THE USE OF FIRST YEAR AS AN ACADEMICALLY DIAGNOSTIC YEAR: A RE-EXAMINATION

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The academic achievement over three consecutive years of 1,300 students attending two C.A.E.'s and a university was examined to test the proposal that the first year examination be used as a diagnostic year. Optimally-predictive combinations of first year results with matriculation score were obtained in an attempt to improve existing diagnostic techniques. Comparisons between different university faculties and between university and colleges of advanced education were made, employing controls for the effect of sex of student upon academic achievement. Although some differences were found between faculties, first year examination performance appears to be the best single predictor of success in the later years of a course. Significance difficulties were made over prior methods, however, by evaluating the first year performance of males and females separately, rather than applying the same standards of achievement to each sex. Although the relationship between first and second year results is strong, third year achievement does not correlate very highly at all with first year performance and nor does second year work. There seems to be a notable lack of scholastic correlation of third year achievement. The combination of matriculation and first year results does not appear to improve prediction of later year performance beyond that obtained with the use of first year results alone.

Introduction

Most Australian universities use the first year of a student's course as an academically-diagnostic year, a policy which seems quite justified in view of the strong relationships between the first year and later year examination results. Comparatively little research has been done with students at other tertiary institutions, however, to test whether the same approach could be used there. Even those institutions which rely on the use of first year results in some faculties for selection beyond first year still find the need to experiment with various approaches from time to time in order to improve their methods (Hogben, 1965; Lofthus, 1973).

It has generally been established that the matriculation result is the best single school background factor for the prediction of later academic performance, with correlations on average of 0.55 to 0.63, depending on the method of treatment of the data. Correlations between first year and later year results, however, are considerably higher. Sanders (1958) obtained product-moment correlations of 0.49 between matriculation and first year results, compared with 0.69 between first year and later year performance.

A later study of medical students at the same institution (Hogben, 1965) calculated rank-order correlation coefficients between first and second year performance for all students who passed first year, for the years 1957 to 1960. The coefficients obtained were 0.59, 0.79, 0.52 and 0.62 for the 1957, 1958 and 1960 entrants, respectively, each coefficient being significant at the 1% level. Although these results reflected a tendency for the second year failures to come from the low-ranking first year students, an analysis of the first year ranks of those students who failed second year showed that 5 of the 26 second year failures came from the upper halves of their respective first year groups.

An alternative method of representing first year performance was then investigated in the same study to find whether it would improve selection for second year entry, since the selection of students for entry into the second year of medicine was based on their first year results. Students who had passed first year and then taken the second year examinations were placed into four groups on the basis of the quality of their first year passes. The four categories used were: one or more "A" passes, one or more "B" passes but no "A"; all "C" passes; one or more supplementary passes. Second year performance was shown by students who had required supplementary examinations in order to pass their first year. The overall second year pass rate of these students was only either all "C" passes or some "B"s but no "A"s. Significantly, the second year pass rate for students who had repeated first year was only 67%, compared with 83% for those who did not require a repeat year. It would appear, then, that a student who passes first year at the first attempt is a better second year prospect than a first year repeat student, irrespective of the quality of that student's second set of first year results.

Hogben's results were supported recently in another rigorous investigation by Lofthus (1973) of the examination performance of students at another university. The correlation between first year Arts results and final degree performance in Arts was high and positive (0.71), indicating that students who do well in their first year tend to perform similarly in their graduating year. Although this relationship was partly due to the effects of withdrawal of some of the poorer students who failed during their first year some of the failing students there was still a strong relationship when this factor was eliminated from the analysis. Of the those students who obtained all Honours passes in their first year (N = 13), 85% went on to graduate in minimum time. From 51 students with a mixture of Honours and Ordinary passes in their first year, 89% completed their degree in minimum time. This percentage dropped to 69% in the case of students who only obtained pass grades in their first year. Notably, and in complete agreement with Hogben's findings, there is a clear discrepancy between the results of students who obtained pass grades or higher grades in their first year and those who experience any failure. In the latter group only 30% went on to graduate in minimum time, although another 17% graduated if given another year. Similar relationships were demonstrated for Economics and Commerce students and for Science students.

For Australian universities then, it would appear that the first year examinations are the chief selecting agency for academic success in later years. The present investigation extends the scope of the previous studies on the topic in that it incorporates a much larger student population drawn from three separate institutions and also introduces controls which were not previously applied in other studies.

Method

Subjects: The study group consisted of all the students who matriculated for tertiary entry at the 1970 South Australian Matriculation Examination and enrolled full-time in 1971 for courses at the University of Adelaide and the Adelaide and Salisbury Colleges of Advanced Education. Table 1 indicates the composition of the study group.

### Table 1

<table>
<thead>
<tr>
<th>Study Group: Numbers of Students in Selected Courses at the University of Adelaide and Salisbury C.A.E.s (Full-time 1971 entrants)</th>
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<tbody>
<tr>
<td><strong>Course</strong></td>
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<td>Arts</td>
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<td>Agricultural Science</td>
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<td>Architecture</td>
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<tr>
<td>Diploma of Teaching (Adelaide C.A.E.)</td>
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<tr>
<td>Diploma of Teaching (Salisbury C.A.E.)</td>
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* Eliminated from the analysis because numbers too small.

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Data Collection and Procedure:
Examination results were obtained over three consecutive years of a course. The academic performance criterion used was the average of the examination marks (percentages) obtained in each year of the course.

First year results were related to performance in the later years of a course and then combined with matriculation score in an attempt to derive optimally-predictive combinations of variables. Controls were introduced for the effects of sex of student upon academic achievement.

Results and Discussion
(a) First Year Performance as Related to Second Year

For all the faculties studied, with the exception of Adelaide C.A.E., the correlations between first and second year performance were much higher than between matriculation and second year performance (Table 2). The highest correlation between first and second year results was for the Engineering Faculty (0.70), suggesting a large degree of similarity in the skills and knowledge required in the first two years of that course.

Consideration of male and female students separately leads to some extent. The highest correlation between first and second year performance was for male Architectural students (0.59) and from one institution to another. These results suggest a high degree of similarity in the skills and knowledge required in the first two years of the course.

(b) First Year Performance as Related to Third Year

At third year level, for all of the courses studied, first year achievement is of little value in prediction, although it is generally still better than matriculation (Table 2). The highest correlation between first and third year results was for the Faculty of Economics (0.40), although this failed to reach significance. When second year results were related with third year performance the situation was no better.

Conclusion
Initial selection for tertiary entry is best made on the basis of academic merit as indicated by secondary school achievement (Otto, 1978) and this practice is widely followed. Once students have commenced studies, prior academic achievement in the form of first year results is still the best indicator of future academic performance, in that students who perform badly in their first year are very likely to have difficulties with the more advanced work and at best will require more time to complete their course than other students.

Current policies which require students in some university faculties to perform to a certain standard before they can continue with their course appear to be justified on empirical grounds and seem to apply
there seems little doubt that the heavy demand for the relatively limited number of tertiary places during the Fifties and Sixties restricted the chances of entry for undecided, unfinalized, or uncommitted applicants. Now, in the mid-Seventies, the greater accessibility of post-secondary education resulting from the establishment of a large CAE system, university expansion, and the more recent abolition of fees, has opened the door of higher education to many who would not have considered it an alternative to employment.

On the other hand, with the growing interdependence of higher education and a wide range of vocations, the life choices which students see as open to them are rapidly multiplying. Increasing numbers of students no longer see initial enrolment as committing them to completing their course of study: alternatives, which may become preferable, are known to exist. Thus there is now a significant, and perhaps a growing, number of students who fulfill the requirements and pass the examinations for one or more years of their course but who do not re-enrol to complete their degrees.

The principal aims of the project8 reported upon here were to identify this group at a large vocationally-oriented university and to discover the motives which prompt the decision not to re-enrol. The Registrar supplied a list of all students not re-enrolling in 1975, from which graduates, and those students excluded or given leave of absence, had been stricken. Open-ended questionnaires2 were then sent to them. Only 330 students, of the 1216 names given us, responded to the questionnaire, of which 204 fell within the survey’s area of interest, the remainder either abandoning their course during term, re-enrolling, graduating, or giving insufficient information to allow one to place them anywhere. The responses of 16.75% of those on the original list placed them within the terms of reference of the survey, 10.75% made invalid responses, and 72.5% did not reply.

Respondents were asked to give as much detail as they wished their reasons for not re-enrolling and to indicate the one over-riding factor which led to their decision. Content analysis of these replies revealed three major aspects of motivation:

I. The effect of the course, degree, School or University on them as individuals: n = 115 (57%)

II. The pressure imposed by employment or distance from the University: n = 44 (21%)

III. Change in personal and family situation since commencing at University: n = 45 (22%)

Each of these will now be considered in more detail.

I. Disillusionment With The University Experience

These comments come from students who tried the University, investigated its worth for them, and found it wanting. They divide easily in five specific areas:

Incompatibility — These students mentioned a changed personal orientation and a newly-developed questioning attitude towards the value of an academic course and toward the worth of a degree. In addition, some students referred to changes in their values which they felt were incompatible with university study:

My whole outlook on life has changed from a material and status satisfaction attained through a University degree to a much simpler and humbler life living off the land. Up until the time I left Uni. I had not seriously thought what I intended doing with my life but had just followed the traditional societal guidelines. I guess I'm just a "dropout" of the academic professional career-type system and very, very glad that I dropped out.

Surveying, Year 2

This dissatisfaction was, according to some respondents, produced by the University community. These students — especially those of mature age and others who felt themselves "different" from what they regarded as the average — were most vocal in presenting their fellow undergraduates as cliquish and reserved, their academic instructors as cold and