

me I just went 'wild'. (Group 1 student)

In retrospect, HSC fails to meet many of the qualities so vital to pursuing further education. Its tightly structured nature allows no scope for approaching a subject from a different stance. As a result, no real thinking is done. Nothing is questioned and analysis is usually so shallow and superficial that it can't be called analysis. The demands of covering the points in the syllabus in preparation for the all important end-of-year exams diverges the student from 'learning'.

The lack of being presented with extra-curricular material on a given subject is also a disadvantage for the prospective university student. Naturally, subjects at university are dealt with on a higher level, usually in a very obscure framework (to a former HSC student). It is easy to feel intimidated by the new dimensions taken on familiar subjects. (Group 1 student)

Past STC students identified particular aspects of their course which helped prepare them for tertiary education, aspects such as negotiation of classwork, work experience, a curriculum that was relevant to their future study needs.

STC helped me confirm what course of study I wanted to undertake. It gave me an opportunity to investigate all aspects of my chosen career, develop the skills I needed for further study, and study a topic in depth. Most of all I acquired more knowledge that was useful to me compared to previous years. I enjoyed the independence of gaining your own information and research. STC gave me the skills that I required for my study in psychology, and because I achieved all my goals in STC, I gained entry into the course and institution that I had as my first preference. (STC student)

I feel that the opportunity to be able to work in the particular field/career I was interested in (in this case primary teaching) by having two two-week blocks of work experience helped me tremendously. Not only in regards to helping me decide that teaching was what I wanted to pursue in a career, but due to the good references I received from there, the college was more ready to give me 'a go'. (STC student)

The STC course prepared me for academic life in a tertiary school, as we also do a lot of negotiating and non-competitive assessments. We also have many discussions and debates in tutorials. I find a lot of this similar to the STC requirements. (STC student)

There was one aspect of tertiary life for which Group 1 students felt themselves to have been better prepared by their course than STC students, and this was the ability to cope with a heavy workload, pressure, and examinations.

... it is worth pursuing the goal of a broader base of access.

The STC course didn't . . . prepare us for the work and exams that we have to face when completing a tertiary course. (STC student)

The hard work, and the amount of it, that was piled on us during HSC has prepared me very well for my science course, as I was able to cope with my workload this year. (Group 1 student)

This year has been hard work at times, but rather enjoyable. I believe that the dedication to study which is so much a part of HSC has been very helpful . . . HSC taught me to memorise facts for the exams, and these study methods which I developed have been most helpful while studying for exams this year. (Group 1 student)

I feel that HSC prepared me for exams — memorising, careful allotment of time in exams, competition, competition and more competition. University life is much more dependent. One must have high motivation since no one is prodding you to complete work. There is a lot of pressure and hard work involved but I feel that this only helps the individual to survive life at a tertiary level. Studying does not get any easier and if it's a professional job you're after then you must be prepared to work hard. (Group 1 student)

The only drawback is the excessive amount of work that must be done outside school hours and the pressure involved in doing the final exams. However the ability to cope with exam pressure gained by doing HSC has helped me in my course this year. (Group 1 student)

The ability to work hard is an important attribute for a tertiary student, and training in the memorisation of facts is useful for some courses; but a good preparation for tertiary study should include a much greater range of skills than these.

Conclusion

Increasingly, over recent years, universities and colleges in Victoria have accepted students whose access to higher education has been through non-traditional means. The majority of these students are either mature-age students or students from alternative Year 12 courses, such as the STC course.

The STC students in this study were part of that growing group of students who, from 1983 onwards, were deciding to stay on to complete their secondary schooling rather than leave school early. Success in their Year 12 courses encouraged many of these students to continue their education at tertiary institutions through special admission schemes. Because this is a recent

phenomenon, not a great deal of research has been done to monitor the progress of these students. Two Victorian studies (Schofield, 1988; and Stephens, 1986) have shown that special admission scheme students have a success rate in their first year of higher education that compares reasonably well with the success rate of normal admission students.

The students in the present study were contacted before their first year results were known, so the focus was on students' perceptions of the way they were coping at tertiary level, which included an evaluation of the current usefulness of the skills and knowledge they had acquired in their Year 12 courses. It is clear, from the outcomes of the study, that many of these STC graduates felt that they were coping well with their tertiary courses and were helped by their learning experiences in Year 12. The particular aspects of their STC learning experience that helped them most were first, the development of their self-confidence as learners (through achieving success in areas of learning that were of present interest and future relevance to them) and, second, their development as independent thinkers, learners and researchers, which was accomplished by allowing students to participate in determining the direction of the curriculum and by encouraging them to be responsible for their own learning, at the same time equipping them with the skills they needed to achieve their educational goals. Some of the students in the study who were graduates of the mainstream Year 12 course expressed regret that their course had not helped them to become independent thinkers and learners.

The message that emerges from this study for tertiary educators is that it is worth pursuing the goal of a broader base of access to higher education, because students thus admitted are likely to benefit from and succeed in the courses they undertake. The message for secondary educators is that attention should be focused on the learning process as well as on the content of learning, and on personal development as well as on academic development so that their exiting Year 12 students will be prepared and equipped to face the challenges of higher education.

References

- Batten, M. (1989) *Year 12: Students' Expectations and Experiences* (ACER Research Monograph No. 33). Hawthorn, Vic.: ACER.
- Schofield, H. (1988). Evaluation of the first three years of the University Special Admissions Scheme: a summary report. Melbourne: University of Melbourne (mimeo).
- Stephens, J. (1986). *The PEP Access Study*. West Melbourne: Education Department of Victoria, Participation and Equity Program.

The student progress and performance study 1975-1988

The Student Performance and Progress Study (SPPS) was established at the Australian National University (ANU) in 1975 with the first data files set up in 1976. The impetus behind gathering student data was to attempt to identify the causes and to suggest policy formulations to reduce the high attrition rates seen in the 1960s. In those earlier years approximately one third of all undergraduates failed to complete their studies. This was wasteful of human and financial resources.

Originally, the study was meant to benefit from longitudinal data sets and be able to address the affects of specific ANU changes and influences. Previous research in this area was not always easily interpretable in terms of the ANU. Although there was a core of data that provided for longitudinal studies, alterations were made in the type of data stored as the specific interests of the ANU changed. This was achieved by altering the questionnaire material from the SPPS and ANU enrolment forms accordingly. In brief there were four main types of information that were kept on the SPPS computer files:

- Demographic variables eg. home address, term time accommodation, marital status, ethnicity, etc.
- Previous educational attainment, basis for admission eg. ASAT, TES etc.
- ANU performance, subjects and grades, withdrawals.
- University experience eg. expectations, motivation and methods of study.

Initially it was hoped to examine the destinations of ANU graduates but this has been regularly undertaken by the Careers and Appointments Service. The SPPS study was based mainly in the Office for Research in Academic Methods (ORAM) though there has been close cooperation with other units within the university, in particular with the Counselling Centre, Careers and Appointments Service and the Study Skills Unit. In addition, all reports are circulated to various key individuals to provide feedback into the system. This is particularly the case within the University where the Head of Careers and Appointments, Head of Counselling, Head of Study Skills, the Registrar, Dean of Students and Deans of Faculties are kept up to date on all SPPS studies. The SPPS programme was not intended to give rise to a

single study but was more to provide a series of continuing papers which are listed in Appendix A.

During the past 13 years some 31 reports have emerged, ranging from studies on student attrition to the performance and progress of students admitted under the adult special entry schemes. In general, the studies fall into four main categories:

● Demographic	9 studies
● University performance	
a) students who pass	15
b) attrition and withdrawal	10
● University experience	13
● Previous academic achievements	8

The rate of withdrawal from all units was not appreciably different between government and private schools.

There is of course some considerable overlap in most cases in that studies may examine the relationship between previous academic achievement and ANU performance or how demographic factors and student personal characteristics are associated with the withdrawal of students. An overall plan can be seen in Table 1 (Appendix B) where each SPPS study is numbered and coded into this overall scheme.

Earlier reports summarising the Progress and Performance Study up to 1978 were written by Bennett and Mortimore (SPPS 14) and Miller (SPPS 15). The latter report considered some of the implications of the findings to that date and included a number of recommendations from an informal working party consisting of representatives from different sections of the University. The four main recommendations from these meetings are listed below.

1. The University may wish to consider making greater use of diagnostic tests to identify any lack of computational or writing skills among incoming first year students. Bridging courses could be arranged for those students lacking the necessary skills.

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2. During Orientation Week students should be given more information on resources available to assist their learning, including the Study Skills Unit, the ANU Library and academic staff.

3. Marked differences in academic backgrounds of entering students were attributed to the range of courses available in Years 11 and 12 of feeder schools in the ACT, NSW and other States. A more generalised and flexible first year, at least in subjects which build on secondary school studies, was therefore suggested.

4. The highest percentage of cancellations or non-re-enrolment came from students who had previously completed tertiary courses elsewhere. The informal working party concluded that some of these students had underestimated the difficulties of undertaking further studies and it was suggested that course advisers should discuss the implications of this with such students.

External publications have been rare, mostly because of the confidentiality of the reports and often due to the study being specific to the ANU. It is also the case that the main impetus was to provide data on any ANU areas that might be causing problems or simply because no one knew the answers to many of the questions answered by the SPPS programme. However some external publications resulted from the SPPS data bank (Watkins, 1982a; 1982b; 1983 and 1984; Kilminster, 1988 in submission). Furthermore, Watkins also made public his findings on the expectations and realities of ANU life as perceived by 687 undergraduates. One of the major findings was that 38% of those students sampled reported motivational difficulties in their first year studies. Few students had anticipated such problems. When only school leavers were examined, the percentage of students reporting motivational problems rose to some 52%. Of course making formal policy decisions to improve motivational problems is difficult. However, by making such results public, it is possible that lecturers, counsellors and others responsible for students' academic or personal problems might eventually take notice and implement appropriate changes.

We shall now summarise the major fin-

dings of the studies within the four major groups as previously differentiated. As stated before, there is considerable overlap in the type of variables selected within these four basic groups.

Demographic Studies

The first demographic study was carried out by Bennett and Mortimore (SPPS 1) who noted that of the 1975 year intake, some 17.5% of students withdrew from the ANU before the end of the year. Only 52% of undergraduates came directly from school with 37% of undergraduates having previously undertaken some form of tertiary education before coming to the ANU.

The 1976 entry cohort was examined by Bennett and Mortimore (SPPS 2). From 1972-1976 there was a steady increase in the percentage of females entering the ANU (from 32-41%). When asked about reasons for coming to the ANU, 96% of respondents stated that their major reasons were related to difficulty in obtaining employment after school and that coming to the ANU would help their careers. The two major expected areas of difficulty were: demands on time and energy from other areas in life (42% of respondents) and academic workload (32.5% of respondents). Some 24% of students in the 1976 intake had previously enrolled in tertiary courses elsewhere. The study noted that 'housewives' did very well at the ANU, passing some 97% of all units.

Bennett and Mortimore (SPPS 3) examined demographic, withdrawal, university performance and experiential factors with regard to mature-age and part-time students entering the ANU. Some 75% of part-time students were under a public service study assistance scheme. The trend for part-time students was to increase in numbers though the overall number of undergraduate students was falling. Some of these students were enrolling at the Canberra College of Advanced Education. Mature-age and part-time undergraduates typically did not choose BSc or BSc(Forestry) possibly because the lab classes and extra curricular activities took up too much time. Most of the part-time students were fully employed. Part-time degree undergraduates exhibited an increasing rate of attrition compared with full-time degree undergraduates. Those undergraduates coming from the public service withdraw at a rate of four times that of FT undergraduates. Among part-time students the percentage of passes of units attempted and those gaining distinction or higher was highest for 'housewives', school teachers and ANU staff registered as PT students.

Mortimore examined the progress and performance of 1974-1977 entrants who were fully employed in comparison with students whose occupation was solely 'student' (SPPS 9). The former group had higher withdrawal rates.

The change in size and composition of the

ANU part-time (PT) undergraduate population between 1974-1978 was examined by Mortimore (SPPS 13). Over this period, there was a steady increase in the number of entrants who were employed part-time. The number of PT degree undergraduates went down but the number of PT no-degree undergraduates went up. The number of 'housewife' undergraduates also increased.

First year performance was compared between ANU school leaver entrants from government and private schools in the period from 1977-1979 (Mortimore and Slee, SPPS 18). The rate of withdrawal from all units was not appreciably different between Government and private schools. With the BSc degree, the percentage of students from Government schools passing all units decreased from 77.3% in 1977 to 53.8% in 1978. Comparable figures for private schools were 68% to 91.7% respectively. When considered over all course areas, the percentage of students passing at distinction or above was greater for the Government school entry in 1979 but the previous 1977-78 figures were comparable between Government and private schools. Comparisons over the three year period suggested that neither group was appreciably better or worse in terms of student performance and progress.

University Performance

An aspect of university performance which was given considerable attention by Bennett and Mortimore (SPPS 4 and 5) was the phenomenon of student withdrawal. Generally, there were many reasons for withdrawal. Overall, 46% of students claimed that NO aspect of the ANU itself influenced their decision to withdraw. Course content and workload were the most frequently stated reasons relating to their studies at the ANU, with 21% and 15% of respondents in each case respectively. Demands on student time and energy were given most frequently (47%) as the most likely personal reason for withdrawal. Some 21.4% of respondents stated that there were no personal circumstances for withdrawal and overall, 17% gave financial reasons for withdrawal.

A second stage of the analysis of withdrawal in 1976 was given in the following report by Bennett and Mortimore (SPPS 6). The results were dissected out by sex, major occupation and course type.

An investigation of how ANU students explain their academic performance was undertaken by Watkins (SPPS 22). Effort, study methods, ability and quality of teaching were seen as the major causes of academic performance. Luck was seen as being of minor importance relative to the other factors. Successful students were more likely to recognise teaching quality as being a factor in their success than were unsuccessful students. The study seems to

confirm that students believe hard work is necessary for academic success. Of note was that in Economics 1, which at that time had high failure rates, these student were more likely to ascribe their performance to the difficulty of the exams/course material as well as effort. Parenthetically, it could be argued that this study inevitably could be marred by the problems of retrospective contamination of causal attributions. Equally, it is difficult to suggest a clear way around this problem.

Factors influencing persistence at the ANU were examined in relation to comparisons with persisters, cancellees and non-returnees by Watkins (SPPS 24). In short, the study looked at 1982-83 attrition. Those students having passed all units and returning for the subsequent year were dubbed as 'persisters'. Those completing the first year but who did not return were dubbed as 'non-returnees'. The 'cancellees' were those undergraduates who withdrew during their first year. Non-returnees are likely to be more dissatisfied with their ANU courses and experience more difficulty with the interpersonal aspects of university life. The cancellee's withdrawal is primarily due to employment difficulties rather than any other problems. The student counselling services were seen to be a main source of help for these students.

Why students withdrew was also the topic of investigation for a further study of Watkins (SPPS 25). The aim of the study was to provide information to ANU decision-makers which might help them reduce the rates of student withdrawals. The reasons given for withdrawal ranged from a single sudden and usually unexpected and largely uncontrollable factor such as illness or job transfer, to a longitudinal process of disillusionment and/or realisation that other priorities make study too much of a burden. For part-time students, family commitments outweighed dissatisfaction with ANU provisions. However, full-time student cancellees were more distressed by aspects of their ANU courses. Scheduling of classes was a significant factor in the withdrawal of one quarter of the part-time students. The provision of duplicated lecture notes and perhaps the audio/video taping of lectures were suggested as being helpful.

In SPPS 26, Watkins examined the reasons why so few students were proceeding to honours. Overall, the percentage of students hoping to do honours had decreased substantially over the period from 1977-1983 to a figure typically around 50%. However, the percentage of females hoping to do honours tended to increase relative to the 1977 figures. The TES and ASAT scores were not significantly associated with a student's desire to complete an honours degree. Less than 17% of those hoping to do honours actually did honours. Analysis of the responses according to sex indicated that whereas for 1977 entrants, males entering

... students in the 1980 intake were less likely to report desiring to study for their own personal satisfaction.

BA, BSc and BSc (Forestry) degree courses were significantly more likely to hope to do Honours than were the females, in 1983 this trend was reversed for the BEc and BA/AS but not for BA/LLB degree entrants.

University Experience

An investigation of persisting students' views of their first year at ANU was reported in SPPS 19 (Watkins, Slee and Mortimore, 1981). The factors most frequently stated as areas of personal difficulty were: confidence, energy/stamina, essay writing and finance. With regard to difficulty with ANU aspects, the most frequently reported factors were teaching methods and information feedback within individual units. Subtle differences were exhibited across different course areas. The expectations and experiences of students were very similar with some minor exceptions. The students' difficulty and satisfaction ratings were correlated with academic performance in the first year. The correlational relationship was typically below 0.2. Of note was the finding that the majority of students expected no difficulty nor did they find any.

A further investigation into the expected difficulties and motivations of school leaver entrants to the ANU in 1976 and 1980 is given in SPPS 20 (Watkins, Slee and Mortimore). Over 60% of respondents claimed important reasons for coming to the ANU were employment and career prospects. Over 50% of respondents gave 'studying a particular course that I am interested in', as an important reason for coming to the ANU. This was equally the case in 1976 as it was in 1980. The reasons for coming to university were much the same over a six year period. However, students in the 1980 intake were less likely to report desiring to study for their own personal satisfaction. The 1980 undergraduates were less likely to anticipate problems with academic and personal problems. Subtle differences were reflected when analysed by course and sex. Females were more often worried about their lack of confidence than the males. The males were more often concerned with a lack of jobs and more likely to anticipate motivational difficulties.

A later report by Watkins (SPPS 21) examined further the relationship between expected difficulties and motivations of school leavers in 1976 and 1982. The results extended over another two years from the previous study which reinforce the previous conclusions in SPPS 20.

Watkins examined the relationship between personal characteristics and their prediction of first year grades at the ANU in 1982 (SPPS 23). In particular, this study set out to improve the prediction of first year grades beyond that of the TES. Supplementary variables included the students' adjustment to university life and their approach to tertiary study. Overall, there were large faculty differences in the results with the TES being only a moderately good predictor variable for first year achievement but more so in Science than Arts Faculties. Quite large increments (40%) in variance were achieved in some cases by the addition of other predictor variables.

Against a background of an increasingly multicultural Australian society and the increasing numbers of overseas students coming to Australian universities, Watkins (SPPS 27) examined the progress and performance of students from English and non-English speaking backgrounds. Students from European non-English language speaking backgrounds experienced the same overall level of academic difficulties in their first year as those from English speaking backgrounds. However, students from non-European backgrounds tended to experience more difficulties in areas such as public expression, academic background, essay writing and a general lack of confidence. There was no evidence of differences in learning style between students from different language backgrounds.

An investigation of the reasons 1984 school leavers gave for coming to the ANU was reported in SPPS 28 (Watkins). The major reasons for coming to the ANU were first that, Canberra was close to home (>40%) and second, the high reputation of the ANU and third, the availability and flexibility of courses. Course availability was most frequently cited by female respondents. There were other differences according to course; e.g. the reputation of the ANU was deemed relatively more important by female students in Law and Economics Faculties. Flexibility and availability of courses was more frequently given by Arts or combined degree students. Sample size was just under 600.

The relationship between students' expectations, experience and performance was examined in SPPS 29 (Hort). Students reported difficulties in study methods (35%), academic background (26%), public expression (24%), confidence (22%), motivation (21%) and energy/stamina (15%). These results were in agreement with earlier studies. However, the order of difficulty in terms of these factors was reversed in terms of the 'reality' experienced (Spearman rank $r = 0.66$). The analysis was carried out according to four cohorts identified by 'yes-yes', 'yes-no', 'no-yes' and 'no-no' in response to having or not having difficulties re expected/experienced. In general, some interesting patterns appear to have emerged.

The majority of students neither expected nor found difficulties in their studies at ANU. Even so, there was a sizeable minority whose expectations are not matched by their experiences and whose academic performance appeared to be related to their perceptions of difficulty.

Previous academic achievement

The SPPS 8 report (Bennett and Mortimore) dealt with a longitudinal study of performance and progress from 1974-1977. A comparison was made of students admitted under the early admission scheme with other school leaver entrants. In summary, 1970 saw the University introduce an early admissions scheme under which a proportion of students were given entry status on the basis of their school principals' assessments and thus they were not required to satisfy the normal HSC requirement for entry to the ANU. The scheme's trial period lasted from 1971-1976. Students admitted under the early entrance scheme had a greater number of passes and higher grades than students admitted on the basis of their HSC results. Despite the superior performance of students admitted under the scheme, the scheme was discontinued in 1976 due to its high administrative costs.

Applicants for entry to the ANU from 1974 were able to apply under the following alternative adult admission requirements: 1) if more than five years had elapsed since the completion of formal schooling and 2) three HSC subjects were successfully completed in one year. These adult matriculants were compared with school leavers and 'early school leavers' groups (Bennett and Mortimore, SPPS 10). Adult entrants passed a higher percentage of units attempted and were more likely to pass at distinction level or above when compared with other students. The number of 'housewife' matriculants withdrawing was much less than other student groups.

The same authors completed a similar study in relation to the 1977 intake of the special adult entrance scheme (SPPS 11). In 1977 some 5% of undergraduates were adult matriculants. Of these, 80% were enrolled in the BA degree. Adult matriculant withdrawal rates were similar to other school leaver entrants enrolled in the BA programme. The pass rates in all attempted units was similar to other school matriculants. However, 'housewives' had higher pass rates than all other admission categories. Unlike the previous study relating to the 1974 intake, the academic performance of the 1977 adult special entrants was not superior to that of the other student groups.

Bennett and Mortimore (SPPS 12) examined further the progress and performance of 'housewife' adult entrants. The number of 'housewife' entrants increased

... 'house-wives' are a relatively untapped pool of latent demand and talent for higher education.

from 1974 to 1978 where they represented 6% of the undergraduate population. 'Housewife' completion rates were lower than students who were solely or mainly (SM) students but the percentage of those proceeding to do honours was not appreciably lower than other SM students. 'Housewife' withdrawal rates were higher than SM students but were much less than other students with full-time work commitments. This latter group perhaps provides a better comparison with 'housewives' since it may be argued that housework can be a full-time job. The percentage of passes at or above distinction level was higher than other comparable student groups from 1974-1977. In 1977 the percentage of 'housewives' gaining distinction was slightly below that of SM students. In summary, the authors of SPPS 12 concluded that 'housewives' are a relatively untrapped pool of latent demand and talent for higher education. A further report on the 'housewife' entrants in addition to SPPS 12 can be found in SPPS 16 which was presented to the Admissions Committee.

The first year performance of 1979 entrants who were admitted under the special adult admission requirements is reported by Slee and Mortimore (SPPS 17A). In 1978 the ANU initiated the Special Adult Entry Scheme (SAES). This was for adults who were above 25 years who could enter the ANU by reaching an appropriate standard on a modified ASAT and by writing an essay. This first cohort entered the ANU in 1979 and their progress and performance was compared with other undergraduate cohorts. SAES students withdrawal rates were higher than FT students but they had a higher percentage of passes at distinction and above than ACT school leavers. In summary, the report concludes that both the SAES and the early adult entry schemes (for school leavers) were very worthwhile in terms of the academic performance of these groups at the ANU.

A report on the impressions of first year ANU lecturers of their students' English competence was carried out by Slec (December 1985). This was commissioned by the Dean of Arts and, although it was not designed to be part of the SPPS series, it nevertheless dealt with related issues, albeit from the perspective of lecturers rather than students. The incidence of reported weaknesses in students' English usage was markedly lower among respondents with first year foreign language skills. Specific areas of weakness which were identified

were written expression, oral expression, listening and reading comprehension. Most respondents who reported significant weaknesses in English also reported that the latter were markedly detrimental to performance in their subjects. The likelihood that problems in English have negative effects on general academic performance was greater for Arts respondents than for Science, who in turn, are more likely to have problems than Economics/Commerce respondents.

A study examining the relationships between TES and ASAT scores with achievement in first year units was undertaken by Slee and Mortimore (SPPS 17B). This study involved the ACT school leaver entrants to the ANU in 1979. The TES was found to correlate with first year units but the correlation varied according to type of course. The maximum correlation reached 0.876 with first year Geography but with all other units, there was a wide variation between courses and even within course units (eg History 1A, 1B, 1C). However, the differences in sample sizes confounded the differences between units. In addition sample sizes were generally far too small so that this study serves as a pilot study for later work in this area (see Kilminster, SPPS 30). Generally, the TES was a superior predictor of first year performance than the ASAT, but there were marked variations to this generality.

A final study that examined the possibility of increasing the predictive power of the TES in explaining first year grades in one large faculty was given in SPPS 30 (Kilminster). This was a theoretical and statistical paper which was empirically based. In short, although the TES is a good predictor of first year grades, it can be improved upon. The addition of the mean science grades from year 12 secondary school ACT certificate (HSC) can improve the prediction and hence selection by some 7%. With other cohorts, the prediction may be improved by some 40% by the addition of supplementary or independent HSC variables into a linear equation. The paper argued the case against the assumed unidimensionality of the TES and provided empirical evidence not only to buttress this assertion, but also showing how multi-dimensional predictors can have superior predictive power. The analysis was predominantly by variance partitioning with multiple regression techniques.

Conclusion

A considerable amount of information has been gathered by the SPPS programme over the last 13 years which has addressed problems met by ANU students. The SPPS programme has adduced information in relation to four main interrelated areas including demographic changes, student performance at university as measured by pass or withdrawal rates, ANU students' experiences and expectations, and students' previous

academic achievement before entering the ANU. Much of this data was quite complex in nature especially when the results were analysed by gender and Faculty. A very brief summary is given above showing the wide range of interesting questions that have been largely addressed by the SPPS programme.

Although the regular collection of data has been discounted from 1988, the SPPS reports form a permanent consultative record for those interested in such questions as special admissions procedures or student attrition. It would be possible for ORAM to gather further data in order to answer specific questions at some time in the future if requested to do so. Any such work would benefit from the large amount of background information already gathered in the SPPS files.

References to published work

Kilminster, S.G. (1988). Improvement in prediction of first year performance in one Faculty at the ANU. *Aus. J. Education*. (in submission)
 Watkins, D. (1981). Need to combat low motivation of students. *ANU Reporter*. 12 (13) November. p6.
 Watkins, D. (1982a). Academic achievement and the congruence of study motivation and strategy. *Br. J. educ. Psychol.* 52, 260-263.
 Watkins, D. (1982b). Factors influencing the study methods of Australian tertiary students. *Higher Education*. 11, 369-380.
 Watkins, D. (1983). Assessing tertiary study processes. *Human Learning*. 2, 29-37.
 Watkins, D. (1984). Learning strategies as threshold variables in the prediction of tertiary grades. *Educ and Psychol. Measurement*. 44, 523-525.

**Appendix A
STUDENT PERFORMANCE AND
PROGRESS STUDY: PAPERS**

No.
 1. Attrition Study — Interim report. Aug. 1975. *Bennett & Mortimore*
 2. The 1976 entry cohort. October 1987. *Bennett & Mortimore*
 3. Mature and part-time students. April 1977. *Bennett & Mortimore*
 4. Rates of attrition during 1976 (A revised and extended version of the paper 'Attrition during the academic year 1976 (circulated in June 1976) August 1977. *Bennett & Mortimore*
 5. Reasons for undergraduate withdrawal from ANU: Summary analysis of 1976 survey results. May 1977. *Bennett & Mortimore*
 6. Reasons for undergraduate withdrawal 1976: Stage 2 analysis. August 1977. *Bennett & Mortimore*
 7. Research design. Current and future areas for investigation. August 1977. *Bennett & Mortimore*
 8. Population study. A longitudinal study of the academic performance and progress from 1974 and 1977 of students in the 1974 entry-cohort who were admitted under the

early admissions scheme, compared to other school-leaver entrants. November 1977. *Bennett & Mortimore*

9. Performance and progress of 1974-1977 of 1974 entrants who were fully employed, compared with students whose occupation was 'solely or mainly student'. May 1978. *Mortimore*
 Plus Appendix
 10. Performance and progress of 1974 entrants admitted under special adult admission requirements. May 1978. *Bennett & Mortimore*
 Plus Appendix
 11. Performance and progress in 1977 of 1977 entrants admitted under special adult admission requirements. May 1978. *Bennett & Mortimore*
 Plus Appendix
 12. Undergraduates who gave as their occupation 'housewife' or 'not in paid employment but occupied with family or domestic responsibilities' July 1978. *Bennett & Mortimore*
 Plus Appendix
 13. Changes in the size and composition of the ANU part-time undergraduate population 1974-78. May 1978. *Mortimore*
 14. Summary of results to May 1978. June 1978. *Bennett & Mortimore*
 15. Some implications and recommendations for action. June 1978. *Miller*
 16. Performance and progress of degree undergraduates in 1974 and 1977 entry cohorts who were admitted under special adult admission requirements and described their occupation as 'housewife'. June 1978. *Bennett & Mortimore*
 17.A 1979 Adult entrants. The first-year performance of 1979 entrants admitted under adult admission requirements. March 1980. *Slee & Mortimore*
 17.B Correlations between TES and ASAT scores and marks in first year units — ACT school leavers entrants to the ANU. 1979. *Slee & Mortimore*
 18. Changes in the first-year performance of ANU school-leaver entrants to ANU 1977-79: a comparison between Government and private school-leaver entrants. August 1980. *Mortimore & Slee*
 19. Reactions to University Life. An investigation of persisting students' views of their first year at ANU. November 1981. *Watkins, Slee & Mortimore*
 20. Expected difficulties and motivations of school leaver entrants to ANU in 1976 and

1980. November 1982. *Watkins, Slee & Mortimore*

21. Expected difficulties and motivations of school leaver entrants to ANU in 1976 and 1982. November 1982. *Watkins, Slee & Mortimore*
 22. How our students explain their academic performance. June 1983. *Watkins*
 23. Beyond tertiary entry scores: prediction of first year grades at ANU in 1982. July 1983. *Watkins*
 24. Factors influencing persistence at ANU: a comparison of persisters, cancellées and non-returnees. October 1983. *Watkins*
 25. Why students withdrew from ANU in 1982. October 1983. *Watkins*
 26. Hoping to do Honours? A study of 1977 and 1983 ANU entrants. July 1984. *Watkins*
 27. Studying at ANU: A comparison of the

academic problems of students from English and non-English speaking home backgrounds. July 1984. *Watkins*

28. Why ANU? An investigation of the reasons 1984 school leaver entrants give for coming to ANU. November 1984. *Watkins*
 ★ Report to the Faculty of Arts: Survey of teachers' impressions of their students English language competence, 1985. *Slee*
 29. Expectation, Reality and Performance. A study of the relationship between expected difficulties, difficulties reported, and student performance. 1985. *Hort*
 30. Improvement in prediction of first year performance in one Faculty at the ANU. 1988. *Kilminster*
 31. A review of the student performance and progress study 1975-1988. *Kilminster*

Appendix B

Table 1 — SPPS studies by group and number

Demographic	University Performance		University Experience	Previous Academic Achievement
	(A) Pass	(B) Withdrawal		
1		1		
2				
3	3		4	
			5	
			6	
	8			8
9	9		9	
	10			10
	11			11
12	12			
13				
16	16			16
	17A	17A		17A
	17B			17B
18	18			
	19		19	
			20	
			21	
	22	22	22	
	23		23	23
		24	24	
		25	25	
27			26	
			27	
			28	
	29		29	
	30			30

Table 1 uses the same numbering for each study as listed in Appendix A.