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The Rise and Fall of Optometry?

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Optometry Degree Admissions

Degree courses in Optometry were introduced in the United Kingdom back in the mid-1960s. At that time you could gain admission without too much difficulty with the lowest possible combination of A-levels - just a couple of E's, although the norm was closer to 'CD' or 'DDE'. Over the next 15 years, applications climbed rapidly to peak for England and Wales at 1,075 for those indicating an optometry preference. All told 1,300 candidates included optometry somewhere in their UCCA application in 1979 and on top of this there were people who applied solely to the Glasgow department (French, 1982a). In the same period of time, the actual UK admissions to all departments increased, flattening out at a little over 300 (Figure 1).

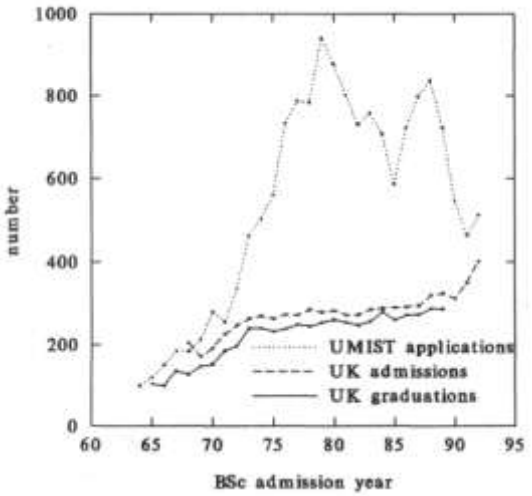

Figure 1: UMIST optometry applicants, and UK Optometry admissions & graduations (including Glasgow) by year of entry (1964 to 1992).

Since 1987, optometry admissions have risen dramatically. A modest increase in 1989 and a fall in 1990 might have led the outside observer to assume that little was changing. But substantial rises in 1991 and 1992 mean that the United Kingdom annual degree intake has now passed 400 students for the first time. We have yet to see this massive increase impact graduation and registration numbers. There is of course a four years plus delay between admissions and registration and it will be 1995 and 1996 before these latest recruits seek employment. If departments fully absorb these increases it is hard to see their universities agreeing to substantial decreases later.

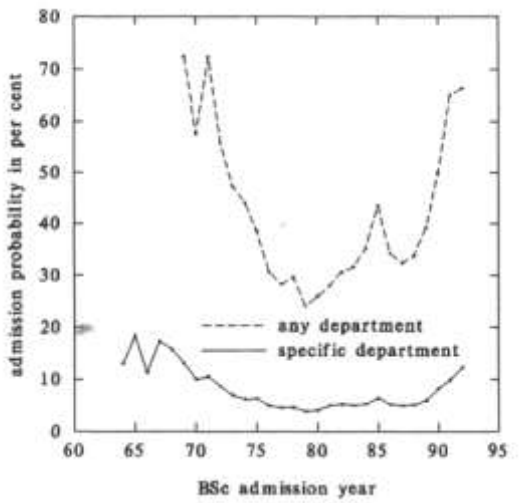

Figure 2: Ratio of admissions to applicants (Optometry First choice on UCCA form) for England & Wales and for UMIST expressed as a percentage over the period 1964 to 1992.

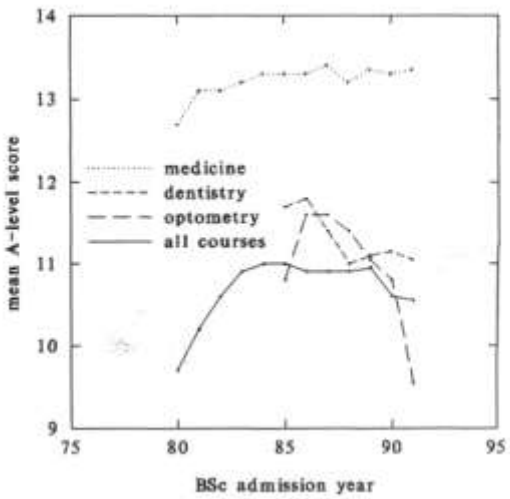

Figure 3: Average A-Level point scores of all university entrants and those entering medicine, dentistry and optometry according to UCCA reports for 1980 to 1991.

The bizarre thing is that this record number of entrants to the training institutions is occurring at a time when the number of applications has returned to levels prevailing in the early 1970s. If we divide the number of applicants to a department by the number of entrants we get a ratio which is a statistic commonly used by departments to illustrate their popularity. For optometry this ratio peaked at over 25:1 in 1979. Even today figures as high as 8:1 can easily be quoted. Unfortunately, this statistic gives a very false impression of the selectivity of a course, often misleading the casual observer. On average each potential student will make four or five applications to optometry. Taking account of this we find that a candidate had a very high, two in

three, chance of getting onto an optometry course in England and Wales in the last couple of years compared with only a one in four chance in 1979 (Figure 2).

The consequence of the fall in optometry applications has been that departments have felt obliged to drop their asking grades with A-level performances like 'DDE' once more being given serious consideration. The average A-levels of

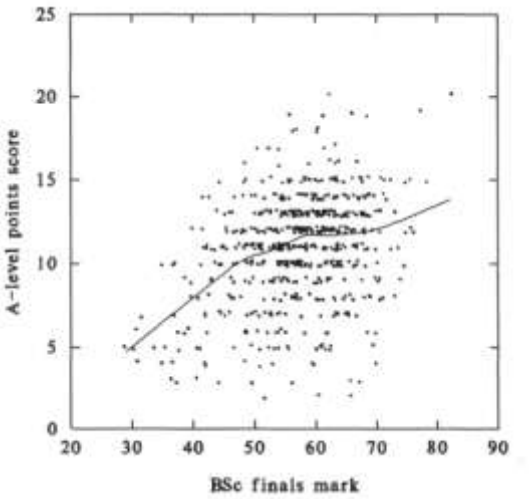

Figure 4: A-level point scores of UMIST graduates vs. marks achieved in BSc (Hons) Finals examinations for 1968 to 1992. The correlation is 0.34 with n=619. The line represents a smoothed average.

those entering via these qualifications have always been below those entering medicine and they haven't been too dissimilar to those entering dentistry, indeed they have occasionally been higher. But in 1990 they fell significantly below those of the dentists and in 1991 the dropped below the average for UCCA as a whole, despite the latter's own decline (Figure 3). The clear question arises should we be concerned about these developments? Does it matter that too many optometrists are apparently now being recruited? Does it matter that the quality of

Class of Degree	A-Level Points		
	mean	s.d.	n
1st Hons	12.5	2.9	49
2-i Hons	11.6	2.9	219
2-ii Hons	10.9	2.9	250
3rd Hons	9.5	3.2	64
no degree	9.4	3.7	47
Subsequent PhD	9.6	3.9	14

Table 1: A-levels of UMIST graduates by degree awarded (1978-92). Points as follows: E=l, D=2, C=3, B=4 & A=5. (Since 1989 a scale where E=2, D=4, C=6, B = 8 & A=10 is more common.)

Class of Degree	AH5 Intelligence Score		
	mean	s.d.	n
1st Hons	42.4	7.1	43
2-i Hons	41.0	6.2	202
2-ii Hons	39.3	7.6	241
3rd Hons	36.6	9.8	52
no degree	38.5	9.2	31
PhD before or after	45.7	9.6	11

Table 2: Intelligence scores of UMIST Optometry BSc graduates between 1978 and 1992.

entrants selected on the basis of their A-levels has declined? Much of what follows is based on UMIST data. While the UMIST experience will undoubtedly not be identical to that of other departments it is unlikely to be radically different.

Predicting Academic Success in Optometry

The last 15 years has seen a slight reduction in the proportion of students being admitted on the basis of their A-levels and increases in the number of overseas and mature students. Despite this, A-level performance remains far and away the most important criterion. Earlier research (French, 1982b) has shown that school teachers provide a slightly optimistic but quite valid prediction of A-level performance (r = 0.71 for points score with teachers overestimating performance on each A-level subject by around one grade), whilst A-level scores themselves achieve a modest prediction of university success (which falls off as the interval of time between A-level and examinations increases). For this reason it would be foolish to disregard A-levels. Most admissions tutors probably try and take into account other factors which they feel may also be indicative of student potential - whether it be school reports or other information gleaned from the student.

At UMIST, A-level grades correlate 0.34 (n = 619) with optometry finals examination marks indicating 12 per cent (r-squared) variance in common (Figure 4). If we look at the actual classes of degree achieved we can see that on average each of these differ by around just one A-level point (Table 1).

Over the last 22 years I have given students entering UMIST, short tests of intelligence -partly to see how important intellectual ability is in university optometry performance. I have used Alice Heim's AH5, a test designed to differentiate among above-average abilities. The results obtained are a little more positive than the preliminary ones reported earlier (French, 1982b). At that time virtually *no* correlation was found! Today the correlation revealed with degree performance, whilst statistically significant, is smaller than that for A-levels at only 0.21 (n = 563 for 1971-92, 4 per cent of variance in common) but is at least positive. Comparison of

the intellectual abilities of students by the degrees awarded (Table 2) shows that on average the classes differ by a couple of points with many examples of under- and over-achieving. It is noteworthy that on average those who leave UMIST without obtaining a degree do not have lower intelligence scores than those scraping through with thirds - indicating, of course, once again the importance of other factors than intellectual ability.

It might have been expected that intelligence scores would provide a better predictor of university performance than they do and one can only speculate on the relative lack of success. Possibly part of the problem is the narrow band of ability involved and if there were more high ability students then agreement would be expected to be better. Despite this, the main factor seems likely to be that any test of ability aims to be relatively "pure" and by design does not attempt to measure motivation, effort or other personality factors that contribute to effective study. Undoubtedly, some high ability students have learned to get by with the minimum of work while others less well-endowed have learned that they need to work hard to compensate for their

Oxford PPP Degree Class (Argyle & Spencer, 1967)	AH5 Intelligence Score	
	mean	n
Firsts	49.9	19
Seconds	44.5	90
Thirds & Fourths	39.8	51

Table 3: Intelligence scores for some Oxford University BSc finals degrees reported in the AH5 manual.

lack of ability. Also other unassessed skills may be important. Despite this, the AH5 manual (1968) quotes similar but somewhat higher correlations with other university examinations -0.27 and 0.31 for psychology exams and 0.38 for medical students' MB (14% variance in common). It is important to remember the formula "Performance = Ability x Effort" which is a very important principle of life in general. Without effort, ability will not manifest itself in performance and without ability no amount of effort will have the desired effect.

Some optometry students with poor A-levels or relatively low intelligence scores have undoubtedly gone on to become excellent optometrists, optometry examiners and obtain PhDs. This again confirms that A-levels and intellectual ability are just part of what makes for academic and professional success. On the other hand it also needs to be remembered that entrants with poor A-levels may well (particularly in the middle years, the late 1970's and 1980's) have been selected because of other qualities that the admissions tutors then saw as desirable - in other words where it was felt that the A-levels did not

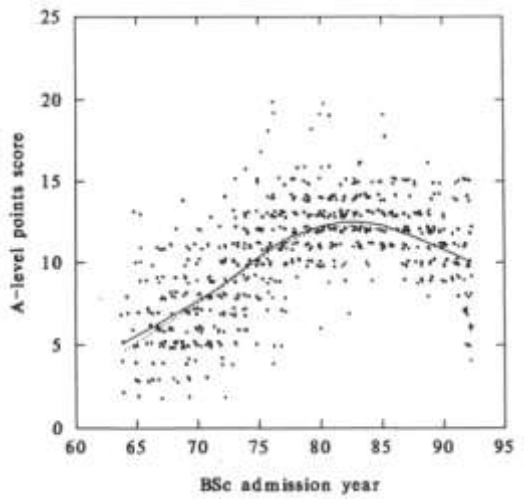

Figure 5: Entry qualification A-level scores of teenage, home students in UMIST optometry. Curves represent smoothed averages. Including mature & overseas (dashed) makes little difference.

properly represent the applicant's true potential. This means of course that they may not be representative of people with such A-levels in the population at large.

These UMIST figures compare with norms given in the manual 25 years ago which showed similar comparison for an Oxford PPP examination (Table 3).

Trends Over the Years

The average A-level score at UMIST correlates quite highly with the ratio of applications to admissions in that year (r=0.86, n=29) to produce a clear, curvilinear trend - downward in recent years (Figure 5). Excluding mature and overseas students produces a curve which differs very little.

The pattern of results over the years for intelligence scores is quite different (Figure 6). Between 1972 and 1992 the average score has

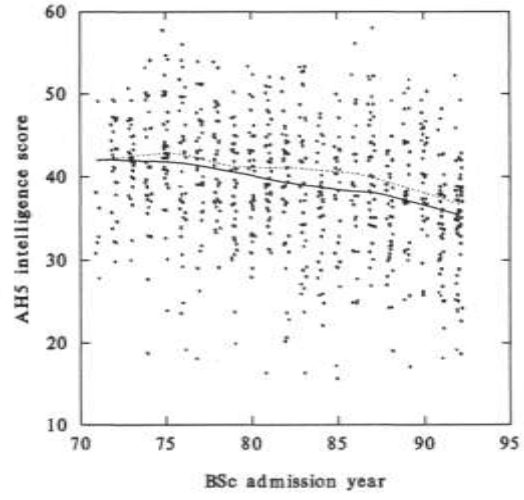

Figure 6: AH5 scores for entrants to UMIST optometry course from 1971 to 1992. Lines show smoothed averages for all students and for home students with English as first language (dashed).

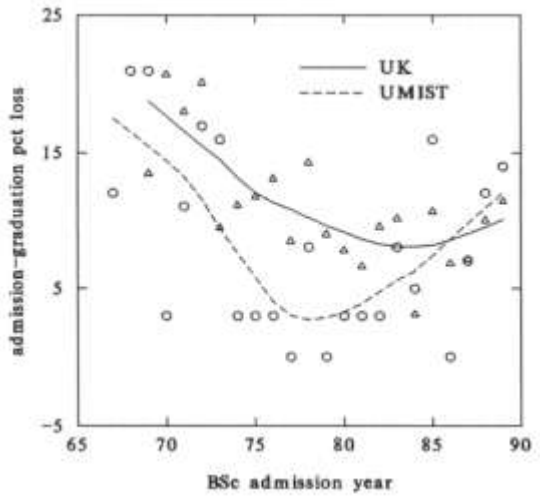

Figure 7: Optometry BSc loss rates with curves based upon smoothed average for all departments and UMIST.

declined substantially, by 7 points from 42 to 35. This, despite widely reported national trends towards population intelligence increases (Lynn and Hampson, 1986). Even when intelligence

Sex	Origin		
	Home	Overseas	Both
Male	8%	20%	9%
Female	8%	29%	9%
Both	8%	25%	9%

Table 4: Net BSc loss rate between admission and graduation for the 5 years graduating in the period 1988-92.

scores are restricted to teenagers whose first language learned as a child was English and overseas students are excluded a decline of 7 points is still revealed.

Recently, UMIST staff have been increasingly concerned over examination performance. Whilst not keen on failing students, they have been reluctant to award Honours degrees to those whom they feel do not deserve them. With this in mind they re-introduced the Ordinary degree for 1991 entrants (it had been withdrawn in 1978 on instructions from UMIST). The Ordinary course maintains the clinical content but otherwise reduces the number of examinations.

Although the pattern is inevitably a lumpy one, over the years UMIST failure rates have increased as applications/admissions ratios have declined (r—-0.68). UMIST's optometry failure rates have usually been low in comparison with national ones. It was common in the 1970s to lose only one student between admission and graduation. But in the last couple of years the department has exceeded the UK average for optometry (Figure 7). Despite this, the figures are still not out of line with those for other degrees and other universities and unlikely (unless they further increase radically) to compensate for the very large recent increase in admissions.

Table 4 shows the failure rates averaged for the last five years over the five departments and broken down by sex and whether the students are 'home' or 'overseas'. This makes clear the substantially higher failure rates for overseas students and shows the lack of any difference between men and women amongst the home students. We will need to wait a couple of years to see what impact the reduction in entry standards will have on these figures.

The Future and the Profession

In summary, we can say that the last three decades show a growth in training for optometry which has continued unabated - despite a substantial decline in the number of applications and declines in the apparent capability of applicants. As yet no evidence has been presented of any need for recruitment at the current level and what evidence there is (French, 1988a; French, 1988b) points to too many optometrists now being trained.

More and more, less able students have been

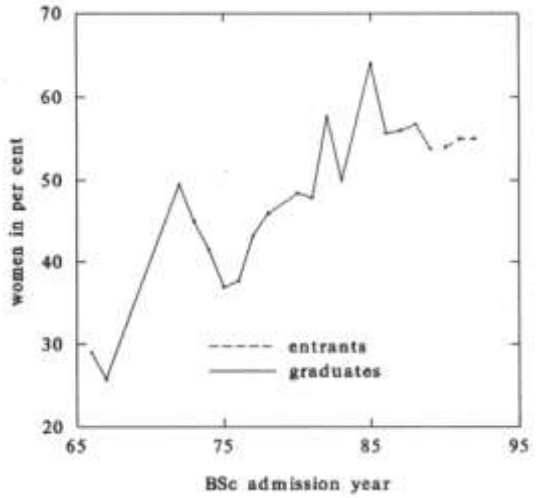

Figure 8: Proportion of women being recruited to optometry between 1966 and 1992.

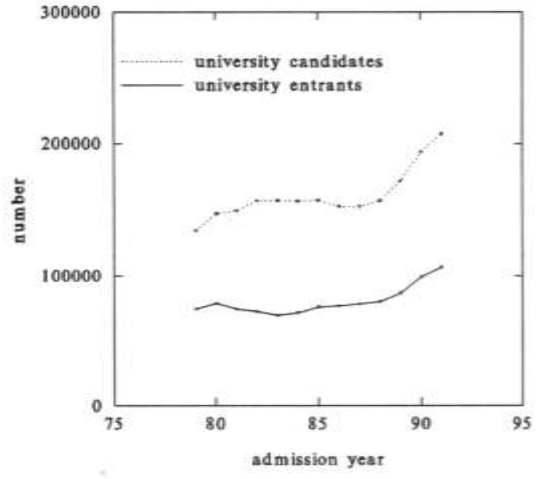

Figure 9: University applicants and entrants for all degrees from 1978 to 1991, according to UCCA reports.

recruited as optometry departments and universities put their own futures, and not the profession's, to the fore.

These days it is accepted (French, 1989) that the working lives of professional women are substantial (up to around three-quarters of men's in terms of FTEs) and this has been taken into account by the most recent, detailed manpower projections (French, 1988b). There has been no recent increase in the number of women being recruited - a line that scaremongers used to take -and all the signs are that the recruitment of women has stabilised (Figure 8) at 55 per cent -well below the most extreme (65 per cent) figure contemplated by French (1988b) in his projections.

If we look at UCCA's statistics we find that annual applications to universities in all subjects have increased from just over 130,000 in 1979 to close to 210,000 in 1991 with most of the increase in recent years and with entries keeping pace at just over half (Figure 9). The elimination in 1992 of the binary divide with the elevation of polytechnics to university status might be expected to stimulate demand and further increase the competitiveness of institutions. These days higher education may be seen even more as a refuge from the recession and applicants cannot be expected to be familiar with recruitment implications for the optometry profession.

This year's application figures are well up on 1992's; making it clear that optometry departments will have less need to scrape the barrel. What will happen in 1994 and later years is less obvious, but what is quite plain is that given half a chance the training institutions will continue to do their own thing with scant regard to any considerations of national need.

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