

# The Matriculation Certificate and Performance at University

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## 1. INTRODUCTION

*The common-sense view of a matriculation certificate is that the holder of such a certificate has the necessary knowledge and ability to embark on a university course with a considerable likelihood of success. The fact that the failure rate for students in white South African universities is of the order of 50 per cent (and may be as great as 20 per cent for first-class matriculants) would suggest that the matriculation certificate is not serving the function for which it is intended. The present article deals with this point of view by trying to determine the main cause of the high rate of failure in South African universities. The conclusion is drawn that the high failure rate is not the fault of the matriculation examination as such but the product of a number of features which characterise white education in South Africa.*

No subjects are more often discussed in education circles than the prognostic value of the matriculation examination and first year university failures. In this article, a scientific approach to these problems is attempted.

## 2. Failure Rates in South African Universities.

In order to appreciate the magnitude of the problem of failure and as a first step towards gaining some idea of its nature it will be helpful to quote some statistics.

The systematic approach to the study of failure rates is to take a group of university students and follow their progress in the university. This was the method used by Dr. O. Black<sup>(1)</sup> in the University of Natal. A summary of the results he obtained is shown in Table I.

An approximate but satisfactory estimate of failure rates can be obtained by noting how many first-year students there are in any one year, how

many second-year students there are the following years, etc., and finally how many graduates there are three, four or five years later, depending on the length of the degree course considered. This was the method adopted by the authors in attempting to obtain failure rates for the University of the Witwatersrand and for the white universities of South Africa as a whole. It has the advantage that the statistics required are readily obtained from the annual returns which universities make to the Union Department of Education. Also, the data contained in these returns are summarised in the Annual Reports of the Department.

TABLE I.

SUMMARY OF PROGRESS CHARTS FOR 100 ENTRANTS (UNIVERSITY OF NATAL)

Faculty	Entrants	Elimination during First Year (Pre-examination withdrawals, failure in examinations, transfers, etc.)	Further Elimination	Graduation			Proceeding
				Normal Time	After delay of one year or more	Total	
Science	100	37	20	35	8	43	0
Engineering	100	35	22	25	14	39	4
Agriculture	100	40	10	30	19	49	1
Arts	100	28	11	55	6	61	0

Only the data obtained for the University of the Witwatersrand are reproduced here (see Table II).

It will be seen from Tables I and II that most of the failure takes place in the first year. This is typical of courses in South African universities. It might be argued that the first year of university obviously presents special difficulties to the young matriculant — problems of adjustment to a new way of life, new methods of teaching and new habits of study. Another interpretation, which does not exclude the first, is that many of the matriculants are not good enough for university, possessing neither the ability nor the personality qualities required for success, and that the first year serves as an eliminating device.

### 3. *A Comparison with English Universities.*

A comparison between South African and English universities in regard to number of matriculants, university intake and failure rate is significant for the determination of the likely causes of the high failure rate in South African universities. The relevant statistics appear in Table III. These statistics have been obtained from various sources such as the Crowther Report, issues of the Times Educational Supplement and Annual Reports of the South African Provincial Education Departments.

Two important facts emerge —

(i) When allowance is made for population differences, nearly four times as many people proceed to university in South Africa as enter uni-

TABLE II.  
STUDENT NUMBERS FOR FULL-TIME DEGREE COURSES IN THE  
UNIVERSITY OF THE WITWATERSRAND 1957-1960.

FACULTY OR COURSE	1st YEAR STUDENTS 1957			2nd YEAR STUDENTS 1958			3rd YEAR STUDENTS 1959			4th YEAR STUDENTS 1960			GRADUATES		
	M	W	T	M	W	T	M	W	T	M	W	T	M	W	T
<i>A</i>													(1959)		
<i>3-Year Courses</i>															
Commerce	74	9	83	39	5	44	30	3	33				18	2	20
Arts (Incl. Music)	114	157	271	82	118	200	85	115	200				55	88	143
Science	117	45	162	79	25	104	53	20	73				31	13	44
<i>B</i>													(1960)*		
<i>4-Year Courses</i>															
Physiotherapy	1	24	25	1	16	17	—	14	14	—	16	16	—	12	12
Engineering	289	—	289	187	1	188	145	1	146	133	—	133			102
Logopedics	2	9	11	—	6	6	—	7	7	—	8	8	—	8	8
Fine Arts	4	10	14	1	6	7	2	5	7	2	6	8	2	6	8
Social Work	2	15	17	1	12	13	1	11	12	1	11	12	1	12	13
<i>C</i>															
<i>Courses of more than 4 Years</i>															
Architect. Quantity	31	4	35	20	1	21	13	2	15	8	3	11			
Surveying	13	—	13	10	—	10	8	—	8	8	—	8			
Medicine	94	18	112	92	19	111	72	13	85	63	11	74			
Dentistry	50	1	51	37	—	37	22	—	22	18	—	18			
GRAND TOTAL	791	292	1083	549	299	758	431	191	622						
% 1st Year Entry				69.4	71.6	69.9	54.5	65.4	57.4						

\* Full passes in November 1960 Examinations—Those entitled to write Supplementary Examinations NOT included.

versity in England (14.5 per cent of an age group as compared with 3.8 per cent). Actually South Africa ranks third in the world for percentage receiving higher education, the U.S.S.R. and the U.S.A. coming first and second respectively.

(ii) Whereas the failure rate in South Africa is about 50 per cent (about 30 per cent in the first year), the failure rate in England is only about 15 per cent, half of which takes place in the first year.

Together these two facts provide a very simple explanation of South Africa's high failure rate. Since the intake for English universities is only a quarter of that for South African universities, proportionately speaking, it is very reasonable to suppose that the quality of the English students is on the whole much higher than that of the South Africans. (In England, it might be said, one does not have to go so far down the scale of ability in order to obtain the necessary numbers to fill the available university places). Other things being equal, it would follow that the failure rate in South African universities will be high.

That this is a very likely explanation is borne out by two other facts —

(i) If the South African universities' intake were limited to first-class matriculants (about 30 per cent of the present intake), the failure rate would be reduced to a much smaller degree — something like 20 or 25 per cent. This would represent a situation closer to that which exists in England.

(ii) The academic standard of the South African matriculation certificate is not much higher than the O-level of the English G.C.E. (General Certificate in Education) which is taken at 16 years of age or even earlier. For matriculation in England it is necessary to pass two or three subjects at the A-level of the G.C.E. This requires two years in the so-called Sixth Form.

It might therefore reasonably be argued that the Sixth Form of the English secondary school functions like the First Year of a South African university — sorting out the students with the ability and personal qualities for higher academic work. Both serve a selective function. In England, the sorting out is being done in school so that the university intake and the failure rate are small; in South Africa this sorting out is being deferred until the first year of the university which means a large intake and a large failure rate.

#### 4. *The Function of the Matriculation Examination.*

The point must now be clear that not all Standard X pupils and indeed not all matriculants are capable of success at university. As stated already, only about half of the students entering South African universities achieve degrees. This constitutes 7-8 per cent of a complete age group. It is doubtful whether among these Standard X pupils who fail to matriculate or, having matriculated, did not proceed to university, there are many who would have succeeded at university if they had been given the opportunity. It follows

TABLE III.  
EDUCATIONAL STATISTICS FOR ENGLAND (AND WALES)  
AND SOUTH AFRICA 1957-1958.

POPULATION	ENGLAND (AND WALES)	SOUTH AFRICA
	45 million (approx.)	3 million Whites (approx.)
No. in 17 (18) year-old age group	576,00 (approx.)	50,000 (approx.)
No. in Std. X (or staying to 17)	52,000 (approx.)	15,886 (1957)
No. gaining Matric. Exemption or A-level.	177,000 A-level subjects offered (1958) — 71% pass. (approx. 60,000 pupils involved).	8595 (1957)
No. entering University	21,736 (3.8% of age group).	7,247 (14.5% of age group).
No. failing First Year	7½% (approx.)	30% (approx.)
No. failing later stage	7½% (approx.)	20% (approx.)
Percentage Graduates	85% (approx.)	50% (approx.)
Total University Population	80,000 (approx.)	23,000 (approx.)

therefore that, under existing conditions both at school and university, the number of Standard X pupils who can profit from a university education cannot be much more than 8 per cent of an age group — say, 10 per cent at the most.

If one had no knowledge of statistics, the obvious question to ask would be — why not confine the issue of matriculation certificates to this 10 per cent? The answer of course is that, at the Standard X stage, we cannot predict with certainty which pupils fall into this group.

The best that can be done is to find a measure or combination of measures which arranges the Standard X pupils in an order of merit which agrees with later university performance as closely as possible. The matriculation examination serves this purpose (at the same time, of course, testing the knowledge and ability of the pupils acquired from their High School courses). The only problem remaining is to decide where the pass mark for university entrance is to be placed, i.e. how far down the examination list we can go in granting matriculation status. If the pass mark is placed high, the failure rate at university will be reduced considerably but many pupils will be excluded from university who could have succeeded. If placed low, most pupils, capable of success, will be given their opportunity but the failure rate will be high.

In South Africa there is no doubt that the pass mark is on the low side. But the political and educational policy of the country demands that the maximum use is made of white intellectual resources and a low pass mark is therefore inevitable. South African universities must therefore accept high failure rates and the 'cluttering-up' of first year classes with unsatisfactory student material. One compensation is the considerable increase in revenue which they receive as the result of the inflation of their first year classes.

5. *Can Selection for University be Improved?*

Improvement of selection obviously means improving upon the present matriculation examination as a predictor of university performance.

A considerable amount of research of this kind has been carried out in South Africa and has been reviewed by Professor D. H. Cilliers in one of the 1959 issues of the University of South Africa periodical UNISA. Similar research has been carried out in other parts of the world, some of which is quoted in the recent publication by G. W. Parkyn, Director of the New Zealand Council for Educational Research.

The net result of such research would appear to be that the predictive value of the South African matriculation examination compares well with similar examinations in other countries nor can this value be raised to any appreciable extent by the addition of intelligence or other objective tests or personality assessments.

## 6. Conclusion

The findings of this article may be summarised briefly as follows —

1. The high rate of failure in South African universities can be attributable to two main factors:—

(i) The academic level of Standard X pupils is low compared with that required for university entry in Western European countries such as England. In the absence of a Sixth Form, such as characterises the English system of secondary education, it is difficult in South Africa to sort out the pupils with the ability and personal qualities necessary for success at university. In South Africa, this function is being reserved for the First Year of the university which means a large intake and therefore a large failure rate.

(ii) The political and educational policy of South Africa demands that the maximum use is made of white intellectual potential which again means a large university intake (and high failure rate) in order that most people capable of a university education are given the opportunity.

2. No blame can be attached to the South African matriculation examination as such. There is no reason to believe that it does not provide a satisfactory test of the pupils' abilities at the end of their High School courses. And there is a considerable body of research to show that little can be done to improve its prognostic value in predicting university performance.

## REFERENCES

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3. Parkyn, G. W.: 'Success and Failure at the University'. Vol. 1. New Zealand Council for Educational Research, 1959.