

University performance of learners from vocational versus traditional backgrounds in Equine and Animal Studies.

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SUMMARY

The relationship between previous study route and subsequent success at University was explored in a retrospective study of 196 Animal and Equine students at Nottingham Trent University. It was found that students who had studied A-levels achieved higher degree marks in the second and final years of study, compared to those who had studied a National Diploma. In the traditional entry group, GCSE and UCAS tariff points were significant predictors of academic performance at University. In the vocational group, however, whilst GCSE results were predictive, tariff points awarded on the basis of National Diploma profile were not.

INTRODUCTION

Lifelong Learning Networks are charged with increasing access to Higher Education for vocational learners. However it is important that these students do not simply progress to Higher Education, but are also likely to succeed at this level. The experience should be beneficial in terms of providing increased opportunities for successful graduates.

Prior to the government drive for Widening Participation in Higher Education, Watt and Paterson (2000) stated that admissions tutors preferred students with traditional entry qualifications, claiming that their academic performance was more predictable. This was despite Peers and Johnsons (1994) findings that A-levels are, at best, only modest predictors of University performance. Others (e.g. Thomas, 2001) have found that entry qualifications are not necessarily a good indicator of student ability or performance, and that the support the student receives on entering HE has a greater effect.

Aston (2004) claimed that vocational level three qualifications do not prepare learners for higher education study. Within Veterinary and allied subject there is, however, little research to date to compare the academic performance of learners who have progressed via a vocational route with those from a more traditional academic background.

Nottingham Trent University (NTU), School of Animal, Rural and Environmental Sciences, currently offers two Equine Science and two Animal Science courses at undergraduate level. All four courses incorporate the development of practical and investigative skills required by the various industries, together with a thorough background of scientific knowledge. The courses aim to improve the students' abilities to think critically and solve problems. This supports a combination of vocational and academic content, which collectively attribute to graduate skills.

Entry requirements are currently two hundred and twenty UCAS tariff points, including a science subject at 'A' level or applied 'A' level, or a Merit profile in BTEC National Diploma in Horse or Animal Management . Other equivalent subjects are considered, and applications are also encouraged from mature students who may not have formal entry qualifications, but who can demonstrate commitment or relevant experience.

AIMS

The current study was a retrospective analysis of the effect of previous study route on subsequent academic performance of undergraduates in the School of Animal, Rural and Environmental Sciences at Nottingham Trent University. The primary aim was to compare the performance of students who had progressed via a vocational (National Diploma) route with those who had studied A- levels.

METHOD

Participants

The sample analysed was comprised of 196 students (10 males and 186 females) who graduated in Animal and Equine related degree courses at Nottingham Trent University between 2003 and 2007. The sample was restricted to young participants (aged 21 or under at the time of entry) to ensure that the group would have received fairly similar cultural experiences prior to University. Participants whose records were incomplete were excluded, but those who had progressed via a Foundation Degree were not.

Academic Records

Academic records for each participant were retrieved from their student files. These contained a copy of their original UCAS (Universities and Colleges Admissions Service) form along with details of their academic performance at College and University. The variables considered included: age at entry, GCSE grades and subjects, UCAS tariff points, and mean marks at the end of the first, second, and final year of study. AS grades were *not* considered in this study. Student files and the data contained within these are the property of the University, but for ethical reasons and to comply with data protection regulations, the data used in this study were anonymously coded and cannot therefore be traced back to individual students.

GCSE, A-level, and National Diploma results were coded according to the current UCAS grading system (UCAS, 2008).

RESULTS

The data were screened and corrected for input errors, outliers, and missing data, reducing an initial sample size of 234 to the final 196 used in the analysis. Table 1 displays descriptive statistics for both participant groups.

Table 1: Descriptive statistics for graduates according to study route

Variable	Category	Result	
		Traditional	Vocational
Median academic grades prior to University	GCSE English	B	C
	GCSE Maths	B	C
	GCSE Science	B	C
	UCAS Tariff points*	240	240
Performance at University (%)	End of 1 st year marks	60.5	58.5
	End of 2 nd year marks	60.8	56.5
	Final degree marks	58.4	53.3

*Computed from best 3 A-level grades OR National Diploma profile

Predicting degree performance from previous results

Pearson's correlations were used to explore the relationship between variables (see table 2). Although GCSE and UCAS points are ordinal parameters, the data broadly satisfied the conditions for normality and were therefore treated as scale data. This is consistent with the methodology employed by other researchers (McDonald, Newton, Whetton & Benefield, 2001).

It can be seen that inter-correlations between GCSEs are similar for both participant groups, as are correlations between GCSEs and final degree marks. However, there is a lack of parity in the correlations between UCAS tariff points and all other variables. This suggests that the tariff points for A-levels and those awarded for the National Diploma lack equivalence.

Table 2: Correlations between previous academic results and Degree performance

		GCSE Maths	GCSE English	A-level Tariff points	Final Degree Mark
GCSE Science	Traditional	.58**	.46**	.31**	.34**
	Vocational	.59**	.56**	.02	.32*
GCSE Maths	Traditional		.41**	.25*	.30**
	Vocational		.47**	.03	.10
GCSE English	Traditional			.40**	.40**
	Vocational			-.10	.32*
UCAS Tariff points	Traditional				.47**
	Vocational				.06

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Effect of previous study route on degree results

To explore the effect of previous study route on academic performance at University, an independent samples *t* test was used to compare the marks of participants who had studied A-levels (traditional route) with those who had progressed via a vocational route. Table 3 shows that there was no difference in performance in the first year. However, in the second and final years, participants who had studied A-levels achieved significantly higher marks.

Table 3: Effect of previous study route on degree performance

	Route	N	% Marks Mean (SD)	t
1 st year marks	Vocational	26	58.45 (5.99)	-1.38
	Traditional	73	60.51 (6.72)	
2 nd year marks	Vocational	29	56.49 (6.41)	-3.07**
	Traditional	75	60.78 (6.37)	
Final marks	Vocational	47	53.25 (6.97)	-3.61**
	Traditional	89	58.42 (8.39)	

** Difference is significant at the 0.01 level (1-tailed).

Effect of previous study route on degree classification

Figure 1 demonstrates the difference in degree classifications of participants from a traditional versus vocational route. The profiles of participants who had achieved a 2.1 or above compared to those who had not were also compared (see table 4): A 2.1 was used as a cut off point as this is often considered to be the hallmark of a successful graduate, allowing progression to further qualifications, and often stipulated as a requirement by employers.

Figure 1: Distribution of degree classifications for vocational and non-vocational learners

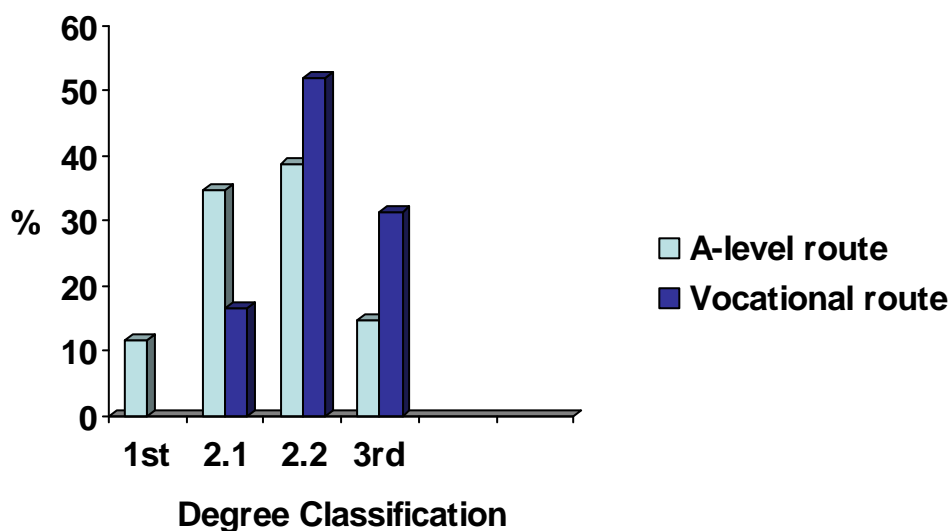


Table 4: Distribution of participants according to degree classification

		Degree classification		Total
		2.1 or above	2.2 or below	
Route	Traditional (A-levels)	42	47	89
	Vocational	8	39	47
Total		50	86	136

A Chi-square test of independence showed that the number of participants achieving a 2.1 or higher was significantly higher in the traditional entry group, $\chi^2(1, 136) = 12.04, p < .01$.

DISCUSSION

This study aimed to compare the performance at Higher Education of students who had progressed via a vocational route with those with traditional qualifications.

Predicting Degree Results from Previous results

The initial profile of vocational learners indicate a lower attainment level at GCSE (median grade of C compared to a B for traditional entry learners). This, of course, may have affected their subsequent study choices. The mean UCAS tariff points are, however, the same, implying either that vocational learners have improved their performance, or that the tariff points lack parity.

For participants from a traditional study route, degree performance was modestly related to previous results, with UCAS tariff points predicting 23% of the variance in final degree marks. This is similar to the results of previous studies. Peers and Johnsons' (1994) pioneering work in the area indicated an overall predictive effect of just 8% for A-levels, although there was some variation across subject areas. GCSE

results were also predictive, which supports their use in the selection process for University entrance. Science GCSE grade in particular has been consistently found to be a good predictor of future academic performance (Huws, Reddy & Talcott, 2006; James & Chilvers, 2001; Wong & Wong, 1999). This is more likely due to the analytic and research skills required to perform well in Science, however, than the subject specific knowledge attained.

For vocational students, however, although GCSEs showed a similar predictive effect, there were no significant correlations between UCAS tariff points and previous or future academic performance. This suggests that the grades awarded for the National Diploma results lack parity compared to other academic qualifications, and therefore provide little useful information for the selection process.

Effect of previous study route on Degree Performance

The results demonstrate that students from a traditional background out-performed vocational learners. There was a significant difference in marks attained in the second and final years, and less vocational learners graduated with a 2.1 or above.

It is interesting to note that there was no difference in marks for the first year of study. This would imply that vocational learners perform equally well at descriptive tasks, but do not develop the analytic and evaluative skills required to perform well in later years. There may also be an effect of the assessment strategy, with increasing emphasis on examination as students progress through their HE course.

It would seem that UCAS tariff points awarded for the National Diploma lack parity with those awarded A-levels and have little predictive effect for performance at Higher Education. If this is the case nationally, then the allocation of places on the basis of National Diploma profile would seem to have no basis, and an alternative method of discrimination may be required in order to select vocational learners who are most likely to perform well in Higher Education.

Implications

The results of this pilot suggest that there is a difference in the profiles of vocational and traditional learners at HE level. It is possible that these learners are operating at their academic limit, and the fact that they are achieving at all at HE is a measure of success in itself. It may be inappropriate to compare their academic performance with other learners who possibly have a higher cognitive ability. The parameter for 'success' at University is often taken to be final grade achieved, whereas within a Widening Participation context this should perhaps be defined as 'degree achieved'. Robbins et al (2004) identified one of the problems in assessing academic success to be "lack of conceptual clarity with regards what constitutes a college outcome" (p262).

However, it may be that vocational learners have similar potential to succeed at HE as their peers from traditional backgrounds, but require intervention strategies to help them develop the evaluative skills required to perform well at higher levels. Thus further investigation is warranted.

Anecdotal evidence suggests that students progressing from FE experience difficulties with the different delivery techniques and assessment methods used at HE; correct referencing of their work and the ability to critically evaluate are examples. The students may also have certain expectations from their tutors when embarking on a HE course, which can cause initial problems.

The close working relationship between HE and FE staff at NTU facilitates discussions on individual students progressing from level three to level four. Students progressing from FE colleges to HE courses at other HEI's are likely to find the change more difficult. The development of formal Progression Accords, along with appropriate bridging courses between FE and HE institutions would undoubtedly ease this transition for the learner.

Study limitations and further work

Retrospective studies are always limited to some extent by the effects of range restriction. The relatively small sample size also meant that it was not possible to analyse subject areas and individual study modules separately. It would therefore be useful to repeat the study with a larger sample size across a variety of institutions. More detail regarding exact study pathways would provide further information on the differences between groups. For example it would be useful to identify if the performance difference is evident across all courses / modules or restricted to certain areas requiring greater analysis (eg research studies / independent studies). This information could be used for

- Information and guidance for vocational students considering progressing to Higher Education
- Developing selection criteria that allow institutions to discriminate effectively between applicants from a vocational route
- Improving curriculum alignment between FE and HE courses
- Developing intervention strategies, e.g. bridging courses to assist vocational learners to maximize their academic potential

CONCLUSIONS

This study identified clear differences in the academic performance of learners from a vocational background compared to those who had studied traditional qualifications. Vocational learners achieved lower degree outcomes than those who had studied A-levels. Further study would be useful in order to explore the reasons for these differences.

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