristics to under-represented minorities in the US – progress more satisfactorily academically when they score higher marks on the AARP tests of readiness and generic skill than when they score low marks. In addition, these kinds of tests are better predictors of academic performance for educationally disadvantaged students than are conventional school-leaving results. The caveat to these findings, though, is that these students who perform well on the skills tests still take significantly longer – sometimes two or three years longer – than minimum time to graduate. But they are more likely to persist and to graduate than those students doing poorly on the tests.

To summarise this Introduction, we make the following points: (1) research evidence suggests that conventional academic factors such as school-leaving results are good predictors of academic performance in higher education – and therefore good selection criteria – for students whose educational experience has been of high quality; (2) for students who have been under-represented in higher education, such as minorities in the US and educationally disadvantaged students in South Africa, school-leaving results bear an unreliable, sometimes idiosyncratic, relationship to academic performance; (3) for these students, additional selection criteria (such as skills tests, tests of academic literacy, interviews, and so on) may well be indicated for use in selection processes, especially if issues of access and redress of past inequities are to be taken seriously; (4) research evidence on the use of multiple selection criteria, however, suggests that all applicants might be better assessed for higher education study through the use of assessments of academic, non-academic and qualitative factors. So skills-based tests and interviews, for example, are not necessarily redundant in terms of gaining comprehensive information about applicants and in terms of enhancing the predictive power of the selection criteria.

The assessment of academic literacy as part of selection mechanisms

The University of Cape Town's AARP developed the Placement Test in English for Educational Purposes (PTEEP) with the express purpose of assessing entry-level students' capacities to cope with the learning and thinking processes required of students at an English medium-of-instruction institution, i.e. their academic literacy. As such, the PTEEP is a test of learning 'potential' – in this case, students' potential to process academic reading and writing at the level required of an entry-level student. The test aims to assess the following reading and thinking approaches: students' abilities to (1) make meaning from texts that they are likely to encounter in their studies; (2) understand words and discourse signals in their contexts; (3) identify and track academic argument; (4) understand and evaluate the evidential basis of argument; (5) extrapolate and draw inferences and conclusions from what is stated or given; and (6) identify main from supporting ideas in the overall organisation of a text.

Applicants for degree study at the University of Cape Town (and other South African universities) are required to write the test if they wish to be considered for study in a Humanities, Law, Science, Health Science, Engineering or Commerce field. Applicants themselves may also choose to write if they feel that their school-leaving examination results may not be adequate for entry to first-year study, or if they wish the results of the PTEEP (and, in some cases, other AARP tests of mathematical thinking and reasoning) to be considered alongside their school-leaving examination results. Applicants who wish to be considered for scholarships and other entrance awards, or those who wish to be considered for early offers of places on university study programmes, also write the AARP test. The use of AARP test scores is regarded as complementary to scores obtained by means of students having written conventional school-leaving examinations.

The AARP tests are also written by students who have already been registered for programmes of study at the University of Cape Town and at other tertiary institutions in South Africa that have requested that their students write one or more of the tests. In the case of registered students, the tests are usually written at the commencement of their academic year, and serve as diagnostic measures of students' learning and thinking capacities and shortcomings at this early stage of their studies.

Specialist teams comprising language, cognition, learning and assessment experts develop new or reworked versions of the PTEEP annually. The test is based on a theme, is designed to test generic thinking and learning approaches, and is regarded as complementary to more discipline-specific tests of ability and capacity. Items are designed to assess constructs associated with the broad aims of the test, as outlined earlier in this section of the article, and in accordance with test specifications set up by the test development group.

Table 1 provides a summary of the different skills clusters that the PTEEP assesses, together with an explanation of what the specific cluster assesses.

The PTEEP as a selection and placement mechanism

In its conception, the PTEEP was designed – as was argued earlier – to assess the capacity of applicants to respond to the typical reading and writing demands they will face in higher education where English is the medium of instruction. Applicants' exposure to previous school-based learning and knowledge is downplayed in the content and assessment approach of the PTEEP – in order that their 'talent' for coping with the demands of higher education may be assessed in a manner

Table 1: Academic literacy skills assessed in the PTEEP

Skill assessed	Explanation of skill area
Vocabulary	Students' abilities to derive/work out word meanings from their context.
Metaphorical expression	Students' abilities to understand and work with metaphor in language. This includes their capacity to perceive language connotation, word play, ambiguity, idiomatic expressions, and so on.
Extrapolation, application and inferencing	Students' capacities to draw conclusions and apply insights, either on the basis of what is stated in texts or is implied by these texts.
Understanding the communicative function of sentences	Students' abilities to 'see' how parts of sentences/discourse define other parts; or are examples of ideas; or are supports for arguments; or attempts to persuade.
Understanding relations between parts of textand argument, by paying attention – within and between paragraphs in text – to transitions in argument; superordinate and subordinate ideas; introductions and conclusions; logical development.	Students' capacities to 'see' the structure and organisation of discourse
Understanding text genre	Students' abilities to perceive 'audience' in text and purpose in writing, including an ability to understand text register (formality/informality) and tone (didactic/informative/persuasive/etc.).
Separating the essential from the non-essential	Students' capacities to 'see' main ideas and supporting detail; statements and examples; facts and opinions; propositions and their arguments; being able to classify, categorise and 'label'.
Understanding information presented visually	Students' abilities to understand graphs, tables, diagrams, pictures, maps, flow-charts.
Understanding basic numerical concepts	Students' abilities to make numerical estimations; comparisons; calculate percentages and fractions; make chronological references and sequence events/processes; do basic computations.

Source: Adapted from Bachman and Palmer (1996) and Yeld (2001)

that is relatively independent of schooling. However, it is clear from empirical studies of performance on the PTEEP that these applicants' prior educational experiences do have an impact on their performance. It is with these empirical findings in mind that scores on the PTEEP contribute to two principal kinds of information about applicants: (1) the extent to which they might be regarded as 'admissible'; and (2) what their PTEEP scores might predict about their capacity to cope in an academic context.

Table 2 illustrates differences in applicants' levels of raw score performance on the PTEEP when scores are disaggregated by educational background (Cliff et al., 2007b). The table also refers to scores on three other tests developed and administered by the AARP: the Mathematics Achievement Test (MACH), the Mathematics Comprehension Test (MCOM), and the Scientific Reasoning Test (SRT). Data reflected in Table 2 are based on samples of writers who wrote the tests between 2003 and 2007 (n > 33 000 writers).

Note the following definitions with regard to Table 2:

- 'Levels' of performance on the tests refers here to the scores achieved on the PTEEP by the lowest scoring writers in the third decile of performance. The scores of the overall writer pool are ranked according to deciles of performance, and 60–70%, for example, on the PTEEP represents the raw scores of those writers from educationally 'advantaged school-backgrounds' who are ranked at the bottom of the third decile of performance. The reason that the bottom of the third decile of performance is taken as the benchmark 'level' of performance is based on longitudinal research by the AARP, which shows that students whose scores fall below the bottom of the third decile are significantly more likely to be 'at risk' of failure or poor academic performance than those whose scores fall above this mark (Polakow, 1999; Chalton et al., 2001; Visser & Hanslo, 2005). Put differently, the top three deciles of test performance represent a useful benchmark in terms of the PTEEP's ability to identify students who are at lower risk of failure or underperformance academically. What is crucial in this research is that this assessment of risk holds true for both 'advantaged' and 'disadvantaged' school-background students.
- 'Advantaged school-background': Schools of high socio-economic status; with well-qualified teachers; with adequate infrastructural and physical resources; and where medium-of-instruction and home language are the same of the majority of students.
- 'Disadvantaged school-background': Schools of low socio-economic status; with teachers who may be inadequately qualified in the subjects they teach; with inadequate infrastructural and physical resources; and where medium-of-instruction may not be the home language of the majority of students.

It is clear from Table 2 that writers' educational background is associated with differential levels of AARP test performance. But the benchmark levels of performance in Table 2 are used to recommend writers from both 'advantaged' and 'disadvantaged' school backgrounds for selection for higher education studies – based on the research cited in the first footnote to the table. So, for example, writers from 'disadvantaged school-backgrounds' who score 44% on the PTEEP are recommendable for selection in the same way that writers from 'advantaged school backgrounds' who score 60% on the PTEEP are recommendable.

The differential levels of test performance, however, are also considered as a placement mechanism. Given that the PTEEP is a standardised academic literacy test, it seems appropriate to regard a score of 44% on the PTEEP as a marker of lower levels of preparedness in terms of academic literacy than a score of 60%. Thus, while both 44% and 60% can be regarded as scores that are recommendable in terms of selection (related to school background), they arguably imply

Table 2: Differential levels of AARP test performance by educational background

School background	Test			
	PTEEP	MACH	MCOM	SRT
Writer from advantaged school background	60–70%	65–75%	53–70%	67–78%
Writer from disadvantaged school background	44–56%	31–45%	35–45%	45–55%

that different forms of educational provision will be necessary to address the academic literacy 'gaps' that these differential scores illustrate. A recommendable student with 44% might therefore require a more intensive or explicit form of teaching and learning support than a recommendable student with 60%. The practice at the University of Cape Town is both to recommend a student for selection – based on a decile ranking on the test/s, and to recommend a particular form of placement – based on a raw score.

As was argued earlier in this article, tests such as the PTEEP are not used in isolation from other mechanisms in selection and placement processes. They are used in the case of the University of Cape Town in conjunction with school-leaving examination results and, in some cases, qualitative reports on students' academic ability, leadership and character attributes. What follows, are a number of research investigations exploring the extent to which the use of the PTEEP for selection and placement might be said to have validity – i.e. to what extent is performance on the PTEEP associated with students' academic progression and success in higher education; and to what extent is a PTEEP score along with other academic and non-academic factors associated with academic progression?

Associations between PTEEP scores and academic performance

In a Humanities disciplinary context, associations between PTEEP scores and mean academic performance produce patterns of the kind illustrated in Table 3, which shows associations between bands of PTEEP performance and mean academic performance at the end of first year for two cohorts of Humanities students, viz. the 2004 and 2005 intakes. 'Bands' of performance refers to the grouping of PTEEP performance by deciles, as indicated in Table 3.

From Table 3, it is clear that students whose PTEEP scores were ranked in the top three deciles of test performance academically outperformed those students whose PTEEP scores were ranked in lower deciles. In Humanities, higher ranked PTEEP performance seems associated with a higher level of pass; lower ranked PTEEP performance associated with a lower level of pass. Furthermore, the mean academic performance levels of the decile 1–3 students are statistically significantly higher than the mean academic performance levels of both of the other two groups ($p < 0.01$). This suggests the decile 1–3 students to be likely to be academically more successful than those in the lower deciles.

Table 4 presents relationships between differential raw score PTEEP performance and subsequent academic performance for the 2004 cohort of Health Sciences registered students in their first (2004) and third (2006) years of study.

The following points can be made about Table 4:

• Differential levels of achievement in the PTEEP would seem to be associated with differential

Table 3: Associations between PTEEP scores and academic performance for first-year Humanities students (2004, 2005)

		Decile 8–10	Decile 4–7	Decile 1–3
2004	Mean	56.96%	59.92%	63.07%
	Count	66	189	281
2005	Mean	57.89%	59.15%	63.08%
	Count	107	214	317

Table 4: Mean academic performance by differential PTEEP performance for Health Sciences students in their first and third year of studies (2004, 2006)

	PTEEP <40%	PTEEP 40–59%	PTEEP >60%
Academic average 2004	54.4%	59.3%	68.3%
Academic average 2006	61.2%	63.2%	68.2%

levels of mean academic performance: higher test performance seems associated with higher mean academic performance.

- Each band of test performance appears to produce substantive change (improvement) in mean academic performance scores. The bands of performance track the bands of performance identified in Table 2 earlier: students whose PTEEP score is above 60% appear to be at low risk of under-performing academically; students whose PTEEP score is under 40% appear to be at risk of under-performing or failing academically at the end of first year.
- Except in the top test score band (test scores above 60%), students' mean academic performance from first year (2004) to third year (2006) has improved. The test may have appropriately identified students' capacity to cope with tertiary studies and to have benefited from teaching and learning even though it (the test) is not directly assessing school-syllabus knowledge.

The next two Tables (Table 5a and Table 5b) show the results of a regression analysis carried out with a cohort of Engineering Faculty students and for the group of students separated by population group. The following points can be made about Table 5(a):

- 'Regression model' here refers to those demographic and school and AARP Test performance factors that were of interest to the AARP (factors that at least theoretically could be expected to account for variation in academic performance).
- The following definitions of the factors in Table 5a apply: 'MatMath' refers to school-leaving Mathematics mark; 'MatEngl' refers to school-leaving English mark. 'PTEEP', 'MACH' and 'MCOM' are the three tests administered by the AARP; 'FacPt' refers to the weighted school-leaving aggregate score; 'HOA' refers to the former House of Assembly (or 'Model C') well-resourced school background of these students (a factor accounting for diversity in the student group at the commencement of studies); 'Eng' refers to the fact that some students are English first-language speakers (the medium of instruction); 'ADP' (Academic Development Programme) refers to the fact that some students are registered in an extended degree programme – as opposed to those registered in a conventional four-year degree programme in Engineering.
- For this analysis, the reference group is the black population group.
- 'HOA', 'Gender', 'Eng' and 'ADP' are dichotomous variables in the model: students are either in the 'HOA' group or 'other'; either female or male; either 'Eng' or 'other'; either 'ADP' or 'other'.

The analysis in Table 5a depicts the combination of variables that most accounts for variation in academic performance for the full cohort of Engineering students: the model shows that these factors account for approximately 60% of the variation. Moreover, the beta values suggest that those variables that are significant are: Faculty Point + MACH + the Indian population group.

For the group as a whole, school achievement (as captured in the faculty point score and the MACH) and a population group factor appear to be most strongly contributing to variation in performance at this first-year stage. The extent to which school achievement factors contribute to variation in first-year performance may be because the task and assessment demands made of first-year students are closely related to the academic demands made on secondary school students.

The regression analysis presented in Table 5b, however, also draws attention to the importance of disaggregating data – in this case, by population group. Focusing on the whole-group data suggests conflating the differences apparent in the variables associated with variation in performance for the two subgroups. For selection and prediction purposes, it seems important to note the differences in the variable 'mix' for the two subgroups – and to note the percentage of variation explained by the variables. Clearly, there are further variables contributing towards academic performance at the end of first year that are not assessed here – or the current variables may become more important sources of explaining variation beyond first year.

For black students as a subgroup, scores on one AARP test of potential (the MCOM) and being in an extended degree programme (such as an ADP) seem to make important contributions towards explaining variation and predicting performance at the end of first year (along with those academic achievement factors relevant to the group as a whole). Further stepwise regression analyses (not reported here) showed that the AARP test of potential in academic literacy (the PTEEP) and the variable of English as home language were also contributing to variation, but were not adding any

Table 5a: Multiple regression model of contributors to academic performance at the end of first year in Engineering faculty

Model		Unstandardised coefficients		Standardised coefficients	t	Sig.
		Beta	Standard error	Beta		
1	(Constant)	0.173	5.333	–	0.032	0.974
	MatMath	0.049	0.093	0.055	0.525	0.600
	MatEngl	−0.019	0.066	−0.026	−0.285	0.776
	PTEEP	0.050	0.074	0.055	0.673	0.501
	MACH	0.178	0.057	0.246	3.151	0.002
	MCOM	0.004	0.043	0.006	0.088	0.930
	FacPt	0.832	0.173	0.502	4.802	0.000
	HOA	1.296	1.768	0.050	0.733	0.464
	Gender	0.777	1.290	0.030	0.602	0.548
	Coloured	−1.700	2.167	−0.050	−0.785	0.434
	Indian	−5.497	2.663	−0.136	−2.064	0.040
	White	1.480	2.283	0.063	0.648	0.518
	Eng	−0.543	2.131	−0.023	−0.255	0.799
	ADP	2.908	1.555	0.107	1.871	0.063

Model	R	R square	Adjusted R square	Standard. error of the estimate
1	0.769	0.592	0.568	7.650441

Table 5b: Stepwise regression of contributors to academic performance at the end of first year for black and white students in Engineering faculty

Pop group	Model		Unstandardised coefficients		Standardised coefficients	t	Sig.
			Beta	Standard error	Beta		
1B	1	(Constant)	18.563	6.909	–	2.687	0.009
		FacPt	0.782	0.139	0.529	5.648	0.000
	2	(Constant)	20.509	6.651	–	3.084	0.003
		FacPt	0.633	0.142	0.428	4.444	0.000
		MCOM	0.141	0.049	0.279	2.900	0.005
	3	(Constant)	16.849	6.723	–	2.506	0.014
		FacPt	0.657	0.140	0.444	4.700	0.000
		MCOM	0.158	0.048	0.313	3.276	0.002
		ADP	3.380	1.567	0.194	2.157	0.034
4W	1	(Constant)	−0.165	6.869	–	−0.024	0.981
		FacPt	1.207	0.121	0.719	9.975	0.000
	2	(Constant)	−6.748	7.437	–	−0.907	0.367
		FacPt	1.264	0.122	0.753	10.370	0.000
		Gender	4.101	1.950	0.153	2.103	0.038

Pop Group	Model	R	R square	Adjusted R square	Standard error of the estimate
1B	1	0.529(a)	0.280	0.271	7.462487
	2	0.590(b)	0.348	0.332	7.146624
	3	0.619(c)	0.384	0.361	6.990727
4W	1	0.719(a)	0.517	0.512	7.233585
	2	0.734(d)	0.539	0.529	7.104097

significant amounts to this variation other than that added by the MCOM. Taken together, Faculty Point, the MCOM and the PTEEP account for approximately 35% of the variation in academic performance. For the white subgroup, the AARP tests seem less associated with performance than do school-leaving indicators. Nonetheless, the results of the above analysis underscore the value of using both the AARP tests and the school-leaving indicators for selection and predictive purposes. At this academic year-of-study stage, the combination of both sets of scores – particularly for black students – seems more powerful than one set on its own.

Concluding discussion

Perhaps the single most important outcome of this article has been its focus on the assessment of students' entry-level academic literacy in a context of diversity. The introductory discussion argued that, in this context of diversity of student intakes, it was becoming necessary to consider the potential of students to engage in higher education study even when their achievements in traditional school-leaving examinations do not appear to make them suitable for this study. Clearly, in a context where secondary-school educational provision has been adequate and well resourced, there may be no need to consider such alternative measures. However, where this provision has not been adequate or where students come from backgrounds that might mean they are under- or unprepared to meet the demands of higher education study, some form of alternative assessment of their potential may be necessary. Of course, it could be argued that such students are not fit for enrolment in higher education study, but that argument would – in light of the introductory discussion on massification, globalisation, equity and throughput – be ideologically and practically inappropriate.

In the Humanities and Health Sciences research contexts described in this article, the PTEEP as a test of academic literacy would appear to have some predictive power in terms of suggesting the likelihood that students will be academically successful. Furthermore, it would seem that higher levels of achievement in the test would be predictive of higher levels of subsequent academic achievement. The research in the Engineering context, however, demonstrates that scores on an academic literacy test such as the PTEEP may contribute more significantly to variation in academic performance in cases where students' educational and backgrounds have historically been less well-resourced. This research also suggests that a test of Mathematics potential – the MCOM – is more predictive of variation than is the PTEEP.

When the issue of attempting to access students' potential for study is addressed – along with trying to understand the concomitant demands this places on curriculum provision – it should be clear from the research described in this article that this is a complex undertaking. Underprepared students, almost by definition, are unlikely to respond to typical higher education academic tasks in theoretically or practically anticipated ways. The focus of assessing their potential for responding to these tasks, therefore, lies in assessing the extent to which their educational backgrounds might be said to have influenced their performance on, for example, tests of academic literacy and making a judgement about what this means about placing these students in appropriate forms of curriculum.

Importantly, the article shows that potential and achievement might perhaps be better understood if they are assessed as non-uniform constructs: in a context of student diversity, potential and achievement are nuanced by demographic factors that, if ignored, might mean that talented students are excluded from participation in higher education. In the South African case specifically, demographic factors such as school background or population group continue to play an important part in understanding talent and achievement. What this article has illustrated is that, for white students from traditional, well-resourced school backgrounds, conventional school-leaving achievement still contributes strongly to academic achievement. For black students, however, tests of potential (such as the PTEEP and the MCOM) appear to contribute to academic achievement in ways that should not be ignored. The combined effect on academic performance of school achievement and measures of potential, however, is still smaller for black students than is the effect of school achievement for white students. Nevertheless, the importance of using measures in addition to school achievement for students from diverse educational backgrounds seems to have been underscored by the fact that the combined measures account more for variation in academic

performance than do the measures separately.

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