Selecting students for optometry

Part 2: The School-Leaver

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In the preceding article *(The Ophthalmic Optician,* August 14, 1982) the author described recent trends in applications and acceptances for university education, with special reference to ophthalmic optics and the course at UMIST. Also discussed was the problem of selecting suitable students from amongst mature candidates. In the second part of this article Dr French looks mainly at the problems of dealing with applications from school-leavers

Selecting from amongst the school-leavers

For the teenager, the selection process is completely different from that for the mature applicant. The group is a very homogenous one. Most candidates will have come straight from school and be about to take the General Certificate of Education Advanced Level examinations, although there will be a few offering Scottish Highers. As they have yet to take their A-levels, all one has to go on in terms of examinations are their ordinary level results (not always a good guide to A-levels) and the A-level predictions of their teachers. All this is contained in the UCCA form along with a brief account of their school career to date, their interests and ambitions, and anything else that their teachers may put forward as relevant. Each applicant is currently allowed five choices of university courses with an indication of their order of preference. They may, if they wish, 'bracket' their choices to indicate a lack of preference between two or more.

It is against this background that the university must make its decisions. These normally take the form of a rejection or a conditional offer, this the candidate is entitled to accept or decline as he or she wishes. The offer is usually made conditional upon the subject achieving certain A-level grades, and perhaps even O-levels, which have yet to be sat. Before making a decision, the university may invite the candidates along for an interview, and the information obtained at this time might contribute towards the conclusions of both parties. The fact that a thousand students apply to study ophthalmic optics at English and Welsh universities is a daunting thought which might deter any would-be applicant. As mentioned before, this paints a rather more pessimistic picture than is necessary. One in six of these applicants has not put an optometry department first choice and therefore cannot be considered a *serious* candidate. Frequently such applications are immediately rejected by optics departments; although in the years 1979 to 1981, 15, 23 and 8 such candidates were admitted. For October 1982, the number of serious applicants might be expected to be of the order of 850, with around 550 applying to all five universities (Aston, Bradford, City, UMIST and UWIST), using up ill five slots on the UCCA form. The remainder will omit one or more optometry departments, sometimes replacing these with other subjects and other institutions.

The inclusion of courses other than optics may lead to immediate rejection, even if these courses are of a low preference. The applicant who has applied for five *different* subjects may not get very far, even if optics is his first choice. Equally, the candidate who has placed optics departments first, second and fifth with two totally different courses sandwiched third and fourth may not get far enough to explain his unusual preferences. Admissions tutors are wary of candidates who are manifestly not sure of what they want to do or whose preferences are not determined by an overriding desire to study optometry. Of course, teachers are aware of this and advise their charges not to mix up their choices, and this means that even if a candidate presents a permutation of the five departments, he may still be hiding indecision and uncertainty which he will not divulge at an interview.

With 200-odd places available in England and Wales, the average, serious applicant stands about a one-in-four chance of gaining admittance with each person's individual chances being better or worse than this, according to the likelihood of their achieving the A-level target they have been set. Even if a candidate is unsuccessful in gaining entry, this does not mean that they will not go on to university that year. UCCA takes late applications and changes to applications, and a substantial numberof candidates enter other courses. In 1979, 217 of the 1,304 applicants were accepted for degree courses from history to agriculture. In 1981 the proportion was 139 out of 1,081. In 1981, two-thirds of these acceptances were for science courses and this contrasts with the medical-health careers which are sometimes suggested as alternative vocations.

Many students also apply to study on the four-year degree course in Glasgow. When applications to optics were at their peak in 1979 with 1,304 applications to England and Wales, Glasgow received around 500 applications and took over 50 students. I understand that most of the entrants were Scottish, but students from England, Wales and Northern Ireland were taken, and one would expect a significant proportion of UCCA applicants to also apply to Glasgow. Thus, at its peak in 1979, perhaps all-told around 1,500 people applied to study ophthalmic optics in the UK.

Not all applicants receive an offer from the university they apply to, even if their teachers speak highly of them, they are taking the appropriate A-levels, and they do not mix their subjects. Many departments, but not all, reject applicants if they do not show a preference to study at that institution. Thus at UMIST, it has been an open policy to mainly restrict conditional offers to optics candidates who place UMIST first or second choice. This is a policy that is reviewed each year and is not always applied with total consistency; very occasionally a candidate who places UMIST first may be rejected while sometimes candidates who place UMIST third or below may receive an offer. My guess is that this policy was introduced to simplify and reduce the costs of admission, as it was observed that very few students who placed UMIST third, fourth or fifth actually ended up entering the university. Thus, if one is not careful, a vast amount of time and effort can be extended towards students who have simply used UMIST as a form-filler. If an applicant who has placed UMIST third is rejected this does not represent an academic

*Any opinions expressed are those of the author and do not necessarily reflect department policy or the views of his colleagues at UMIST.

raspberry but is simply a matter of expediency. It is probably true to say that universities like students to have reduced their preferences to one or two main choices by the time that they begin their final year at school.

In this connection it is as well to mention — in case anyone should consider that departments are being cavalier in their attitudes — that admissions tutors often receive very little administrative help although there can be considerable variation. Tutors, as well as department secretaries, are frequently overwhelmed by routine clerical work. Even in the 'old days', before the present university cuts, resources were severely stretched. The average admissions tutor will expect to receive upwards of 750 letters per year enquiring about admissions. It is only by means of such enquiries that an applicant can get up-to-date and comprehensive information on a course, despite the excellent summaries provided by annuals like Brian Heap's 'Degree Course Offers'.

Having selected those candidates who are considered to be deserving of a conditional offer, the admissions tutor must decide on the *type* of conditional offer that will be made. The aim will be to obtain a full department, having already set aside a number of places likely to be filled by mature candidates or others who are not taking any new examinations. In UMIST's case this may mean making two or three hundred conditional offers. As these offers will be made to people putting one's course second as well as first, one can expect roughly half of them to be declined, either directly or by them firmly accepting an offer from another university. Despite the ups and downs in optometry applications over the years, changes are not that fast and the admissions tutor can be reasonably sure from the previous year what proportion of applicants will firmly accept conditional offers. That having been done, one can estimate the proportion which will obtain the asking grades. It is then just a matter of carefully monitoring the number of offers made. Just once in a while, one will get it wrong and end up with too many entrants, but with care the risk of this can be minimised. Table 1 gives an indication of the likely A-level results of UMIST's conditional-offer applicants, and this enables the admissions tutor to set his or her offers at a suitable level.

Note the totally different emphasis in the selection process when one is faced with the school-leaver as opposed to the mature candidate. The emphasis with the former, after a little bit of elementary screening, is on getting the numbers right, whereas with the latter the main concern is to admit students with the right motivation and who are deserving of a place. Of course, one should be wary of school-leavers who have the wrong motivation or who lack lustre or who have personality defects which may make them unsuited to work as an optician. But there is a practical limit to what one can do to

TABLE 1. AGGREGATE SCIENCE A-LEVEL PERFORMANCE OF APPLICANTS

Proportions of candidates with at least the following					
A-level results achieved				*A-levels predicted*	
grades or better		*points or better*		*points or better*	
	per cent		*per cent*		*per cent*
AAA	1	15	3	15	3
AAB	3	14	5	14	5
ABB	7	13	8	13	8
BBB	9	12	11	12	13
BBC	16	11	17	11	22
BCC	20	10	25	10	34
CCC	21	9	30	9	47
CCD	29	8	37	8	57
CDD	35	7	45	7	68
DDD	36	6	52	6	77
DDE	44	5	59	5	85
DEE	55	4	65	4	92
EEE	57	3	71	3	96
EE	77	2	80	2	98
E	89	1	89	1	99
-	100	0	100	0	100

The candidates are those who have provisionally or firmly accepted a conditional offer from the Ophthalmic Optics Department at UMIST. These are a sample of the home students under 20 years of age applying for 1979, 1980 or 1981 entry. Here the combination of A-level *grades* may be achieved in any sequence and may be the result of examinations taken at more than one sitting. The A-level *points* may come from more than three science A-levels. Duplicate subjects (eg pure maths, and pure and applied maths) are excluded in both schemes. Grade A=5 points, B=4 points, etc ... For achievements «=585 while for predictions «=490. Where the grades have to be achieved in a particular sequence — eg BCC with the B in physics —one obtains smaller percentages than above. Predictions apply to students taking their A-levels at one sitting

minimise the risk of taking such entrants. An outsider might be forgiven for forming the impression that the admissions tutor when faced with large numbers has simply abrogated his responsibilities and left everything to an A-level lottery. Why, in fact, does the department not abandon its more-or-less uniform A-level grade offers; interview the students carefully, screening their motivation; weigh up the school reports; consider the suitability of their temperaments to the profession; and *then* make *low* A-level offers to a selected few? Why the *high* A-level grade lottery?

There is something to be said for this view. At UMIST over the years we have had students with just a couple of E-grades who have dealt quite successfully with the course and have gone on to become excellent opticians and even teachers. Why then are departments so obsessed with Cs and Bs of one sort or another?

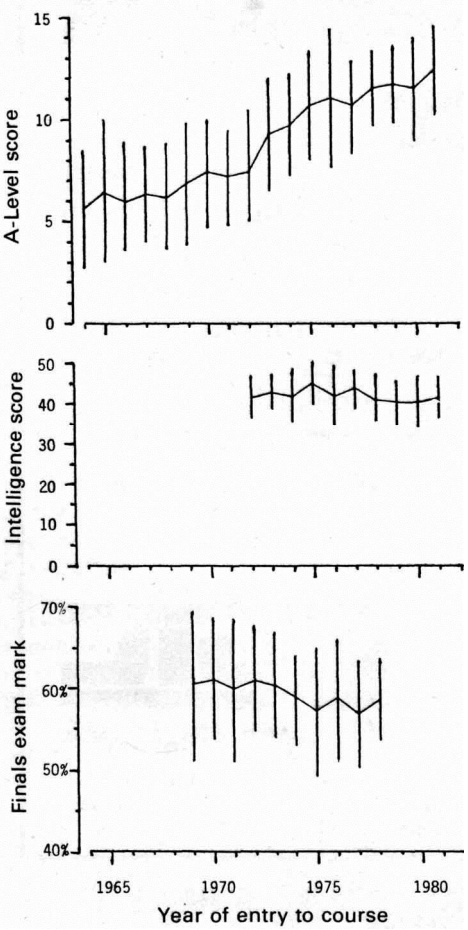
If we look at the A-levels of UMIST Optics students under 20 years of age at entrance (Fig 1), we can see that there has been a steady improvement right up to 1981, with the science A-level points of these students more than doubling. In this calculation, arts A-levels are excluded, as are 'duplicated' subjects — eg, only one of biology and zoology; one of pure maths, and pure and applied maths, etc. Thus, the typical A-level results have risen from 'DDD' to 'BBB' (A=5 points, B=4 and so on). Paradoxically, if we look at the intelligence scores of the students over the last 10 years, we find no evidence of any increase at all (Fig 1 — middle graph). Also, if we look at the average mark achieved in the Finals Honours examinations, we again find no increase in the 10 years admitted between 1969 and 1978. Thus, there is no apparent increase in degree performance and it will be remembered from the first part of this report that there were possibly signs of a decrease in the proportion of first-class Honours degrees, although the number of drop-outs seemed to be reducing too.

Now, I must admit that in my opinion degree examinations are more subject to the vagaries of examiners' whims than are A-levels and intelligence scores. The latter are most carefully standardised. One might consider A-levels to represent academic *performance* measures while intelligence scores can be looked upon more as measures of academic *potential*. (See Eysenck and Kamin, 1979, for a more detailed discussion of intelligence).

Intelligence tests

Nobody is suggesting that one should introduce the intelligence test, or any other psychological test, as a screening tool in the selection of students in this country, but it may be interesting to see if it can tell us anything about optics students. The test administered routinely (and confidentially) to undergraduates as a statistical exercise at UMIST is the AH5. This is a short group-test of verbal, arithmetic and diagrammatic ability developed to differentiate at the upper ability level. It is not a test for the general population. The manual gives figures which support the validity of this aim, showing that students who obtained Firsts in PPP at Oxford scored on average 5 points more than those who gained Seconds, and these in turn averaged scores of 5 points more than those gaining Thirds and Fourths. Entrants to Oxford Science Scholarship

Fig 1: Finals' marks, intelligence scores and A-levels, and year of entry



The students are those who entered the Ophthalmic Optics Department at UMIST in the year indicated. The middle point of each vertical line represents the mean for that year with the bar-line's extent indicating ± one standard deviation. In most university exams, as here with the Honours exams, the pass mark is defined as 40 per cent. Intelligence scores refer to the total score achieved on Alice Heim's AH5 group test of high-grade intelligence. Where a student's first language has not been English or where the student was 20 years of age or older at entry, their intelligence scores have been omitted. The A-level scores refer to science A-levels only and exclude subjects which might be considered as duplication; eg in the case of a student taking both pure maths, and pure and applied maths one of these would be excluded. The scores of each science A-level are added together — grade A=5pts, 6=4 C=3 *0=2* and E=1

examinations also scored more highly than a group of undergraduates. Fig 2 shows frequency polygons representing three of the groups referred to in the manual — college of education students, undergraduates and the scholarship candidates. As you can see, there is considerable overlap but the differentiation is clear. To these I have added the relative frequency distribution of 343 UMIST optics students. These scores on average fall below those of the scholarship candidates but above those of the undergraduate group as might be expected if we were dealing with an above-average group. The standard deviation of the optics group scores is 7.0 points which is smaller than for the other groups, suggesting that we have here a narrow group of ability. Indeed, inspection of the results perhaps indicates that there is a lack of students with high scores; there are none over 55. This would not be particularly surprising as, although UMIST does get entrants with straight As, I think we would expect schools and parents to 'direct' those students of highest ability towards Oxbridge and/or 'pure' sciences. This is one of the idiosyncracies associated with British education, where engineering science, for example, has always complained of its apparently lowly status.

If we correlate the intelligence scores of our teenagers whose first language is English, with their performance at A-levels and university examinations then one consistently finds near-zero correlations. What this means is not totally clear. There is undoubtedly a correlation between intelligence scores and academic performance, whether it be A-level performance or university examinations, but it is a statistical fact that when one deals with a narrow band of ability selected according to A-level, for example, one expects a reduction in this correlation — the effect of *restricted range* (see p 126 of Anastasi, 1976). With respect to university examinations, it means that at UMIST, variations in motivation and other factors are of far greater importance than the differences in ability revealed by the AH5 test. If one looks at the intelligence scores of those who obtained Firsts, there is just the hint that on average they tend to score a few points higher than the rest, but this, difference is far-removed from statistical significance. The validity of the AH5 test is not in doubt, and the test-retest reliability with optics students appears quite good (r=0.84, n = 68), comparable to the manual's figures.

A-levels

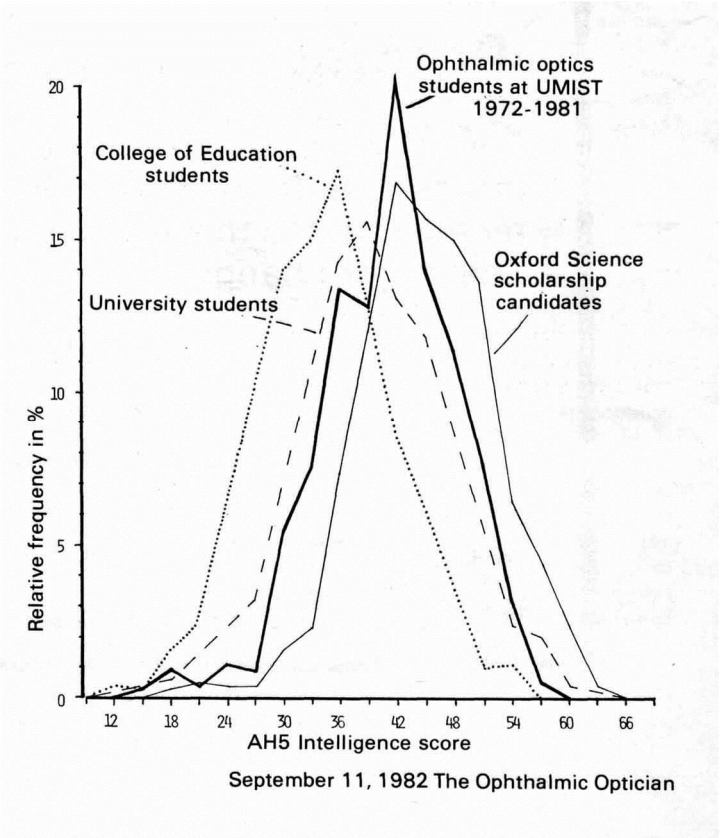
Despite the narrow band of abilities commented upon, with most students having As, Bs and Cs, we still find that A-level grades remain a dependable, although rather variable, predictor of academic performance over the years (see Fig 3). Compared with intelligence tests, A-levels are more measures of *performance* than potential, measuring things such as study-habits, motivation and the like, as well as knowledge. The correlations are typically at their highest between A-levels and the *first* university examinations taken some three months after the students enter the department (dotted lines in Fig 3). There are significant correlations between individual A-levels and related examinations (eg, the physics A-level predicts the, results of the physical and geometrical optics exams) as well as between A-level scores and the overall examination performances.

In general, correlations are strongest for written aspects of the course. We also find that they tend to decrease with successive examinations. This finding that exam predictability falls away as the interval of time increases is a familiar one. People and their circumstances slowly change, and the longer the interval the greater the changes. Still, it is of interest that, even when we are faced with a three-year interval and this narrow band of ability, we find that A-levels *can* predict the type of degree obtained. I must add that the amount of association is not large and represents less than 20 per cent for degree results, a finding similar to that of others who have looked at different degree courses.

It is still true to say that luck, motivation

Fig 2: Intelligence scores of four groups of students

Three of the relative frequency distributions are from the AH5 intelligence test manual (1968), and the fourth represents almost all students admitted to the Ophthalmic Optics Department in UMIST between 1972 and 1982. Scores in these graphs have been recorded to the nearest multiple of three. Means and standard deviations for the four groups are: university students 39.1 ± 8.3 (n = 946); college of education students 34.5 ± 7.3 (n=779); Oxford scholarship candidates 44.9 ± 8.4 (n=360); and UMIST 41.0± 7.0 (n=343). When mature students and those whose first language was not English are removed from the UMIST sample, the parameters become 42.215.9 (n=263)



and other factors contribute more to variations in the final degree than do A-level differences or, for that matter, intelligence differences. Assessment of the psychological factors is far from easy. The personality factors around which most research has centred in this country, neuroticism and extroversion, do not correlate with degree performance, and thus if these variables are implicated their involvement must be in a complex manner.

School reports

Many teachers include predictions of their candidates' likely A-level performance on their UCCA forms. Sometimes these assessments are phrased obscurely, but sufficient clear predictions have been made to enable one to estimate their validity. The correlations between the actual scores and the predictions

TABLE 2. VALIDITY COEFFICIENTS OF SCHOOL A-LEVEL PREDICTIONS

Physics	0.56 (n=480)
Chemistry	0.64 («=349)
Biology	0.57 (n=264)
Maths	0.65 («=364)
General studies	0.63 («=92)
all above	0.61(«=1549)
Science A-level points score	0.71 (n=460)

The validity coefficients are the Pearson product-moment correlations between the schools' predictions and the A-level results achieved. The candidates are those who accepted a conditional offer from UMIST Optics for 1979-1981 and are aged under 20

are quite good, with an average figure of 0.6 (37 per cent closeness of association) for individual A-levels and 0.7 (50 per cent) for the combined points-score. The relationship, however, is perhaps most clearly represented in the form given in Table 3. This shows that there is a slight tendency for schoolteachers to over-rate the likely successes of their students. Thus if a school has predicted a B in a subject then the median likelihood is that the candidate will obtain a C. Such a lapse is wholly understandable. No one likes to do people down and I would have thought that this was the equivalent of giving the candidate the benefit of the doubt. Thus, one could use these reports for selection purposes if one was willing to subtract a grade for each examination prediction.

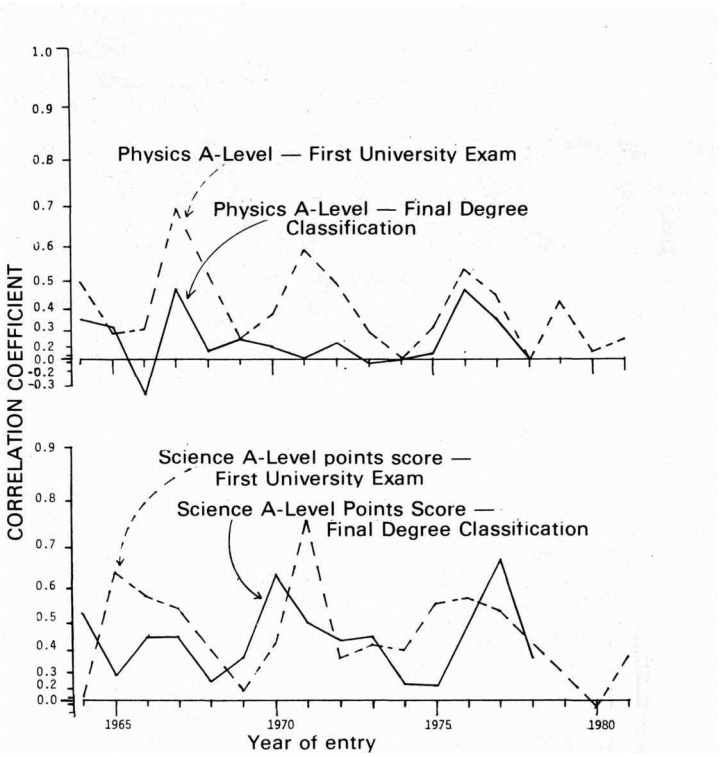
However, it would be wrong to rely solely on these assessments. Some turn out to be quite misleading. On occasions a candidate does considerably better than expected, whereas sometimes they do not live up to expectations at all as the table makes clear. It could be argued that it is the performance which is wrong and the prediction which is right. After all, the A-level is based upon just a couple of days work while the teacher's assessment is probably based on several years of first-hand experience! But teachers are corruptible (*not* in the criminal sense) while A-levels are less pervious to such bias. The admissions tutor therefore takes account of what has been said by the school, particularly if the candidate turns out to be a borderline case, but does not usually rush to make irretrievable decisions on its basis.

TABLE 3. SCIENCE A-LEVEL PERFORMANCE AND SCHOOL-PREDICTIONS

school prediction	*proportion of performances indicated grade or higher attaining* A	B	C	D	E	O	F	*number of predictions*
	per cent	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	
FAILURE	0	0	2	10	19	64	100	42
E	0	1	4	7	38	77	100	107
D or E	1	4	14	32	58	92	100	116
D	1	6	12	35	64	91	100	198
C or D	1	14	21	43	70	92	100	166
C	2	20	39	58	80	97	100	332
B or C	5	31	54	78	95	99	100	188
B	10	38	62	81	98	100	100	186
A or B	23	63	77	90	98	100	100	83
A	49	82	92	97	97	100	100	73
all	7	23	37	55	75	92	100	1,491

The candidates were home applicants who had accepted conditional offers from UMIST optics between 1979 and 1981, and who were under 20 years of age. The A-levels included were physics, biology, chemistry and mathematics. The school predictions are in the form of grades. The highest attainable is an A and the lowest F. Grade E and above are passes while O and F denote failure with O equivalent to an O-level pass. Thus if the school predicts a candidate will attain a B or C then there was a 31 per cent chance that the student would get a B or better and a 54 per cent chance that they would get a C or better. Some schools prefer to make no predictions and this table takes no account of their candidates

Fig 3: Correlations between A-levels and university exams for each entry year



The correlation coefficients are non-parametric statistics. Spearman's rank order. The upper graph shows the correlations between the candidates' physics A-level grades and performance in the first and last university exams, while the bottom graph shows the correlations between the science A-level points scores and the same examinations. Mature students at entry have been excluded from the analysis.

TABLE 4. INTERVIEWER RATINGS OF CANDIDATES

rating	*proportion of candidates*	
	expected per cent	*observed per cent*
9 — best	4	3
8	1	15
7	12	21
6	17	27
5 — average	20	18
4	17	9
3	12	5
2	7	
1 — worst	4	0

The UMIST optics lecturers were asked to rate each candidate they interviewed on a standard nine-point (Stanine) scale according to their suitability as future undergraduate members of the department at UMIST. The Stanine scale was clearly explained and the lecturers were told that the above proportions would be expected. The observed frequencies are the results obtained from 10 lecturers interviewing 445 applicants for 1980 and 1981 entry.

Interviews

On the face of it, one of the major advantages of the interview is that it is carried out by people familiar with the tasks to be faced, in our case university training and the demands of the ophthalmic optics profession. What happens if you leave the recommendations to the lecturers doing the interviewing? What sort of decisions are they likely to make? Over a two-year period at UMIST, I asked them to rate the interviewees for suitability as undergraduates on a standard nine-point scale (Stanine), and compared these

assessments with the schools' A-level predictions along with the candidates' eventual A-level performances. There were significant differences between the lecturers but the similarities were more striking.

It was interesting to observe that the lecturers, like the schoolteachers, virtually all over-rated the candidates. Very few (less than one per cent) of the candidates were put in the bottom 4 per cent category, while too many were placed in three of the top four categories, although there was no tendency to over-rate the number in the top 4 per cent category (Table 4). No one enjoys giving people low ratings and even lecturers, it would seem, tend to err on the positive side, even though they are not emotionally involved in the applicants' education at this stage. Table 5 shows us that the tendency to over-rate was greater for some interviewers than others, with the average representing one point extra on the nine-point scale.

When we compare the interviewers' ratings with those of the school we find the correlation to be around 0.60. In other words it could be argued that the schools' A-level predictions had contributed over a third to the interviewers' ratings. One interviewer (No 7) appeared to depend over 60 per cent (r=0.78) on the school report and as a consequence achieved the highest correlation (0.63) with A-level results. It is interesting that the most independently-minded interviewer (No 1), who chose to place least reliance on what the school had to say (less than 20 percent), did worst when it came to correlations with A-level performance. Overall, the correlation between school predictions and A-level results was 0.70, while that between interviewers' ratings and results was 0.44. Thus, the schools can be considered to have done between two and three times as well as the interviewers, despite the fact that the latter had the former's predictions to go on. I suspect that the interviewers would be somewhat disgruntled with one using the A-level results in this way, as a criterion of the validity of their judgements. It is possible that they would argue that they were trying to go beyond 'mere' A-levels in their judgements in search of those other qualities that make for a good student.

Cynics might see in all this emphasis on A-levels simply a department's misguided self-interest. The University Grants Committee (UGC) and other bodies frequently assess departments by looking at the average A-level grades of their intake. In their eyes, a good university or a good department will have high A-level grades whereas a poor one will have low. On its own this is of course a ridiculous criterion, but it is a factor for the admissions tutor contemplating his or her selection procedures. If there are any doubts about A-levels then the UGC, if no one else, should be able to banish them.

One should add,a comment on the psychology of interviews (see for example Cook, 1979). They appear on the face of it fair procedures. They are accepted by society

TABLE 5. INTERVIEWER-RATINGS. SCHOOL-PREDICTIONS AND A-LEVEL RESULTS

	Correlations			*ratings*
interviewer	*inter-school*	*inter-results*	*school-results*	*mean±s.d.(n)*
1	0.42	0.12	0.79	6.7±1.7 52
2	0.66	0.30	0.70	5.6±0.9 47
3	0.53	0.33	0.66	5.2+1.8 33
4	0.61	0.38	0.61	6.0±1.9 109
5	0.48	0.55	0.73	6.1±1.1 37
6	0.73	0.57	0.86	6.1±1.5 16
7	0.78	0.63	0.86	5.6±1.4 27
8	0.64	0.43	0.57	7.0+1.3 23
9	0.48	0.46	0.74	6.0±1.5 76
10	0.53	0.43	0.82	5.7±0.8 25
all 10	0.60	0.44	0.70	6.0±1.6 445

Each candidate interviewed was rated on a Stanine scale by one of 10 lecturers. The mean and standard deviation of their ratings, along with the number of interviewees, is given in the right-hand columns. The correlations are Pearson Product-Moments between the ratings, predictions and results as indicated. The candidates applied in 1980 and 1981. For a true Stanine scale the mean should be 5 and the standard deviation two.

and no one these days obtains a job without an interview. There are those who quietly believe to themselves that not only can they tell Stork from butter but the good applicant from the bad. In reality, interviews can be a complete disaster area. Some people interview well and some do not. People do not always behave in an interview as they are likely to do in a future work or study situation, and how can one compare someone interviewed one day with someone interviewed months later? On the other hand, the interview is a useful opportunity fora two-way exchange of information: 'Can you afford the fees?', 'Now you've seen Manchester do you still want to come here?', 'What would you like us to tell you about the course?', 'You did not include an intended career on your UCCA form. Can you tell us why?'. Perhaps one of the best justifications for the interview in the selection of students is that it obliges the students to face up to their hopes and fears: 'Would I really like to study and spend three years in this place?', 'Would I be happy?', 'Do I really see myself as an ophthalmic optician?'. It is all too easy to fill in a form, see what happens in the examinations, and only *then* find out whether the town, university and course are what was truly wanted. It is reasonable to assume that visiting an institution will lead to more dependable decisions and in the final analysis fewer drop-outs. The person who declines an interview invitation can be seen as a less-than-serious candidate.

Family traditions

There are other factors which I have not mentioned that may influence an admissions tutor's deliberations. According to UMIST UCCA forms, 12 per cent of the next of kin of optics applicants have occupations in the graduate medical-health area (Table 6). For

TABLE 6. BREAKDOWN OF SOME PROFESSIONS OF CANDIDATES' NEXT OF KLN (1981)

Ophthalmic optics 5%
Dispensing optics1%
Medicine 4%
Pharmacy 1%
Dentistry 1%

1981 applicants, one in 19 had a father who was an ophthalmic optician and one in 28 a father who was a doctor, and this does not take into account close relatives in these professions for other candidates.

These circumstances do pose questions for the admissions tutor, particularly where a close relative is an optician. 'If there is a tradition in a family should not this count for something?', 'Should there be some A-level points allowance?', 'Surely such an applicant is more desirable as a future member of a course and therefore deserves a better than average chance?'. 'With more and more practices falling into the hands of multiple opticians, surely it is important that the independent should be preserved by helping such practices stay in the family?'. I wish I was confident of the answers to all such questions which have been put to me. Usually the problem is apparent from the form and can be taken up at interview, but very occasionally less subtle pressures are exerted with telephone calls and letters. It is a situation that admissions tutors do not relish, particularly if the applicant or optician is known personally. In some ways it could be argued that a parent who is an optician might be thought of as a handicap rather than as an advantage! Most of us know of instances where family pressures have led to people embarking on careers for which they were not suited in one way or another, and I can write from personal experience, having spent one and a half years on a civil engineering degree course. It is amongst these candidates that we might perhaps expect to find most of the drop-outs. There have been cases at UMIST and I am sure in other departments. As mentioned before, the admissions tutors' first priority is to get students who will complete the course and thereby avoid the waste of valuable resources. One way out of the dilemma is to take account of family traditions if the candidate becomes a borderline case, but it is not an easy matter.

Final degree result and professional examinations

The end product of a university course is a

university degree. The student who comes top with a First is not necessarily the best potential ophthalmic optician or even the best student. But the degree awarded is a valid and valued assessment made by the graduate's future peers, members of the profession he or she will be joining. There are also the professional examinations which occur in the students' fourth year of training while they are employed in pre-registration posts. Performance in these exams too can be predicted from the A-level results but the correlation for UMIST students is small at 0.31.

The correlation between the degree results and the professional exams is modest at 0.58 (around one-third agreement) (see Table 7). Average correlations and per cent closeness of association between the final degree results and other examination are given in Table 7. They illustrate further the point already mentioned, that the closer two sets of measurements are made in an individual's life, the greater the amount of agreement that can be expected. From the table it can be seen that the written component of the Finals examination agrees 77 per cent with the final degree awarded (70 per cent of marks are for written exams and 30 per cent practicals at UMIST). For each written component of a university exam, the closeness of association decreases by around 15 per cent, as each time it becomes a step more distant from Finals.

It might be thought that a secondary aim of the admissions tutor is to select those students who are likely to get the best degrees. Table 7 may put the problem into perspective. As a predictor of degree results, science A-levels achieve a correlation of 0.37 on average or a closeness of association of only 14 per cent. Eighty-six per cent of the variation in degree results must be accounted for by other factors. These may have been latent and unmeasured in the students when they were admitted to the course, or they may have arisen after their entry. In this context perhaps it can be argued that good students are made rather than selected?

There is also a school of thought that considers that we are obsessed with ranking and rating academic performance. The argument runs that we should simply be concerned with whether an adequate standard has been reached, and all this emphasis on competition and comparison is in someways unhealthy (see, for example, Powell and Butterworth). It is interesting to note in this context that when graduates apply for pre-registration posts they are never given offers conditional on their achieving a certain class of degree. With the exception of hospitals, future employers very rarely even take up university references and can thus have virtually no idea of (or interest in?) the likely degree result.

TABLE 7. CLOSENESS OF ASSOCIATION BETWEEN DEGREE A WARDED AND EXAM RESULTS.

examination compared with degree	*correlation*	*association per cent*
BOA professionals — average mark	0.58	33
university third year exams	0.88	77
written second year exams	0.79	62
exams first year exams	0.70	49
earliest exam Science A-level points AH5	0.59	35
intelligence scores	0.37	14
	-0.04	0

The figures relate to students admitted between 1970 and 1977, aged 20 years of age or younger. The correlations are Spearman's rank order coefficients and to achieve average figures Fisher's z values have been taken over 8 years. If the underlying distributions can be considered Normal then this non-parametric statistic can be considered to estimate Pearson's Product-Moment. The closeness of association figure is the square of the correlation coefficient and estimates the amount of variance in common *(n£^200)*

Conclusions •

In conclusion I would say that advanced level GCE examinations are not the be-all and end-all of education. They do, however, correlate well with most forms of further and higher education although when one is dealing with a restrictive range of performance or ability, as a result of using them as selection criteria, the correlations may be reduced. As school teachers and others will testify, some students do not do themselves justice when it comes to examinations, while others thrive to an extent which does not appear warranted.

Despite this, the A-level remains a *useful* academic lottery in undergraduate selection. Unlike the interviewer it is reasonably objective. It is an *exam* which selects candidates for further *exams;* the logic is irrefutable. No admissions tutor would advise that A-levels should be *slavishly* adhered to but they can be relied upon. Admission tutors will still wish to be free to use their discretion and judgement in certain cases, but leaving matters predominantly to A-levels seems to be quite a fair procedure after-all, when one considers the alternatives.

With mature candidates the problems are more complex and here the tutor must continue to do the best he or she can without infringing the rights of the school-leaver.

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