CAMBRIDGE ASSESSMENT

Summary of Research into the Predictive Validity of the TSA

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1 June 2007

Summary of correlations of TSA scores and Tripos results

Computer Science	N	Problem Solving	Critical Thinking	Overall TSA Score
TSA 2003/1A 2005	67	.419**	.315**	.445**
TSA 2003/1B 2006	59	.360**	.324**	.435**
TSA 2004/1A 2006	47	.144	.110	.137

Economics	N	Problem Solving	CT Critical Thinking	Overall TSA Score
TSA 2003/1 2005	25	.311	.272	.323
TSA 2003/2A 2006	22	.349	.323	.351
TSA 2004/1 2006	54	.375**	.430**	.484**

Engineering	N	Problem Solving	Critical Thinking	Overall TSA Score
TSA 2003/1A 2005	106	.229**	.116	.203*
TSA 2003/1B 2006	95	.145	.124	.155
TSA 2004/1A 2006	121	.158*	.129	.160*

Natural Sciences	N	Problem Solving	Critical Thinking	Overall TSA Score
TSA 2003/1A 2005	106	.192*	.213*	.233**
TSA 2003/1B 2006	105	.222*	.162*	.229*
TSA 2004/1A 2006	225	.235**	.190**	.235**

** Correlation significant at the 0.01 level (2-tailed).
* Correlation significant at the 0.05 level (2-tailed).

The accepted applicants are a highly-selected group, and have a narrower range of test scores than that of the cohort as a whole. This *range restriction* tends to produce poor correlation coefficients: the greater the selection the weaker the coefficient. It is therefore common practice in validity studies to adjust for these effects by using corrective formulae to increase the strength of the coefficients (Sackett and Yang, 2000). However, the selection process here is too complex to make these appropriate. Thus the correlations presented throughout this report are simple, uncorrected figures, and may well underestimate the predictive validity of the TSA.

Guidelines for Interpreting Correlation Coefficients in Validity Studies

Validity Coefficient	Interpretation
Above 0.35	very beneficial
0.21 to 0.35	likely to be useful
0.11 to 0.20	depends on circumstances
Below 0.11	unlikely to be useful

(US Department of Labor, Employment Training and Administration, 1999)

Correlations between TSA scores and subsequent performance on 1st and 2nd year examinations tend to be in the 'likely to be useful' and 'very beneficial' ranges, despite these being highly-selected samples of students.

Analysis of TSA 2003 scores and first year Tripos performance separately for home and overseas students.

TSA 2003/PartIA		N	Problem Solving	Critical Thinking	Overall TSA Score
Comp. Sci.	All	65	.417**	.331**	.453**
	Home	55	.460**	.356**	.501**
	Overseas	10	.809**	.622	.894**
Economics	All	25	.311	.272	.323
	Home	18	.326	.282	.347
	Overseas	7	.277	.235	.262
Engineering	All	106	.229*	.116	.203*
	Home	73	.310**	.281*	.347**
	Overseas	32	.513**	.179	.405*
Nat. Sci.	All	106	.192*	.213*	.233*
	Home	97	.201*	.228*	.246*
	Overseas	9	.299	.468	.562

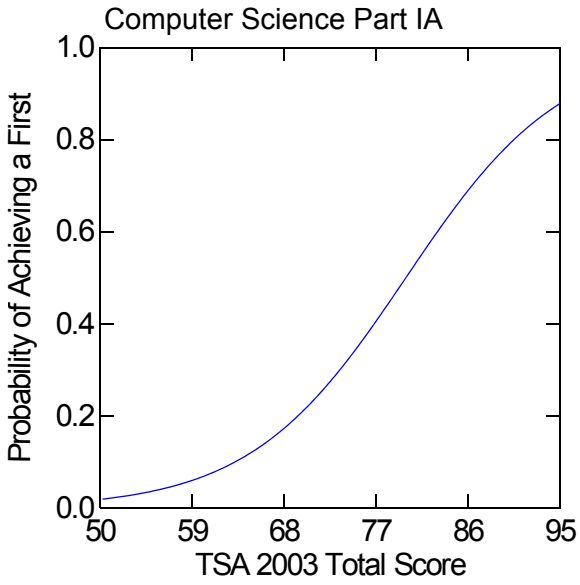
** Correlation significant at the 0.01 level (2-tailed).

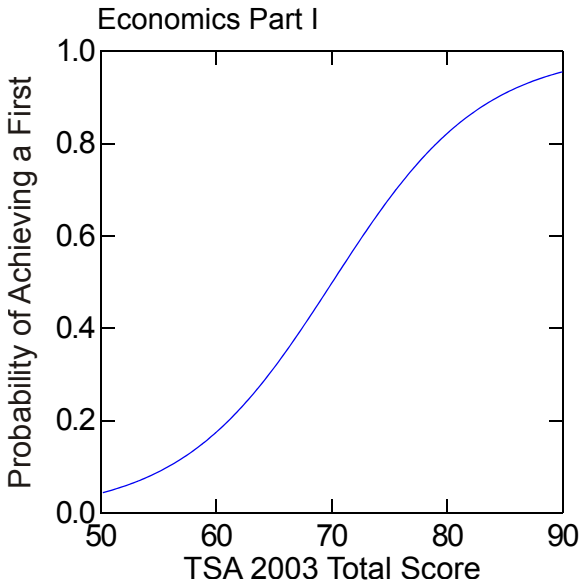
* Correlation significant at the 0.05 level (2-tailed).

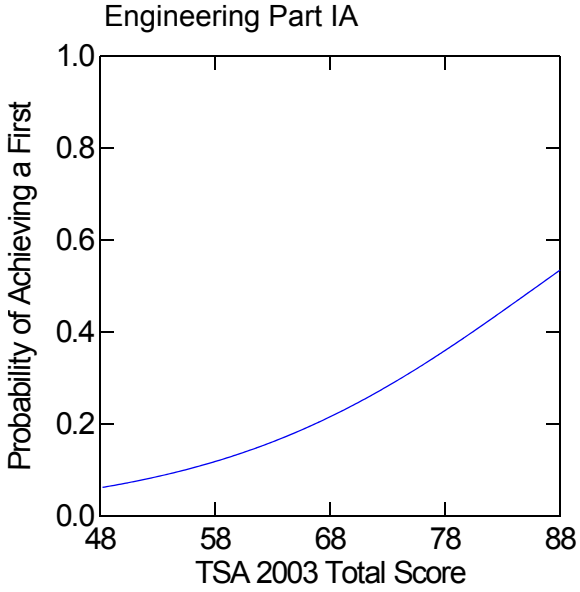
When correlations between TSA scores and first year Tripos results are analysed separately for home and overseas students, higher correlations are observed in most cases.

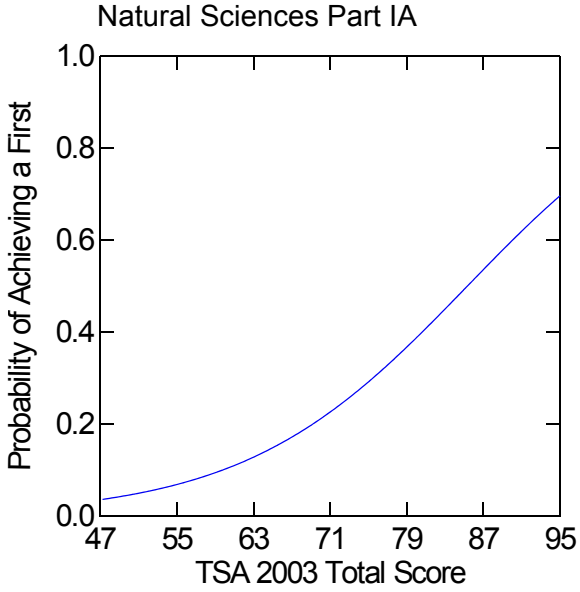
We are working closely with the Admissions Office to gather data to investigate the possible reasons for these observations.

Logistic regression plots of the probability of achieving a 1st Class exam outcome as a function of total TSA score.









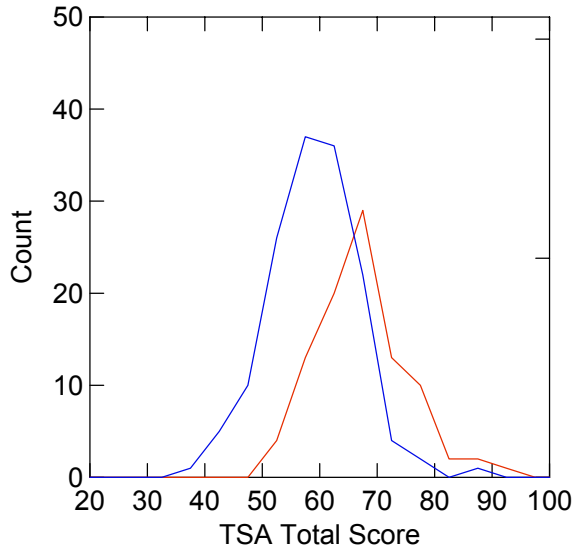
The logistic regression plots indicate that, even when correlations appear modest, there are strong positive relationships between TSA scores and the probability that students will achieve a 1st in their first year Tripos examinations.

The ranges of the scores on the x-axes cover those achieved on the TSA by successful applicants for each course. The distributions of scores of accepted and rejected candidates are shown overleaf.

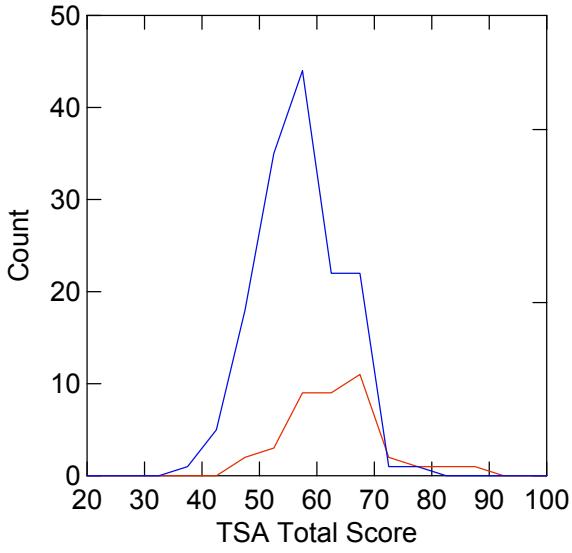
Unlike correlation, logistic regression makes no assumptions about the distribution of the independent variables. They do not need to be normally distributed, linearly related or have similar ranges in each group. It may therefore be a more appropriate method in this case.

TSA Total Score Distributions for Accepted and Rejected Candidates in 2003

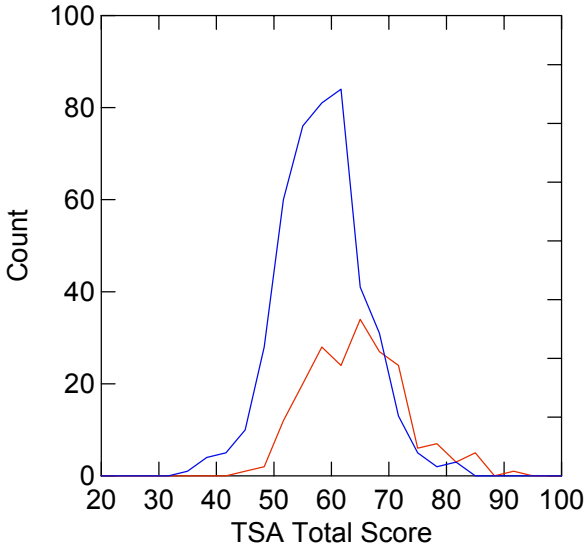
Computer Science Applicants



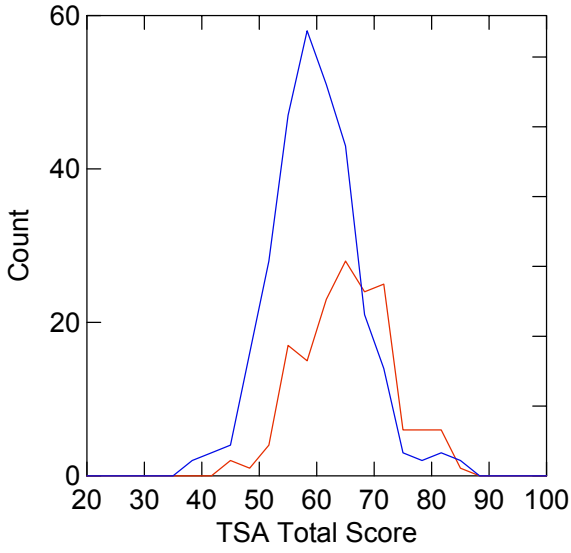
Economics Applicants



Engineering Applicants



Natural Sciences Applicants



Accepted
Rejected