ASSESSMENT IN THE UPPER SECONDARY SCHOOL IN WESTERN AUSTRALIA

REPORT of the Ministerial Working Party on School Certification and Tertiary Admissions Procedures, chaired by Professor Barry McGaw

PERTH, APRIL 1984
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Report on the Ministerial Working Party
on
School Certification and Tertiary Admissions Procedures

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Preface

We have prepared this report as members of the Working Party on School Certification and Tertiary Admissions Procedures appointed by the Minister for Education, Hon. R.J. Pearce, in March 1983. The Working Party was established because of increased expressions of concern from schools about the influence of Year 12 examinations and tertiary institutions' selection procedures on the upper secondary school curriculum. Since both schools and tertiary institutions have a vital interest in the upper secondary curriculum, the Working Party contained similar numbers of representatives from the secondary and tertiary education sectors. In presenting this report, however, we can neither speak for our institutions nor guarantee their support for our proposals.

The establishment of our Working Party coincided with the establishment of a more general Committee of Inquiry into Education in Western Australia, chaired by Mr K.E. Beazley. One of that Committee's Terms of Reference referred to the central issues before us, those of school certification and tertiary admissions procedures. To deal with the issue, Mr Beazley's Committee appointed a sub-committee of which four of us (Messrs Dickinson, McGaw, Scriven, Shanahan) were members. Professor McGaw, who chaired our Working Party, also chaired this sub-committee. To avoid duplication of effort, the sub-committee confined itself largely to discussion of assessment in the lower secondary school and left to us consideration of certification in the upper secondary school and of tertiary admissions procedures.

We met as a Working Party on twenty-three occasions from the end of March 1983 to the end of March 1984. We invited submissions through press advertisements from the general public and, through letters, from commercial and professional associations, educational and student groups and associations, upper secondary school syllabus committees, and non-Government secondary schools. The Director-General of Education wrote to Government schools encouraging them to forward submissions to the Beazley Committee, which then made available to us all of its submissions relevant to our inquiries.

We received 48 submissions direct and examined 96 of the submissions to the Beazley Committee. Those who made submissions direct to us are listed in an Appendix. We also considered a large number of other documents and reports, including some prepared especially for us. Members of our Working Party visited six schools in the metropolitan area for discussions with students in Years 10, 11 and 12 and with school staffs. We met on another occasion with a group of student counsellors from both secondary and tertiary education institutions, to discuss their views on the issues before the Working Party. The information we received in these ways was influential in our discussions and in the formulation of our recommendations.

On various occasions, when other commitments made attendance at meetings of the Working Party impossible, colleagues deputized for us. We express our thanks to Dr...
Brian De Garis, who deputized for Professor Boyle; Mr David Carlson for Dr Clark; Dr John Bunday for Mr Rourke; Associate Professor Lawrie Davidson for Professor Wales; and Dr Mark Liveris, Ms Margaret Nowak and Dr John Sharpham for Dr Watts. The initial representative of the Western Australian College of Advanced Education was Dr Doug Jecks, but he nominated Dr Bovell to replace him from June 1983.

Our Terms of Reference are set out on pages ix-x. In considering the issues before us we were conscious of the implications of the continuing increases in participation rates in upper secondary education. Our society is approaching the point where virtually all of its members will become adults while still at school. We believe that upper secondary education should be modified, in an attempt to give all who participate access to a relevant and valued curriculum. We also believe strongly that those students who do proceed to tertiary institutions should continue to receive, at secondary school, a solid preparation for advanced study.

We recognize that these two broad goals can, in some ways, be contradictory, but we have sought to pursue them both. We reject curriculum structures which seek to separate the goals by separation of students into rigid categories based on some judgements of their likely post-school destinations. Our recommendations are intended to free the upper secondary school from many of the constraints imposed by the requirements of tertiary institutions without sacrificing the quality of preparation for tertiary study.

In Chapter 5, we discuss three possible procedures for determining admission to tertiary study, each of which could provide more encouragement than do the present procedures for students to choose subjects from the full range available in Years 11 and 12. The procedures we considered are characterized in Chapter 5 as a three-subject aggregate; a ‘3 + 2’ or ‘3 + 3’ subject aggregate; and an average based on three, four or five subjects. We discuss the strengths and weaknesses of each of the three procedures. Our choice, declared in Recommendation 17 (e), is for the use of the average, though one member, Don Watts, would have preferred either of the other two. He is, however, willing to accept the majority recommendation as offering considerable advantages over the current system. In Chapters 5 and 7, we suggest developments which should be monitored, if our proposals are implemented, to determine whether any refinements or changes should be made. The administrative changes we suggest in Chapter 6 should facilitate this monitoring and enable any adjustments to be made without recourse to a formal inquiry such as we have conducted.

Some of our recommendations urge action upon the four tertiary institutions. Others apply to the secondary sector. We will judge our report to have been successful only if the four tertiary institutions adopt a common admissions procedure along the lines we have recommended and if the secondary schools maintain both quality and breadth in students’ final two years of secondary education.

We are grateful for the considerable assistance we received in the production of our report from Maureen Brown and Kelly Reedman. They coped extraordinarily well with the revisions which a team of fifteen authors managed to require.
Terms of reference

The Working Party is charged with reporting to the Minister for Education on current procedures for the admission of students to tertiary institutions in Western Australia and the influence of those procedures on the educational programmes offered in secondary schools. It is to consider both the obligation on schools to provide for the educational needs of all their students and the requirement that tertiary institutions admit able and well-prepared students, and to recommend any changes it deems to be necessary in the practices of schools and tertiary institutions.

Specifically, the Working Party is asked to examine:

1. Procedures for general admission to tertiary institutions, considering
   (a) the nature of existing procedures used for general admission;
   (b) the desirability of the development of common procedures for all tertiary institutions;
   (c) the need for understanding of the procedures by students and parents;
   (d) the validity of aggregate marks from the Tertiary Admissions Examination presently used for admissions, in terms of:
      (i) provision of equitable access to tertiary study and
      (ii) prediction of performance in tertiary study;
   (e) the desirability of a greater role for schools in assessing students' performance and suitability for tertiary study;
   (f) the value of other procedures for tertiary admissions
      (i) used in Western Australia for mature age students;
      (ii) used in other Australian States and overseas; or
      (iii) proposed to the Working Party; and
   (g) the potential impact on levels of entry and the adequacy of undergraduate programmes of any broadening of the curriculum in Years 11 and 12.

2. Procedures for selecting students for tertiary programmes with limited enrolments, considering
   (a) the extent of limitations in availability of student places in different programmes of study;
(b) the nature of existing procedures used for selective admissions to restricted programmes; and

(c) the appropriateness of using the same procedures for selective entry as those used for determining general admissions.

3. The curriculum in Years 11 and 12 of secondary schools, considering
   (a) its suitability for all students in these Years and not only those preparing for tertiary studies;
   
   (b) the extent to which students should be able to change subjects during Years 11 and 12 and how any such changes might be facilitated;
   
   (c) influences on students' choices of subjects in Years 11 and 12, including:
      (i) general admissions procedures of the tertiary institutions;
      
      (ii) procedures for selective admission to restricted programmes at tertiary institutions;
      
      (iii) specific subject prerequisites of various tertiary programmes;
      
      (iv) any requirement that students' choices of subjects be made from prescribed categories of subjects;
      
      (v) the requirements that all TAE and CSE (General) subjects be usually studied for two years; and
      
      (vi) uses made in selection for post-school employment of aggregates calculated for admission to tertiary institutions; and

   (d) the extent to which certification of students' levels of performance in their subjects studied in Years 11 and 12 might be more broadly based than assessments for tertiary admission; and

4. All other matters relevant to the inquiries of the Working Party.
List of Recommendations

Chapter 3. PROPOSALS FOR THE UPPER SCHOOL CURRICULUM

1. That subjects offered in the upper secondary school include
   (a) those formally accredited by a central authority; and
   (b) those developed and offered by individual schools,

   with individual students able to take appropriate combinations
   of subjects from both categories (p. 34).

2. That general breadth of study requirements for students in Years
   11 and 12 be established as conditions for secondary school
   graduation and that these consist of the successful completion of the
   equivalent of twelve years of schooling, including
   (a) the completion of some minimum balance of studies in
       humanities, mathematics, science and social studies to be
       determined by a representative central authority; and
   (b) the attainment of a satisfactory level of competence at Year 12
       in literacy (p. 36).

3. That, for the assessment of students' levels of competence in literacy,
   (a) explicit definitions of adequate performance in the range of
       necessary skills at Year 12 be developed; and
   (b) test materials be developed to facilitate schools' assessments of
       their students' performance levels (p. 36).

4. That subjects offered in the upper secondary school be offered in
   modules which
   (a) have a maximum of one year's duration;
   (b) occupy a maximum of one-sixth of a full-time student's course
       of study; and
   (c) where necessary, are developed as sequenced courses with the
       Year 12 unit presuming the content of the prior Year 11 unit
       as a basis for successful study (p. 37).

5. That, in implementing more flexible patterns of enrolments in Years
   11 and 12, schools ensure that subjects equivalent to the present
   Tertiary Admissions Examination subjects be offered in as great a
   range as at present (p. 38).
Chapter 4. PROPOSALS FOR ASSESSMENT AND CERTIFICATION

6. That the central certifying authority experiment with the definition and use of performance criteria for assessing students as an alternative to the present system of assessing students only in relation to the performance of others (p. 39).

7. That the external examinations be maintained, at least for all subjects which are central to the tertiary admissions process (p. 40).

8. That school assessments of performance be obtained in all subjects
   (a) covering all aspects of the syllabus, regardless of whether any part is also covered by external examination; and
   (b) derived according to a structure defined by the central certifying authority to assure consistency of criteria across schools (p. 41).

9. That the central certifying authority regularly investigate the relationships among various assessments of student performance, particularly between internal and external assessments, and their individual and joint relationships with measures of subsequent performance, such as results in tertiary studies (p. 41).

10. That, for all subjects accredited by the central certifying authority, comparability of school assessments be sought
    (a) in the case of subjects with external assessments, by moderating the school's assessments against the external assessments of the students (transforming the distribution of the former to that of the latter); and
    (b) in the case of other subjects, by various means of moderation such as reference testing on aspects of the syllabus, meetings of teachers and visits by moderators (p. 42).

11. That scaling of subject results to take account of differences in the academic abilities of the candidates in different subjects
    (a) be undertaken at least with all subjects which may contribute to any tertiary admissions score;
    (b) be achieved by scaling a 50:50 composite of external and moderated school assessments against the Australian Scholastic Aptitude Test; and

that the properties of the Australian Scholastic Aptitude Test be regularly and systematically investigated (p. 43).
12. That no general aggregate of assessments, such as the Board of Secondary Education's Index of Academic Standing, be formed to provide some global index of a student's achievement (p. 44).

13. That, for any student who has completed at least one term of Year 11, a formal certificate recording achievements in upper secondary school be provided whenever the student leaves school (p. 44).

14. That, for each subject studied in Years 11 and 12, the Certificate of Secondary Education show
   (a) the size of the unit of study involved;
   (b) whether it is a subject accredited by the central authority or one developed by the school;
   (c) if it is a school subject, an unmoderated grade A, B, C, D or F or no grade, according to the school's grading policy for the subject;
   (d) if it is an accredited subject, a moderated grade A, B, C, D or F; and
   (e) if it is an accredited subject with external assessment, as an optional addition, a mark on a 0-100 scale obtained as a 50:50 combination of external and moderated school assessments, scaled against the Australian Aptitude Test, except that this additional mark be mandatory for subjects which may contribute to a tertiary entrance score, with
   (f) the letter grades be interpreted as:
       A — excellent achievement
       B — sound achievement
       C — satisfactory achievement
       D — marginal achievement
       F — fail (p. 45).

15. That, where a student has achieved a satisfactory level of literacy and where a student has satisfied all the requirements for secondary school graduation, these be shown by annotation on a student's Certificate of Secondary Education (p. 46).

16. That the Certificate of Secondary Education be issued by the central certifying authority (p. 46).
Chapter 5. PROPOSALS FOR TERTIARY ADMISSIONS PROCEDURES

17. That, for admission to a tertiary institution, a student normally be required to have

(a) completed the requirements for secondary school graduation;

(b) performed satisfactorily in six subjects, of which at least five are accredited Year 12 subjects; and

(c) achieved a sufficiently high ranking in the Tertiary Entrance Scores to have gained a place in a course for which application has been made; with

(d) satisfactory performance for subjects referred to in (b) being defined by the tertiary institutions in terms of level of result, A-D and F;

(e) the Tertiary Entrance Score being a 50:1 weighted average of the student’s best mean score on three, four or five subjects from a subset of the accredited subjects (with at least one humanities/social studies and one quantitative/science subject contributing to the average) and the student’s score on the Australian Scholastic Aptitude Test; and

(f) the subject results contributing to the average referred to in (e) being scaled values of a 50:50 composite of external examination results and moderated school assessments (p. 55).

18. That tertiary institutions, in consultation with technical and further education authorities, review current arrangements for students moving to tertiary study from technical and further education (p. 57).

19. That tertiary institutions, in consultation with the central certifying authority for upper secondary education, review the Years 11 and 12 prerequisites set for courses of study at tertiary level (p. 59).

Chapter 6. PROPOSED ADMINISTRATIVE ARRANGEMENTS

20. That the Board of Secondary Education and the Tertiary Admissions Examination Committee be abolished and a Secondary Education Authority be established, consisting of

(a) the Director-General of Education, ex officio, as chairperson;

(b) twelve representatives of the secondary education sector, Government and non-Government, and including both administration and teacher representatives;
(c) eight representatives of the tertiary education sector, two from each of the four tertiary institutions; and

(d) four general community representatives; and

that this Authority be responsible for the accreditation of courses of study and the certification of student achievement in secondary education, including the conduct of any external examinations (p. 62).

21. That the Secondary Education Authority establish a Standing Committee, responsible for all subjects in Group A, consisting of equal representation from the tertiary education and secondary education sectors (p. 62).

22. That the staff and support functions of the current Board of Secondary Education and Tertiary Institutions Service Centre be combined into a single agency to service the Secondary Education Authority and to process applications for admission to tertiary studies, on behalf of the tertiary institutions (p. 63).
1 The upper secondary school curriculum in Western Australia

1.1 Origins of the current system

Universities in Australia have played an important role in shaping the secondary school curriculum. From its beginning in 1913, the University of Western Australia conducted public examinations to assess the achievements of secondary school students. Results in these examinations not only determined admissions to the university but also provided certification of educational achievement which served other purposes as well, such as selection for employment.

The University's Public Examinations Board conducted both Junior Certificate examinations at the end of Year 10 and Leaving Certificate examinations at the end of Year 12. Admission to post-secondary study at the University, Claremont Teachers College and technical institutions was possible from either examination but the Leaving examinations ultimately provided the main access to post-secondary study.

In the early 1950s, matriculation to the University was granted to students who passed English and any four of a further twenty-two subjects. A significant change in the matriculation requirements in 1956 illustrates the manner in which the University could influence directly the pattern of study in secondary schools. Subject groupings were introduced to prevent narrow specialization at the secondary level. Students still had to pass English and at least four other subjects to matriculate to the University, but the four other subjects now had to come from at least three of the following groups:

- Foreign Languages
- Geography, History, Economics
- Mathematics A, Mathematics B, Music
- Biology, Chemistry, Geology, Physics.

This grouping obliged mathematics/science students to take at least one humanities subject and humanities students to take either music or a mathematics or science subject.

In the late 1950s, concern began to grow within the University of Western Australia about the adequacy with which the Leaving examinations served the dual purposes of shaping secondary education and selecting students for admission to the University. The feeling grew that the University should conduct its own Matriculation examinations, distinct from the Leaving examinations. South Australia and Victoria did conduct separate examinations at this time, though their Leaving examinations were at Year 11 and their Matriculation examinations at Year 12.
Extensive discussions were held in the ensuing years between representatives of the University, the Education Department and the schools. The Secretary to the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, Sheffield and Birmingham (Dr J.A. Petch) was invited to Western Australia by the University to review the public examinations system here. He recommended against the creation of separate Leaving and Matriculation examinations, proposing instead the use of 'pass' and 'special' papers, testing the same content at different levels in most subjects. He anticipated that matriculation candidates would show breadth through the pass papers and depth in two special papers and that students not seeking matriculation would take only pass papers.

In 1966, it was decided, however, to replace the Year 12 Leaving examinations with separate Leaving and Matriculation examinations. The new examinations were set for the first time in 1969. Most subjects were examined at both levels, with the Matriculation examinations providing more difficult tests of the same course content as the corresponding Leaving examinations. There were two broad purposes in this change. One was to provide certification of achievement at the end of secondary schooling through a Leaving Certificate, particularly for students who did not wish to study at the University. The other was to provide more stringent assessments of achievement for those students wishing to matriculate to the University.

The University's Public Examinations Board conducted Leaving and Matriculation examinations from 1969 to 1974. The separation of the two examinations was never really successful in separating the functions of certification and tertiary selection. Most students sat for both examinations in all of their subjects for which both were set. The end result was that the Matriculation results, with the higher status, were used for many of the purposes for which the Leaving results were intended.

During the early 1970s, further changes were considered. The tertiary education sector expanded through substantial growth in the Western Australian Institute of Technology, growth in the teachers colleges and planning for the establishment of Murdoch University. The Western Australian Tertiary Education Commission, established in 1971, was obliged by its Act to co-ordinate the admissions procedures of all the tertiary institutions. At the same time, the Board of Secondary Education, established in 1969, was planning the introduction of a new certification system for the end of Year 12. The products of these two agencies were introduced in 1975 and constitute the current certification and tertiary admissions procedures which we describe in detail in Section 1.3.

1.2 Current upper secondary curricula

Two-year subjects

The Tertiary Education Commission established a Tertiary Admissions Examination Committee to develop syllabuses for courses of study to be taken in Years 11 and 12. Membership of the Committee is weighted heavily in favour of tertiary institutions. Of its seventeen members, twelve are nominated by the tertiary institutions, three by
the Education Department and two by the Association of Independent Schools. The chairperson is elected by the members from among the tertiary representatives.

The Board of Secondary Education also has responsibility for syllabuses in Years 11 and 12. Its membership is heavily weighted in favour of schools. Of the eighteen members (apart from the Director), nine represent Government schools, five represent non-Government schools, two represent the broader community and two represent the tertiary institutions. The chairperson of the Board is the Director-General of Education, *ex officio*. Consideration is currently being given to increasing the Board's membership by granting formal membership to observers from Murdoch University and the Western Australian College of Advanced Education. The present two full members from the tertiary sector are formal representatives of the University of Western Australia and the Western Australian Institute of Technology.

The Board of Secondary Education and the Tertiary Admissions Examination Committee co-operate through the appointment of Joint Syllabus Committees for all subjects for which there is a Tertiary Admissions Examination. The sizes of these committees can vary, but most have twenty members and all have three-fifths to two-thirds of their members from the secondary sector and the remainder from the tertiary sector. Before any proposed change to a syllabus is approved, comments are sought from schools and tertiary institutions.

In 1983, there were 33 Tertiary Admissions Examination subjects for which the Board of Secondary Education and the Tertiary Admissions Examination Committee exercised joint responsibility. In addition, there were a further 30 Certificate of Secondary Education (General) subjects offered under the sole sponsorship of the Board of Secondary Education. General subjects may have their origins either in individual schools or in school systems and are submitted to the Board of Secondary Education for accreditation. The Board itself influences the forms of these courses through its guidelines for submission of courses and through the professional assistance of its Curriculum Officer.

The 63 two-year subjects available in 1983 are listed in Table 1, together with their enrolments. These figures make it clear that the Tertiary Admissions Examination subjects are taken by many more students than the General subjects. The former are designed to prepare students for subsequent study in the tertiary sector, though their purposes are not restricted to that. The latter are designed primarily for students not expecting to undertake tertiary studies and are intended to be more directly relevant for life and work after leaving school.
### TABLE 1

**YEAR 12 ENROLMENTS IN CERTIFICATE OF SECONDARY EDUCATION SUBJECTS (1983)**

<table>
<thead>
<tr>
<th>Tertiary Admissions Examination Subjects</th>
<th>General Subjects</th>
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<tbody>
<tr>
<td>Accounting</td>
<td>Advanced Industrial Arts 78</td>
</tr>
<tr>
<td>Agricultural Studies</td>
<td>Aeronautics 23</td>
</tr>
<tr>
<td>Ancient History</td>
<td>Animal Husbandry 157</td>
</tr>
<tr>
<td>Applied Technology</td>
<td>Applied Geography 9</td>
</tr>
<tr>
<td>Art</td>
<td>Community Interpreting (Italian) —</td>
</tr>
<tr>
<td>Biology</td>
<td>Crops and Pastures 155</td>
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<tr>
<td>Chemistry</td>
<td>Current Events 22</td>
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<tr>
<td>Chinese</td>
<td>Dance —</td>
</tr>
<tr>
<td>Economics</td>
<td>Early Childhood Studies 178</td>
</tr>
<tr>
<td>English</td>
<td>Farm Constructions 173</td>
</tr>
<tr>
<td>English Literature</td>
<td>Farm Economics and Management 155</td>
</tr>
<tr>
<td>French</td>
<td>Farm Practice 174</td>
</tr>
<tr>
<td>Geography</td>
<td>Furniture Woodwork 29</td>
</tr>
<tr>
<td>Geology</td>
<td>General Business Studies 103</td>
</tr>
<tr>
<td>German</td>
<td>General Computing 101</td>
</tr>
<tr>
<td>Hebrew</td>
<td>General English 324</td>
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<tr>
<td>History</td>
<td>Home Management Studies 18</td>
</tr>
<tr>
<td>Home Economics</td>
<td>Law 16</td>
</tr>
<tr>
<td>Human Biology</td>
<td>Local Area Studies 14</td>
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<tr>
<td>Indonesian</td>
<td>Media Studies 192</td>
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<td>Mathematics IV</td>
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<td>Music</td>
<td>Theatre Arts 5</td>
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<td>Physical Science</td>
<td>Typewriting and Business Communication 351</td>
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<td>Politics</td>
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<td>Technical Drawing</td>
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Source: Board of Secondary Education.
One-year courses

A more direct attempt in the upper secondary school to prepare students for employment is made through a series of one-year courses designed to terminate at the end of Year 11.

The most long-standing of these is the Vocational Business Studies course, which has led to immediate employment for many of its graduates. Other vocationally-oriented courses include that in Electrotechnology, preparing students for occupations connected with electrical trades, and that in Agriculture. Recent developments also provide for concurrent study in upper secondary schools and technical and further education colleges.

In the past few years, a further development has occurred in upper school curricula to accommodate better the increasing numbers of students entering Year 11 with little enthusiasm or aptitude for mainstream academic courses. These students' needs are not well catered for by the standard two-year courses or the existing one-year course, so individual schools have begun to offer their own Alternative Upper School courses. About 50 per cent of secondary schools currently offer such alternative courses, all of them designed to facilitate students' transition from school to work. With unemployment rates remaining high, however, some of these courses are being extended to Year 12. Responsibility for the curriculum in these courses rests with individual schools but most attempt to improve the students' Year 10 Achievement Certificate grades, to develop positive self-images amongst participants, and to develop skills likely to contribute to employability and to a satisfactory life in society. Enrolments in these Alternative Upper School courses are quite small, however, since they are clearly designed to be terminal. About nine per cent of students who completed Year 10 in 1981 enrolled in these courses in Year 11 in 1982.

Technical and further education

An additional option for students completing the period of compulsory schooling in Year 10 is to leave the secondary school but to continue with full-time study in a technical and further education college. Admission is selective on the basis of performance in the Year 10 Achievement Certificate so this option is not freely available to students. About five per cent of students who completed Year 10 in 1981 took this option in 1982. A further 11 per cent entered employment but undertook part-time technical and further education.

1.3 Current certification and tertiary admissions procedures

The creation of separate Leaving and Matriculation examinations in 1969 was an attempt to separate the functions of certification and tertiary selection in Year 12. In the event, so many students sat for both examinations that the attempted separation failed. The subsequent development of separate authorities (the Board of Secondary Education and the Tertiary Admissions Examination Committee) was another attempt to separate the functions. The Tertiary Admissions Examination Committee is concerned only with the courses and examinations used for tertiary admissions, while the Board of Secondary
Education, as the statutory authority responsible for the approval of all secondary school courses, is also concerned with those which count for tertiary admission and with the certification of achievement in all subjects.

Certification of achievement

The Certificate of Secondary Education, issued by the Board of Secondary Education to all students on completion of Year 12, reports achievement in each accredited subject studied. The level of achievement in a subject is expressed as a decile rank indicating where the student stands in relation to others taking the subject. Those in the top 10 per cent of candidates receive a grade of 1; those in the next 10 per cent a grade of 2; and so on down to a grade of 10.

In the Tertiary Admissions Examination subjects, all students sit for an external examination. Assessments of performance are also obtained from the schools. The distribution of assessments from each school in each subject is adjusted to match the distribution of results obtained by students at the school in the relevant external examination. By this moderation process, all schools' assessments are located on a common scale. For certification, an individual student's final assessment is obtained as the average of the student's scaled external examination result and adjusted school assessment, though this average mark is not reported directly. It is used to determine the student's decile rank.

For the Board's General subjects, various forms of moderation are used in an attempt to ensure comparability among schools and thus to be able to assign grades that express a student's standing in relation to all others in the State taking the particular subject. In all cases, the schools provide assessments of student performance. In some subjects, a moderating test is given to all students, with each school's assessments then being statistically adjusted to make their distribution match the distribution of the students' scores at each school on the moderating test. Depending on the subject, the adjusted school assessment may become a student's final mark or it may be combined with the student's score on the moderating test to produce the final mark from which the decile rank is determined. In other General subjects, comparability of assessment across schools is sought through discussion of assessments rather than statistical adjustments.

The discussion, for some subjects, involves groups of teachers seeking consensus about assessment criteria. In others it involves visits of a moderator to schools for direct consultation with the teachers. A combination of approaches can also be used. For example, statistical moderation may be used with assessments of theoretical aspects of a subject, while consensus moderation is used with assessments of practical aspects. The form of the Certificate of Secondary Education is illustrated in Figure 1. Subjects taken are listed without differentiation as to whether they are Tertiary Admissions Examination or General subjects or according to type of moderation. Though the grades reported are (as far as possible) comparable across schools, they are usually not comparable across subjects. If every student took every subject, it would be reasonable to compare them directly. Since they do not, variations in a student's decile ranking across subjects are clearly influenced not only by the student's ability in the subjects but also by the abilities of the other students taking the particular subjects.
This is to certify that JOHN CITIZEN achieved the following grades in the six subjects listed below:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH</td>
<td>1</td>
</tr>
<tr>
<td>ECONOMICS</td>
<td>1</td>
</tr>
<tr>
<td>MATHEMATICS I</td>
<td>7</td>
</tr>
<tr>
<td>MATHEMATICS II</td>
<td>7</td>
</tr>
<tr>
<td>CHEMISTRY</td>
<td>5</td>
</tr>
<tr>
<td>PHYSICS</td>
<td>4</td>
</tr>
</tbody>
</table>

Index of Academic Standing: 95

Issued at Perth, Western Australia, without alteration or erasure, dated 31ST DECEMBER 1983

Director

FIGURE 1. SAMPLE CERTIFICATE OF SECONDARY EDUCATION.
The Board does two things to facilitate judgements of a student's overall performance. One is to produce an aggregate of the student's assessments as a global index of performance. The other is to provide a means of comparing the student's grades in the different subjects taken. For both procedures, the groups of candidates taking each subject are compared in terms of their performances on the Australian Scholastic Aptitude Test. The distributions of marks awarded in each subject are adjusted to match the distributions of the candidates' aptitude test scores. The effect is to adjust subject marks upwards where the candidates, on average, are of high academic ability but also to adjust the spread of scores to match the spread of abilities in the group.

To obtain an aggregate assessment for each student, the best five adjusted assessments are summed. An overall order of academic merit among all students is then established. Each individual's standing in the order of Year 12 students is then related to the total population of 17-year-olds in the State. Students completing Year 12 constitute about 34 per cent of this age group and, for the purpose of this exercise, are assumed to be the top 34 per cent in academic ability. Since one per cent of 17-year-olds is equal in number to 2.9 per cent of students completing Year 12, the top 2.9 per cent of those who do complete Year 12 are deemed to be the top one per cent of the age group. These top 2.9 per cent of students in the order of academic merit are given an 'Index of Academic Standing' of 100 to declare that they are deemed to be the top one per cent of the age group. The next 2.9 per cent of students on the order of academic merit list are given an Index of Academic Standing of 99 and so on down to 67 for the bottom 2.9 per cent of Year 12 students in the order. If a greater proportion of the age group were to remain to the end of Year 12, indices below 67 would be awarded. Each student's index is printed on the student's Certificate of Secondary Education. The student whose Certificate is shown in Figure 1 obtained an Index of Academic Standing of 95 which indicates that the student was notionally in the top six per cent of 17-year-olds. The student's aggregate had established a ranking in academic performance in the top 17.4 per cent of students completing Year 12.

To provide a means for comparing decile ranks across subjects, the Board of Secondary Education adjusts the grades in the different subjects to render them more directly comparable. This again involves comparison of the academic abilities of students taking each subject. Further details for the student whose Certificate of Secondary Education was reproduced in Figure 1 are shown again in Figure 2. This student obtained a grade of 7 in Mathematics III, showing the student to have been in the seventh decile; that is, in the top 70 per cent of students in that subject. In other words, 60 per cent of the Mathematics III students (those in the first six deciles) had superior performances. The aptitude test scores, however, suggest that the candidates in Mathematics III in 1983 were a select group of high academic ability, so this ranking can be judged to have been earned in strong company. By comparing the aptitude test scores of all the Mathematics III students with the aptitude test scores of all the English students, it can be estimated that, if the Mathematics III students had had the same academic ability distribution as the English students, then the student would have fared better in the
ranking within Mathematics III. Instead of being in the top 70 per cent, the student would have been in the top 45 per cent of the candidates. Thus a Mathematics III grade of 7 is declared to be comparable to an English grade of 4.5. This information was reported to the student in the statement of adjusted grades, reproduced in Figure 2, which accompanied the student’s Certificate of Secondary Education shown in Figure 1. Similarly, the student’s grade of 5 in Chemistry is reported here to be equivalent to a grade of 3 in English. In this sense, all the student’s subject grades in Figure 2 are directly comparable. In addition to providing every student with such a statement, the Board of Secondary Education produces an annual brochure consolidating this information comparing all grades in all other subjects with grades in English.

COMPARING SUBJECTS ON THE CERTIFICATE OF SECONDARY EDUCATION

If every student took every subject it would be reasonable to compare grades in different subjects. However, because different subjects are taken by different groups of students, it is not meaningful to compare grades between subjects. It follows that the award of the same grade in two different subjects does not mean that the achievement levels are, in some sense, the same. Your grade in a particular subject indicates your achievement in comparison with the other students studying that subject and is of particular value when specific subject skills are required by an employer. However, the Board recognises that the general academic abilities of the groups of students taking different subjects are not necessarily the same, and the Australian Scholastic Aptitude Test (A.S.A.T. or Scaling Test) gives some indication of these differences. For a particular subject it is possible to use the group’s performance on A.S.A.T. to moderate and modify the grades for that subject. Because English is taken by virtually every student the English grades are not modified, except for the provision of half grades, and are a useful reference for the ASAT-moderated grades from other subjects. Your ASAT-moderated grades are as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4.5</td>
</tr>
<tr>
<td>Economics</td>
<td>3.0</td>
</tr>
<tr>
<td>Mathematics II</td>
<td>3.5</td>
</tr>
<tr>
<td>Mathematics III</td>
<td>4.5</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3.0</td>
</tr>
<tr>
<td>Physics</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Anyone requiring further information regarding the contents of this brochure is invited to contact the Board of Secondary Education.

FIGURE 2. SAMPLE ‘COMPARING SUBJECTS INFORMATION FOLDER’ CORRESPONDING WITH CERTIFICATE OF SECONDARY EDUCATION IN FIGURE 1.
Selection for tertiary study

The four tertiary institutions in Western Australia give primary consideration, in selecting school-leavers, to their performances in the Tertiary Admissions Examination. For each Tertiary Admissions Examination subject, an examination is set by a panel of three examiners, of whom two come from tertiary institutions and one from the secondary sector. The examinations are conducted by an agency of the tertiary institutions (the Tertiary Institutions Service Centre) but paid for by the State Government.

To adjust for differences in the academic abilities of students studying different subjects, the examination results for all subjects are scaled using the Australian Scholastic Aptitude Test. The average examination mark allocated for a subject is set equal to the average score on the aptitude test obtained by students in that subject and the spread of marks is adjusted to the spread of aptitude test scores. In 1983, the average examination mark in Mathematics III was thus set at 71.03 and that for English at 58.94. Each student's scaled marks in all subjects appear on a tertiary admissions statement provided to students by the Tertiary Institutions Service Centre. In addition, students are advised what percentage of students equalled or exceeded their score in each subject. The information provided to the student whose Certificate of Secondary Education was reproduced in Figure 1 is shown in Figure 3. In English, the student's scaled mark was 69.49, a mark equalled or exceeded by 19.80 per cent of the students in English. The student was thus at the bottom of the second decile (the top 20 per cent of students) in the examination. On the student's Certificate of Secondary Education, shown in Figure 1, the result for English was 1, placing the student in the first decile (the top 10 per cent of students). That result was based on a combination of examination results and moderated school assessments, so this is a student whose school assessment in English was superior to examination performance. In the other subjects, the student's ranking on examinations alone, shown in Figure 3, was more similar to the rankings on a combination of school and external assessments shown in Figure 1.

The tertiary admissions statement in Figure 3 also reports four separate aggregates of the student's performances. Each aggregate is for one of the tertiary institutions and is computed according to rules prescribed in that institution's admissions procedures. The aggregates for the two universities are the sum of the full results in five subjects, 40 per cent of the result in a sixth subject and 10 per cent of the student's score on the Australian Scholastic Aptitude Test (the scaling test). The maximum aggregate in both cases is 550. The 10 per cent of the scaling test result has been included since the late 1970s as an encouragement to students to take the test seriously. The aggregates for the Western Australian Institute of Technology and the Western Australian College of Advanced Education are the sum of the English result and the best four of the other subject results and thus have a maximum of 500.
TERTIARY INSTITUTIONS SERVICE CENTRE
14 Birthing highway (P.O. Box 51, Nambour 4560, Queensland, 4063)
Western Australian Institute of Technology
Academic Department of Business Education
Western Australian Institute of Technology

DEAR MR. / MRS. [RECIPIENT'S NAME],

1983 TAE CANDIDATES - ADMISSION TO TERTIARY INSTITUTIONS

The following provides information concerning the admissions policies and entry requirements of the tertiary institutions of Western Australia. Your own position in relation to these requirements is set out under each Institution's heading. You should read these statements carefully as they are intended to give admission to and success in tertiary education to those who are adequately prepared.

If you do not meet the requirements set out for any particular tertiary institution, you should, as a matter of policy, seek advice regarding the time of your application by Thursday, January 1984.

To avoid any misunderstanding or prejudice, this list should be kept constantly available at home and in your school. Should you wish to check any specific requirements you should contact the institutions directly.

The first number that is printed against each subject represents the percentage of students who obtained a first class result. The second number represents the percentage of students who obtained their first class result.

\[
\begin{array}{|l|c|c|}
\hline
\text{Western Australia Institute of Technology} & \text{Western Australian College of Advanced Education} & \text{University of Western Australia} \\
\hline
\text{YOUR ADMISSIONS AVERAGE} & \text{YOUR ADMISSIONS AVERAGE} & \text{YOUR ADMISSIONS AVERAGE} \\
\text{(TAKING INTO ACCOUNT PART RESULTS WHEN APPLICABLE) IS} & \text{(TAKING INTO ACCOUNT PART RESULTS WHEN APPLICABLE) IS} & \text{TO BE HELD AT} \\
\text{364.577} & \text{364.577} & \text{The University of Western Australia} \\
\text{AND YOU HAVE QUALIFIED FOR} & \text{AND YOU HAVE QUALIFIED FOR} & \text{subjects subject to selection.} \\
\text{MATRICULATION.} & \text{MATRICULATION.} & \text{You will be notified} \\
\hline
\end{array}
\]

In selecting students for entry, the University of Western Australia has adopted the following policy: The Tertiary Admissions Examination (TAE) is the basis for admission to the University at present. The minimum aggregate which must be obtained in the TAE in order to be considered for admission is 280. The aggregate is calculated from the student's best 3 subjects and includes the TAE Entrance Examination results. All subjects on offer are based on the results of the TAE examination or the TAE Examination subjects and the TAE Entrance Examination.

The important score that could be obtained is 320, but minimum is 280. Students who reach the University's Matriculation Entry are awarded a Matriculation Certificate in the Faculty of Arts, Economics and Commerce, and Education (Physical Education, subject to places being available). Students who have a TAE aggregate score of 280 or above could be considered for further admission in the University's faculties and after completion of the TAE examination, details of your application to the University should be forwarded to the Admissions Officer of the University.

Your ADMISSIONS AVERAGE is based on the aggregate made up of the scaled score in either English or English Literature together with the best 3 Tertiary Admissions Examination subjects in your aggregate performance in English or English Literature.

Your TAE aggregate being made up of the scaled score in either English or English Literature, the best 3 TAE subjects which will make up this aggregate must be in subjects which are offered by the University subject to the University's requirements in the courses for which they are applying.

Students who have not met the University's Matriculation Entry requirement are awarded a Matriculation Certificate in the Faculty of Arts, Economics and Commerce, and Education (Physical Education, subject to places being available). Students who have not qualified for matriculation and who are in the 1st class of the TAE examination should write to the Admissions Officer of the University for advice.

FIGURE 3. TERTIARY ADMISSIONS INFORMATION FOR CANDIDATE WHOSE CERTIFICATE OF SECONDARY EDUCATION IS SHOWN IN FIGURE 1.

In a few subjects where assessment of field or practical work is obtained, school assessment is included in the subject results and thus also in the tertiary admissions aggregates. For all subjects, however, the tertiary institutions are provided both with school assessments moderated against the external examinations and with an aggregate of school assessments computed according to the same rules as those for the aggregation of the scaled examination marks. These school assessments and their aggregates provide supplementary information which is considered particularly for students close to the cut-off point for admissions and for students absent from or affected in the examinations because of illness or other disability.

Students whose University of Western Australia aggregate is 300 or more are deemed to have matriculated to that University, provided their performance in English or English Literature is satisfactory. This has been the case since 1975 when the Tertiary Admissions Examination was introduced and aggregates were first used. An a priori decision is taken each year about the number of students who will be matriculated and.
all marks are controlled so that the required number of candidates achieve an aggregate of 300 or more. Slightly fewer than half those eligible have entered the University of Western Australia each year. In 1983 and 1984, however, because of increased competition for places, aggregates of 300 have been insufficient to gain a place in any faculty at that university.

The number of students to be matriculated is determined from the proportion of the age group of 17-year-olds which is thought should be rendered eligible to attend the University of Western Australia. In the period from 1975 to 1984 this was gradually raised from around 12 per cent to 18.5 per cent, to raise the proportion of those qualified for tertiary study in Western Australia to that in other States. The precise number of candidates to gain 300 or more on the University of Western Australia aggregate is now set in advance each year, not by that university alone but by representatives of the four tertiary institutions. Their decision effectively also sets the number of students whose Murdoch University aggregates will exceed 300 and the number of students whose five-subject aggregates for the two colleges of advanced education will exceed their minimum level for admission of 270.

Breadth of study requirements are imposed through categorization of subjects by the two universities. These are no longer expressed in terms of requirements to pass subjects from some minimum number of categories but through requirements that subjects from some minimum number of categories must contribute to each student's aggregate. The greatest breadth requirement is that of the University of Western Australia, in which the Tertiary Admissions Examination subjects are categorized into four groups. To some extent, the other institutions have been able to appear to be more flexible by defining lesser requirements while knowing that those defined by the University of Western Australia will, in fact, determine the subject choice of most secondary students interested in tertiary study.

An attempt was made in 1981-82 to develop a common aggregation procedure for all four tertiary institutions. A working party representing the four, chaired by Professor John Hay, developed a proposal for a common aggregate, using the same categories of subjects, and based on six subjects and the scaling test. Comments were then sought from the secondary sector. The proposed move to a common use of six Tertiary Admissions Examination subjects generated criticism from schools, so finally it was not accepted by all four institutions. It was in the midst of the public debate about this proposal that our Working Party, representing both the schools and the tertiary institutions, was formed.
1.4 Concerns with the current system

Complexity of the system

A major concern about the existing procedures is that they are very complex. The variety of procedures for assessment, certification and tertiary admissions, discussed in the previous section and illustrated in Figures 1 to 3, compound the difficulties. There are, in effect, two statements issued to students at the completion of Year 12: one uses examination performance alone; the other takes into account school assessments. One shows scaled student examination marks; the other expresses student performance in decile ranks. The Tertiary Institutions Service Centre reports four separate aggregates for tertiary admissions, while the Certificate of Secondary Education reports (as its Index of Academic Standing) an aggregate based, for some students, on a wider range of subjects and converted to a percentile rank with respect to the age population.

Changing school enrolments.

The changes in curriculum and examination procedures which occurred in 1969 and 1975 were largely aimed at allowing students not intending to proceed to tertiary education to undertake upper school studies of a more appropriate content and standard. Over the past few years, however, there has been increasing public concern, expressed most consistently by members of the Western Australian High Schools Principals' Association and the Association of Independent Schools, that the requirements for admission to tertiary study are encouraging too many students to select inappropriate subjects, often resulting in distress, frustration and alienation.

This concern has been heightened by the changing demography of the upper school. As the data in Table 2 show, the retention rate of students into the post-compulsory years of the upper secondary school has risen dramatically. In 1959, for example, the number of Year 12 students constituted 16 per cent of the original Year 8 intake of 1955. In 1983, the retention rate of the 1979 Year 8 students to Year 12 was 38 per cent. The growth in retention rates is seen even more dramatically in Year 11 enrolments. Students enrolled in Year 11 increased from 19 per cent of the 1955 Year 8 cohort in 1958 to 65 per cent of the 1980 Year 8 cohort in 1983. These changes are highlighted in Figure 4, with graphs for the Year 8 cohorts of 1959, 1969 and 1979.

There has clearly been a substantial increase in the proportion of lower secondary students entering upper secondary school. To illustrate this further, the destinations in 1982 of the 21,076 students who completed Year 10 in 1981 are shown in Table 3. These figures show that 78 per cent of the students proceeded directly to some form of post-compulsory education, 67 per cent to full-time study with the majority opting for the traditional two-year upper secondary course. One-year secondary school courses in Year 11 were chosen by nine per cent and full-time technical and further education by a further five per cent. Along with the growth in entry to upper secondary education, there has been an increase in the proportion of students commencing but leaving school without completing Year 12. The retention rate of students from Year 11 to Year 12 dropped from 85 per cent in 1959 to 62 per cent in 1982. With increasing levels of
<table>
<thead>
<tr>
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<td>9</td>
<td>1956</td>
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<td>1957</td>
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<td>1958</td>
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<td>93.6</td>
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<td>1983</td>
<td>98.2</td>
<td>1984</td>
</tr>
</tbody>
</table>

Source: Education Department of Western Australia.
youth unemployment, this trend is being reversed somewhat, rising in 1983 to 65 per cent. Some of this termination without completion of Year 12 is due to students completing terminal courses in Year 11. If the termination were due only to the departure of these students, however, the retention rate from Year 11 to Year 12 would have been about 85 per cent instead of 65 per cent.

FIGURE 4. SECONDARY SCHOOL RETENTION RATES FOR THREE YEAR 8 COHORTS (ALL SCHOOLS).
TABLE 3

DESTINATIONS OF STUDENTS COMPLETING YEAR 10 IN 1981
IN WESTERN AUSTRALIA

<table>
<thead>
<tr>
<th>Destination</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-year Course (Years 11 &amp; 12)</td>
<td>10,983</td>
<td>53</td>
</tr>
<tr>
<td>One-year Course (Year 11)</td>
<td>1,978</td>
<td>9</td>
</tr>
<tr>
<td>Technical and Further Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>1,107</td>
<td>5</td>
</tr>
<tr>
<td>Part-time</td>
<td>2,285</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>4,754</td>
<td>22</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>21,107</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Education Department of Western Australia.

It is likely that there will be a further dramatic increase in the proportion of students choosing to continue with some form of education beyond Year 10. Indeed, the current policy of the Federal Government, under its Participation and Equity Program, is to raise the participation rate to Year 12 to 85 per cent by 1990. Unless there are major structural changes in the education system, the impact of this increased participation will be felt most keenly in the secondary schools. The termination currently witnessed between Years 11 and 12 suggests that the upper secondary school, apparently already not providing well for a considerable group of its clients, may prove even less suitable for these new students unless it is altered in some way.

The proportion of Years 11 and 12 students who proceed to tertiary study has declined substantially in recent years because the growth in upper secondary enrolments has not been matched by a growth in tertiary enrolments. The data in Table 4 show that, of those in Year 11, the proportion enrolling in tertiary institutions two years later dropped from around 50 per cent in the early 1970s to around 30 per cent by the early 1980s. A very substantial proportion of students now entering the upper secondary school do not proceed to tertiary studies, yet many of them select courses traditionally associated with preparation for tertiary study.
TABLE 4

RETENTION RATES — ALL (GOVERNMENT AND NON-GOVERNMENT) FROM YEAR 11 SECONDARY TO FIRST YEAR TERTIARY FROM 1973

(All retention rates expressed as percentage of Year 11 enrolment)

<table>
<thead>
<tr>
<th>Year 11</th>
<th>1973</th>
<th>1974</th>
<th>1975</th>
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<tbody>
<tr>
<td></td>
<td>1971</td>
<td>100</td>
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<td>12</td>
<td>1972</td>
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<td>First Year Tertiary</td>
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<td>46</td>
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<th>1978</th>
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<tr>
<td></td>
<td>1974</td>
<td>100</td>
<td>1975</td>
</tr>
<tr>
<td>12</td>
<td>1975</td>
<td>71</td>
<td>1976</td>
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<tr>
<td>First Year Tertiary</td>
<td>1976</td>
<td>42</td>
<td>1977</td>
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<table>
<thead>
<tr>
<th>Year 11</th>
<th>1979</th>
<th>1980</th>
<th>1981</th>
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<tr>
<td></td>
<td>1977</td>
<td>100</td>
<td>1978</td>
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<tr>
<td>12</td>
<td>1978</td>
<td>65</td>
<td>1979</td>
</tr>
<tr>
<td>First Year Tertiary</td>
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<td>37</td>
<td>1980</td>
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<table>
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<tr>
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<tr>
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<td>100</td>
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<tr>
<td>12</td>
<td>1981</td>
<td>62</td>
</tr>
<tr>
<td>First Year Tertiary</td>
<td>1982</td>
<td>30</td>
</tr>
</tbody>
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Sources: Education Department of Western Australia and Western Australian Post Secondary Education Commission.
Status of Certificate of Secondary Education (Tertiary Admissions Examination) subjects

Since it is never finally established until after the event which of the students in Years 11 and 12 are actually the ones who will proceed to tertiary study, there is a strong tendency for students to choose only Tertiary Admissions Examination subjects to keep their options open. For some students, this is clearly an unrealistic choice because it is evident that they are most unlikely to continue to tertiary study. Nevertheless, the status of these subjects, coupled with a parental hope that new abilities or commitments might emerge, can provide an irresistible pressure for such students to enter the tertiary-bound stream.

The use of six Tertiary Admissions Examination subjects in computing the aggregates for the two universities reduces the opportunity for students in this tertiary-bound stream to alter their enrolments within the two years. Students are induced to stay with the six subjects of their original choice for the full two years. The situation is worsened by some erroneous mythology surrounding the current system. Many, it appears, believe that students can obtain higher aggregates if their subjects include physical sciences and higher-level mathematics subjects simply because, on average, results in these subjects are scaled up. This can result in students wishing to enter tertiary courses with restricted quotas and very competitive entry policies being advised to concentrate on mathematics and the physical sciences. In fact, the best way for students to maximize their aggregates is to choose the Year 11-12 subjects which best match their abilities and interests.

Status of Certificate of Secondary Education (General) subjects

The failure of the General subjects to attract students is clear from Table 1. When they were first introduced, attempts were made to minimize the distinctions between them and the Tertiary Admissions Examination subjects to encourage students to enrol in them. Tertiary institutions agreed that no examination marks would be published for the Tertiary Admissions Examination subjects in order that all subject results would be expressed on the same grading scale. Students' desires to know the detailed results on which their claims for tertiary admissions were based, however, led to the re-introduction of publication of examination marks for these subjects.

The opportunity for tertiary study opened by the Tertiary Admissions Examination subjects is one clear factor in the lack of success of General subjects in attracting enrolments. Another is that schools, in accommodating majority demand, usually offer few General subjects. Whether the low enrolments in General subjects in any way reflect on their quality or suitability is not so clear. Certainly such subjects do not have a single clear purpose as have the Tertiary Admissions Examination subjects and that may cause something of an image problem. Some students may even believe that, with the relatively low perceived status of General subjects, they are not demonstrably worse off in attempting the higher status Tertiary Admissions Examination subjects and performing less well than they might have in the lower status General subjects. They see enrolment in low status subjects being interpreted as de facto poor performance in high status ones, though they may well be misjudging employers' likely interpretations of their Certificates in making this choice.
Assessment for tertiary admissions

There are several concerns expressed about the assessments used for tertiary admissions. One is that the almost exclusive use of external examination results means that a student's entire performance over two years is assessed in a single brief examination for each subject. Little use is made of assessments provided by the schools. This can have the additional effect of encouraging teaching in the upper secondary school which is narrowly directed towards examination performance.

The scaling of the results in different examinations against the Australian Scholastic Aptitude Test is another cause of concern for some. The logic of the scaling process is that the marks a student obtains in a subject should be those which would have been obtained if all students had studied the subject. There should be no disadvantages in taking a subject selected predominantly by students very able in that subject. Similarly, there should be no advantage in taking a subject selected predominantly by students not very able in it. Scores on the Australian Scholastic Aptitude Test are used in an effort to compare the abilities of students who do take a subject with the abilities of those who do not. The distribution of the examination marks of those who do take a subject is adjusted to match the distribution of their aptitude test scores.

The difficulty is that the aptitude test is not an equally good measure of ability for all subjects. The data in Table 5 show that it correlates to varying extents with results in the different Tertiary Admissions Examination subjects. The aptitude test is about as good a measure of Chemistry and Physics as it is of Geography, correlating about .56 with each of them. It is a much poorer measure of ability in Art, with which the correlation is .34, Indonesian (.14) and Chinese (.03). The higher the correlation of results in a subject with the aptitude test scores, the more defensible is the scaling of the examination marks against the aptitude test. It is clearly more defensible with some subjects than with others.

A further cause of concern for some is the very act of aggregation itself. Part of this concern is that, in forming an aggregate, certain information is lost. For example, a five-subject aggregate of 300 could be the result of five subject results of 60 or two of 90 and three of 40. Use of the aggregate conceals such differences. This is not accidental in the current procedures. It is a deliberate decision not to give more weight to some subjects than others which leads to ignoring the sources of the total and just using the total. Another part of the concern about aggregates is that students with above-average performance could have an additional benefit if their aggregate is based on subjects for which the results are highly intercorrelated. The reason is that aggregates with highly correlated components are more spread out than aggregates with less highly intercorrelated components. From the correlations in Table 5, it is clear that an aggregate of mathematics and physical sciences marks will be more spread than an aggregate of humanities marks because the mathematics and physical sciences examination results are more highly intercorrelated than are those in the humanities.
### Table 5

1981 Intercorrelations of Tertiary Admissions (Scaled)

Examination Results and ASAT for All Candidates in Western Australia

(Decimal Points Omitted)

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Aggregates were not used before 1975. The reason for their use since that time is that all tertiary institutions have increasingly become involved in ordering students by some measure of merit to allocate restricted numbers of places in courses. To avoid using aggregates, they would have to use results in individual subjects declared to be prerequisite for particular tertiary courses and all have rejected that practice in favour of a single selection aggregate for all courses in the institution.

A tertiary perspective

Tertiary institutions have a vital interest in the standards of scholarship in schools. Over the years in Western Australia, their admissions requirements have encouraged both depth and breadth of study by secondary students. It is appropriate, therefore, to consider the strengths which staff in tertiary institutions see in the current system of assessment and certification.

They are inclined to see the most important consideration as the quality of preparation for tertiary study. The Tertiary Admissions Examination subjects provide strong bases in core disciplines upon which tertiary study builds, particularly in areas requiring mathematics and physical sciences. Less adequate preparation in secondary schools, they believe, could result in an uneconomic use of facilities and time in tertiary institutions. Even areas of tertiary study which do not build so explicitly upon secondary study depend on the admission of able and well-prepared students. For these areas, too, the Tertiary Admissions Examination syllabuses and the examinations themselves are held to play a very important role in establishing and maintaining academic standards in the secondary schools. While some in the secondary sector may see this as interference, those in the tertiary sector are inclined to see it as the legitimate consequence of the continuity between secondary and tertiary education.

Even for students who study at Years 11 and 12 and do not continue to tertiary study, study of Tertiary Admissions Examination subjects may be quite appropriate. The students' choice of these subjects in preference to General subjects may reflect a belief that the Tertiary Admissions Examination subjects are actually superior for their purposes, and not just a misguided optimism about their chances of admission to tertiary institutions. The mere fact that many students neither seeking nor achieving tertiary admission do study subjects which serve that purpose, is not seen by those in tertiary institutions to be any reason in itself to abandon or limit a system which they think serves well the students who do continue to tertiary study.

The external examinations themselves are also seen to have important benefits, despite their limitations as brief final tests of student achievement. They provide an assessment of student performance in which both the student and the student's school are unknown to the assessor. This gives a degree of objectivity to the assessment process which may not readily be achieved by other means. The inclusion of school-based assessments as a component of the total can extend the range of information used but runs the risk of any teachers' biases influencing the relative standing of students within schools.
Whatever the disadvantages of external examinations, it is argued that no more successful method of selecting students for tertiary study has been found. Concern about the level of failure rates in first-year tertiary courses in the 1960s led to the Tertiary Education Entrance Project, under which the Australian Council for Educational Research developed a series of 'developed ability' tests to supplement or even replace external, syllabus-based assessments.

Neither these tests, nor the Australian Scholastic Aptitude Test developed from them, have provided as good predictions of tertiary performance as have external examinations based more directly on the subject syllabuses.

In subsequent chapters of this report, we consider further the issues raised thus far and propose a number of changes in present practice. Before that, however, we provide a brief review of current certification and tertiary admissions procedures used in other Australian education systems and point to issues being faced there which are relevant to current considerations in Western Australia.
2 Practices in other Australian systems

2.1 Tasmania

Year 12 certification

Most subjects are available at two levels (Level II and Level III), with Level III being at a higher standard than Level II. Five grades are used to report performance at both levels: Credit Pass, Higher Pass, Lower Pass and Fail. A Higher School Certificate is issued by the Schools Board. A student’s certificate reports results in all subjects or units, approved by the Board, in which the student has received an award of Lower Pass or better.

Level II subjects are school-assessed, with moderation of assessments between schools achieved through visits to schools by Subject Advisers. Level III subjects are assessed by external examinations together with, since 1981, a component of school assessment contributing between 25 and 50 per cent of the total mark. Before being included, these school assessments are moderated against the relevant external examination using a procedure in which, for a particular subject, the school assessments for each class of students (that is, all students taught by the same teacher) are adjusted so that they have the same mean and standard deviation as the corresponding external examination results of that class of students.

Tertiary selection

Apart from the purpose of producing a scholarship list of the State’s top 50 students, the Schools Board does not produce any form of aggregate. Matriculation to the University of Tasmania has been based on four Pass or Credit Pass awards in approved Level III subjects obtained in one or two sittings. This has meant that students could matriculate and proceed to the University of Tasmania at the end of Year 11. In 1982, however, matriculation was changed to what has been termed the ‘4x + 2y’ requirement. The ‘4x’ component is the previous requirement of four Pass or Credit awards in approved Level III subjects. The new ‘2y’ component represents awards in two other subjects, either non-approved Level III subjects or Level II subjects for which there are parallel Level III subjects. While it is still possible to matriculate in one year under the ‘4x + 2y’ requirement, in most cases students now take two years to matriculate. Until now, only the Faculty of Medicine has required more precise information on students in order to rank applicants for places. It has employed an aggregate score using four nominated subjects, with additional points being gained for study of other Level III subjects in either of the two upper secondary years.
2.2 South Australia

Year 12 certification

In recent years there have been two systems operating at Year 12 in South Australia. One, run by the Public Examination Board, offered students one-year tertiary admissions subjects and the Board's certificate recorded final results for each subject as marks, obtained as a combination of examination results and school assessments. The other, offered by the Education Department, provided a different set of courses and a Secondary School Certificate, issued by the Department, on which moderated school assessments were reported on a grading scale A, B, C, D, U (unsatisfactory). Students who selected subjects from both systems received two certificates at the end of Year 12. As a further form of certification, each student receives a School Leaver Statement on leaving school, even if before the end of Year 12. This statement is issued by individual schools and shows subjects undertaken, the levels at which they have been studied and the level of the student's attainment, together with other comments by the school.

Under recent legislation, the Public Examination Board has been replaced by the Senior Secondary Assessment Board of South Australia. This new Board will maintain the existing two systems of subjects for 1984 and 1985, but will report all results on a single certificate. More substantial changes could be developed for 1986.

Results in the Public Examination Board subjects are first scaled to take account of differences in the quality of their candidates. This scaling is not based on the Australian Scholastic Aptitude Test as it is in Western Australia. The ability of a student in one subject is estimated as the average of the student's marks in all other subjects taken. The marks for all students in the given subject are then adjusted to the distribution of these estimates of the students' abilities. This type of adjustment to marks is done for all subjects. The adjusted marks are then used to re-estimate the abilities of the students and the marks for all students in each subject are then further adjusted in the same way to these revised ability estimates. The process is repeated until additional calculation makes no significant further adjustment to subject marks. The whole process usually requires no more than four or five repeated calculations (iterations). School assessments are then moderated by being scaled to the distribution of the school's adjusted examination marks and the two, school and external assessments, are combined to give the subject result for each student.

Tertiary selection

University entrance is based exclusively on performance in Public Examination Board subjects, although colleges of advanced education are willing to take some account of Secondary School Certificate subjects. An aggregate of each student's best five Public Examination Board subject results is used as the index for tertiary admissions.

The subject results are the combinations of scaled external examination results and moderated school assessments described above. The aggregate is currently printed on
the student's Public Examination Board Certificate. While it will still be provided to the tertiary institutions under the new arrangements, it may no longer appear on the new certificate itself.

2.3 Northern Territory

*Year 12 certification*

At present the subjects offered in the upper secondary school are, in the main, those of the Public Examination Board of South Australia. There are also one or two school-developed and locally-accredited Year 12 subjects as well as Year 11 accredited subjects.

From 1984, upper secondary students will be issued, at the point of exit from school, with a Northern Territory Senior Secondary Studies Certificate. The certificate will be issued by schools and will contain information on all subjects undertaken. Students will also be able to take South Australian Secondary School Certificate subjects, moderated on South Australian results, as well as the South Australian Public Examinations Board subjects. Students completing Year 12 will have results recorded on the relevant South Australian certificates as well as on the new Northern Territory certificate.

*Tertiary selection*

As the Northern Territory does not have a full range of tertiary institutions, the majority of tertiary students enter institutions in South Australia or in other States on the basis of their results in South Australian Public Examinations Board subjects.

2.4 New South Wales

*Year 12 certification*

Subjects taken are of two broad types: Board of Senior School-Studies courses with centrally-determined syllabuses and examinations, and Other Approved Studies developed by individual schools. Subjects are studied at various unit levels, the most common being two-unit or three-unit courses, the former requiring four hours of study per week in each of Years 11 and 12. A Higher School Certificate is awarded to students who have undertaken study leading to at least eleven units, of which at least five must be Board courses. Study in Year 12 must encompass at least four separate subject areas. The maximum possible mark for each unit of study is 50; thus a two-unit course entitles the applicant to a maximum of 100 marks. Total subject marks comprise a 50:50 combination of a moderated school estimate of likely external examination performance and a scaled examination mark. The scaling procedure is iterative in the same manner as that in South Australia, with the original examination marks in a subject being rescaled on the basis of estimates of students' abilities obtained as their averages in their other subjects.

Until 1982, this scaling approach was also used to adjust the results for groups of students taking different numbers of units in the same subject. The abilities of students taking
three units of mathematics, for example, were thus compared with the abilities of students
taking four units of mathematics on the basis of their average performances in their
non-mathematics subjects. Examining panels were permitted to alter the relative positions
of the two-, three- and four-unit subject results produced by this scaling on the basis
of any evidence of differences between the students in the different units provided by
their performances on some common components of their Mathematics examinations.
This typically resulted in the four-unit results being moved up and the two-unit results
being moved down, though the panels were constrained to the extent that any movement
up in some students' results had to be balanced by a movement down in those of other
students. In 1983, the procedure was altered so that now a completely common test
is used for students at all levels of a subject, and performance on it is used to scale
the results of the groups taking different numbers of units of a subject. The iterative
method is then used for scaling between different subjects. School assessments are finally
adjusted to these scaled examination results and the two are combined to produce the
student's final subject results.

Tertiary selection

The distribution of the Higher School Certificates is preceded by Result Notices which
show the final composite mark for each subject, together with the percentile ranking
of the student, an aggregate mark, a ranking based on it and tertiary institutions for
which the candidate may be considered for admission. The aggregate mark is obtained
by adding the candidate's ten best unit scores in Board subjects and is provided only
for candidates attempting at least ten of such units. The aggregate is the basis for tertiary
selection and for entry to many areas of employment.

2.5 Victoria

Year 12 certification

The Victorian Institute of Secondary Education awards a Higher School Certificate
which records achievement in both Group 1 and Group 2 subjects. The former are
accredited by the Victorian Institute of Secondary Education and contain core material
and optional areas. The latter are school subjects. The result in Group 1 subjects is
a combination of an external examination of core material for at least 50 per cent (usually
70 per cent) of the final mark and school assessment of optional material. The school
assessments are moderated by scaling to the distribution of examination results.

Results in the separate Group 1 subjects are scaled iteratively in the same manner as
in New South Wales and South Australia. An important difference is that it is not the
rescaled marks which are reported. Performance is reported on the Higher School
Certificate, in the form of grades A to F. Standard cut-off points on a 100-point scale
are used to categorize students in the A to F grades. The scaling thus determines what
proportions of students in each subject obtain the various grades. The cut-offs for the
rescaled marks can be modified, however, by the Chief Examiners, to vary the
proportions of students receiving each grade, provided the examiners' final allocations
do not vary too much from the patterns over the previous ten years.
Group 2 subjects are devised by and totally assessed within schools. Results for Group 2 subjects are reported on the Higher School Certificate using letter grades and/or a descriptive statement.

**Tertiary selection**

Although different universities in Victoria employ slightly different entrance requirements and prerequisites, the standard procedure is that a Year 12 student will take five subjects, with eligibility for university entrance being achieved by obtaining a Grade D or above in four approved Group 1 subjects, including English. Actual admission is based on an aggregate. A student’s aggregate mark is determined by adding the marks (the combination of the scaled examination mark and moderated school assessment) in the student’s best four Group 1 subjects and adding, to a maximum of 40, 10 per cent of the marks in other approved Group 1 subjects for which a candidate achieves a minimum score of 40. Two universities and the colleges of advanced education have approved a number of Group 2 subjects for tertiary entrance purposes.

A small number of schools issue a Year 12 Schools Tertiary Certificate, for which units are devised based on the needs of students from time to time. Units are assessed at the school level. Most tertiary institutions recognize this certificate for entry purposes, although the methods of acceptance vary.

**2.6 Queensland**

**Year 12 certification**

Under the authority of the Board of Secondary School Studies, a Senior Certificate is issued to each student reporting performance in two categories of subjects: Board subjects and Board-registered school subjects. Syllabuses for Years 11 and 12 are arranged in semester units, each of which requires a specified minimum amount of timetabled school time (55 hours for Board subjects and 40 hours for Board-registered school subjects). Results in the Board subjects are based entirely on school assessment, moderated through discussion of samples of student work and assessment criteria at meetings of teachers. This is supported by a system of regional and State review panels and a programme of reference testing.

The grading system used has been the same as that used in the earlier external examination system which the present system replaced. Grades have been issued every semester and distributed normatively, with a 7 being given to the top two to five per cent of candidates in the State in each subject, a 6 to the next seven to twelve per cent, and so on. No attempt has been made to render grades comparable across subjects.

Following the Review of School-based Assessment, subject syllabuses now give guidance as to how students’ achievements may be judged by comparison with defined performance criteria instead of by comparison of students with one another. Assessments are expressed using five categories: Very High Achievement, High Achievement, Sound Achievement, Limited Achievement and Very Limited Achievement. This is the first
serious attempt in Australia to reject normative assessment and embrace criterion-referenced assessment. These assessments are provided only at the end of the two years of study in Years 11 and 12 instead of at the end of each semester as before.

**Tertiary selection**

For admission to tertiary institutions, students receive a separate Tertiary Entrance statement from the Board of Secondary School Studies providing their Tertiary Entrance score. Such a score is assigned to all students who complete Year 12, provided that they complete a minimum of twenty semester units of Board subjects over two years, including four units in each of three subjects, and that they take the Australian Scholastic Aptitude Test in that year.

A Tertiary Entrance score is derived from single final school assessments of the student's performance in each Board subject. The subject assessments are single measures of performance for each student in each subject, expressed on a 1-100 scale, and provided at the end of the student's course of study in Years 11 and 12. The assessments for all students in each subject within a school are scaled so that their mean is the same as the mean score of the students' scores on the Australian Scholastic Aptitude Test, and their standard deviation is 12, except for small groups where the standard deviation of the assessments assigned by the school is not altered.

An aggregate score is obtained for each student by adding the best adjusted scores for subjects studied for a total of 20 semester units, with the condition that at least three of the subjects included have been studied over four semesters. The aggregate scores for all students in a school are then rescaled to a distribution with the same mean and standard deviation as the Australian Scholastic Aptitude Test scores of all the students in the school.

The rescaled aggregate scores are used to rank all students in the State in order of merit. Tertiary Entrance scores are assigned in much the same way in which the Index of Academic Standing is assigned by the Board of Secondary Education in Western Australia. Members of the group of students at the top of the order, equal in number to one per cent of the 17-year-old population, are assigned 990. (The Western Australian system assigns 100 to the corresponding group.) Members of the group immediately below and equal in number to half of one per cent of the 17-year-old population are assigned 985, and so on in five-point intervals until all eligible students have been assigned a score. How far down the lowest score lies depends on the relative sizes of the eligible Year 12 population and the 17-year-old population. Admission to tertiary institutions is based on these scores, the cut-off points varying according to the competition for entry to the various courses in the different institutions.
2.7 Australian Capital Territory

Year 12 certification

The Australian Capital Territory Year 12 Certificate is issued at the completion of Year 12 and all students obtain it at that stage even if they have not remained at school until that time and thus obtain a less complete record. The Certificate consists of two sections, the Secondary College Record and Supplementary Information for Tertiary Entrance for students who have completed tertiary entrance subjects.

The Secondary College Record is given to all students who complete one or more units of study. A unit is a term's work in a course — a minimum of 44 hours of timetabled class time. A course may be three units in length (minor), five, six or seven units (major), eight or nine units (major/minor) or ten units (double major). Any extra units taken are recorded at the bottom of the transcript in the ungrouped category.

There are three types of courses which students may take: Accredited courses (those considered by the Australian Capital Territory Schools Authority Accrediting Agency to be educationally sound for study at Year 11/12 level; T-Classified courses (those of the Accredited courses identified by the Australian National University as providing preparation for tertiary study) and Registered courses (cultural, recreational and general courses developed by schools).

Assessment is internal to the school and a student's attainments in units are reported on the Secondary College Record on a five-point scale from A to E. For Accredited courses, scores are allocated with a mean of 65 and a standard deviation of 15 and students' own scores are reported on their Record. A subject score may also appear in subjects such as Mathematics, where there are several different courses. This subject score declares a student's rank in the subject relative to all students taking courses within that subject in the particular school.

Tertiary selection

The Supplementary Information for Tertiary Entrance includes, for each T-Classified course, the course score and an adjusted course score obtained by scaling the distribution of course scores to the distribution of the results obtained by the students on the Australian Scholastic Aptitude Test. An aggregate, called the Tertiary Entrance Score, is calculated by taking the student's three best scaled course scores in T-Classified major courses plus 0.6 of the next best major or minor T-Classified course score. The student's Tertiary Entrance Score, a ranking on that score within the total group of students, a percentile ranking within the age cohort in the Australian Capital Territory and the student's own Australian Scholastic Aptitude Test score also appear on the Supplementary Information for Tertiary Entrance.

Matriculation to the Australian National University is determined by Tertiary Entrance Scores. When assessing an application for selection to courses at the University, consideration is given to a more complete set of information, including all that contained
in the Supplementary Information for Tertiary Entrance, a recommendation from the school principal concerning the student’s suitability for tertiary studies, and an assessment of the student’s ability in (English) language skills.

2.8 Current issues in other systems

Upper secondary curricula

All Australian systems have extended the range of courses offered in upper secondary schools in efforts to provide better for the widening range of students staying on. Most have done this by adding a category of subjects, such as the Western Australian Certificate of Secondary Education (General) subjects, which do not count for entry to tertiary institutions. The Secondary School Certificate subjects in South Australia and the Group 2 subjects in Victoria are examples but, in both cases, some tertiary institutions do now consider performance in these subjects in granting admission.

In general, enrolments in these new categories of subjects have been low because students usually opt for the ones through which they retain some chance of access to tertiary study, however small their hopes might be. The dilemma is how to encourage students to choose courses which best match their abilities and needs without forcing some into positions where they might be trapped inappropriately in the long run without the possibility of access to tertiary study.

One approach would be to remove categorizations of subjects and to deem them all to be equal. Unless the tertiary institutions were to agree and make no distinctions for admissions purposes, the categorizations would effectively remain and continue to influence students’ subject choices. In most systems, there are many people in the secondary sector calling for removal of such distinctions among subjects.

An alternative approach would be to retain some categorization of subjects but to arrange the requirements for certification and tertiary selection in ways which legitimize the study of subjects in all categories. Some systems attempt this by considering, for tertiary admissions, performance in some of the subjects in a second set.

Assessment and aggregation

The source of assessment is a matter for debate in most systems. Queensland and the Australian Capital Territory have abolished external examinations and use school assessments as the exclusive measure of each student’s standing within the school. Their use of the Australian Scholastic Aptitude Test to moderate assessments between subjects within schools and to moderate aggregates between schools remains somewhat controversial.

One concern is that this aptitude test may favour students who study mathematics and science. Another is that it may favour males. The most marked superiority of males’ results has occurred in the Australian Capital Territory, where it has generally been thought to be due primarily to a higher retention rate for females than males in Years
11 and 12, meaning more females of lower ability remaining in school and lowering the female average compared with that of the males. A further cause has been thought to be a tendency of the males to take more mathematics and science courses and thus to reap any advantage due to that. In 1983, it was concluded that not all of the difference in male and female means on the aptitude test could be attributed to retention rate differences, so all female students in the Australian Capital Territory had their aptitude test scores increased by an amount equal to one-third of the difference between the average for males and the average for females. This was an interim policy decision pending the results of further research into gender differences in performance on the test. In Western Australia, the Australian Scholastic Aptitude Test is used to scale external examination results, not school and class results, so any disadvantage will occur only for subjects in which male and female enrolments are not equal. Whether a school or a class is co-educational has no direct effect on the Western Australian adjustments.

There is a further concern in regard to the use of the aptitude measure in Queensland and the Australian Capital Territory, arising from its use in moderating assessments between schools and subjects. The concern is that the very nature of the aptitude test might ensure that performance on it is unlikely to be much influenced by the quality of teaching of subjects within schools.

Excellent instruction in a school, it is argued, is not likely to alter substantially the overall place of students from the school in the Statewide assessments since that will be determined by aptitude, not performance. If this analysis is correct, a school’s standing will be more influenced by the intellectual ability and, perhaps, the home background of its students than by the quality of its teaching.

All systems other than Queensland and the Australian Capital Territory, through the maintenance of external examinations for subjects used for tertiary admissions, have a subject-related base with which to moderate between schools the assessments made within schools. In all of these systems, a combination of the moderated school assessments and the external assessment is reported on the formal certificate. In all but Western Australia, the combination is also used for tertiary admissions. In Western Australia, only the external examination results are used, except for marginal cases for whom the moderated school assessments provide supplementary information.

Pressure is growing in some systems for assessments moderated in other ways to be used also. The use of Level II subjects in Tasmania by both the University and the College of Advanced Education, and of Group 2 subjects in Victoria and Secondary School Certificate subjects in South Australia by some tertiary institutions are all current examples of this practice.

There is also a more general concern about the notion of trying to render comparable results in different subjects by scaling them in some way. There are practical difficulties in finding a measure against which to scale the results which is equally fair for all subjects. The Australian Scholastic Aptitude Test correlates better with some subjects than others,
as we showed for Western Australian data in Table 5. The higher the correlation between the test and the subject results, the more valid it would be for scaling assessments in that subject. Scaling students' performances in one subject against their average performances in their other subjects, as is done in New South Wales, Victoria and South Australia, does not necessarily avoid this problem. Table 5, which also gives the intercorrelations among external examination results in the different subjects in Western Australia, makes this clear. The intercorrelations among mathematics and science subjects are higher than those among humanities subjects. Since students tend to study predominantly in one area or the other, those whose subjects come from the science set will have each result scaled against the average of the others, which will be a set of results relatively well correlated with it. For humanities students, the scaling of individual subjects will be against the average of a set of results less well correlated with it. The purpose of the scaling is to allocate to students taking a subject the marks which they could be expected to have obtained had all students taken the subject. Use of the average performance in other subjects taken provides different scaling variables from subject to subject but still ones which are not equally valid for all subjects, since they correlate, to different extents, with the subject results.

More particular difficulties arise in scaling assessments in subjects with exceptional populations. Ethnic language subjects are the most striking examples, but subjects such as Art provide similar problems. Some ethnic language subject groups in New South Wales and Victoria are almost exclusively native speakers of the language and second language speakers of English. If their performances in other subjects are lowered by any difficulty with English, their ethnic language assessment will be unfairly reduced also since it is scaled to the average performance in other subjects. After trying various alternatives, such as using examiners bilingual in French or German and the ethnic language to compare French or German examination scripts with those in the ethnic language, New South Wales has now resorted to the somewhat dubious simplifying assumption that students in all ethnic language subjects are as able as students studying French and German, two languages studied mostly by native speakers of English. Results in all ethnic language subjects are simply scaled up to the average of the results of the students in French and German.

The substantial debates in New South Wales about the scaling of these ethnic language subjects over recent years have led to serious proposals for the abandonment of all scaling. One response proposed for the university sector is that aggregates for admissions be based on the unscaled results of only a small set of subjects, perhaps varying from faculty to faculty according to special prerequisites, but excluding the ethnic languages and many other subjects presently included.

In Victoria, a different option is being considered. There is a growing reluctance in Victoria to scale subjects and to aggregate results, for reasons similar to those in New South Wales. Problems of scaling ethnic language results have been acute but the difficulties of scaling have been compounded by a desire to include a much wider range of subjects by breaking down the distinction between Group 1 and Group 2 subjects.
and, for some, by a desire to move away from external examinations. Some tertiary institutions are currently considering the development of an alternative set of subject-based entrance tests which are not directly based on Year 12 syllabuses. Whether these tests, if introduced, would effectively define their own alternative syllabuses is, of course, a crucial question.
Proposals for the upper school curriculum

3.1 Breadth of the curriculum

The upper secondary school is changing because its population is changing. It cannot be only a place of preparation for tertiary study, whatever its history. For many students, it provides the final years of education before they embark upon adult life. For them, neither a narrow focus on academic preparation nor a narrow focus on vocational preparation would be appropriate. They need a breadth of study from which to approach a future which will demand of them considerable flexibility.

We do not wish to prescribe any detailed pattern of subjects which should constitute the upper secondary curriculum. That ought to be done by some group more broadly representative than we are. The Committee of Inquiry into Education in Western Australia, chaired by Mr K.E. Beazley, will offer a prescription. The existing Certificate of Secondary Education subjects, however (both Tertiary Admissions Examination and General), provided a good starting-point for further development.

We would like to see added to these accredited courses a more formal provision for schools to develop their own courses to meet particular needs of their students. Individual schools can be more responsive than a central authority in identifying some of these needs and in dealing with them. The various one-year courses, such as the Alternative Upper School courses, are current examples of courses developed by schools but they are of marginal benefit in that the only students who have access to any part of them are those who take all parts of them exclusively.

We would prefer a system in which students have more flexible access to courses likely to be of value to them and in which a wider range of courses could be developed. To this end, we propose:

RECOMMENDATION 1

That subjects offered in the upper secondary school include
(a) those formally accredited by a central authority; and
(b) those developed and offered by individual schools,
with individual students able to take appropriate combinations of subjects from both categories.
Breadth of study requirements in the upper secondary school to date have been established through the matriculation requirements of the University of Western Australia and, to a lesser extent, those of the other tertiary institutions. There has been some consultation with schools in the formulation of these requirements (which constitute no more than a general declaration of the types of things students ought to have studied before entering courses of tertiary study). The rules have served primarily as a prescription against overspecialization at the secondary level.

We believe that some breadth of study in the upper secondary years is valuable for the individual and for society. We see the responsibility for defining the requirements resting more with the secondary sector than the tertiary sector and so choose not to suggest specific details. The Committee of Inquiry into Education in Western Australia, chaired by Mr Beazley, will recommend that, in order to achieve graduation from secondary school, students must complete at Year 11 level at least one subject in each of the four broad areas: language and communication, mathematics, science and social studies. This is, in many ways, a stronger breadth requirement than those currently set for Years 11 and 12 but it is proposed to apply only to Year 11. It will, however, provide a general breadth requirement for Year 12 because students' subject choices in Year 12 will flow from their Year 11 choices. In our later discussion of selection for tertiary study in Chapter 5, we suggest an additional, but weaker, breadth requirement for Year 12.

We quite deliberately propose that the primary breadth requirements be built into general requirements for secondary school graduation. In the past, matriculation has served as a de facto secondary school graduation but we think that to be quite inappropriate. Matriculation is an arbitrarily-set hurdle, determined by the decision about what proportion of 17-year-olds are to qualify for admission to tertiary study. We have already noted that this hurdle has been lowered over the period from 1975 to increase the numbers of students qualified from about 12 per cent of the age group to the current level of 18.5 per cent. We believe that this hurdle is set too high for a graduation requirement. Tertiary institutions do not graduate only those students with performances at a sufficiently high level to gain admission to postgraduate study. In a similar way, we see that graduation from secondary school should not be equated with admission to the next level of education but should be defined in its own terms.

As a further element of the requirements for secondary school graduation, the Committee of Inquiry into Education in Western Australia will recommend that students be required to achieve competence in literacy. We endorse this proposal while, with that Committee, adopting a broad definition of literacy as including reading as well as written and oral communication.
Our general view of prescription of breadth of study is expressed in:

**RECOMMENDATION 2**

That general breadth of study requirements for students in years 11 and 12 be established as conditions for secondary school graduation and that these consist of the successful completion of the equivalent of twelve years of schooling, including

(a) the completion of some minimum balance of studies in humanities, mathematics, science and social studies to be determined by a representative central authority; and

(b) the attainment of a satisfactory level of competence at Year 12 in literacy.

We do not propose that students' achievements of competence in literacy be sought necessarily through specific courses of instruction. Many students will achieve satisfactory levels through the study of other courses and all that we propose is that schools declare them to have reached the required level. If clear definitions of criterion levels of performance are provided, we believe that schools will be able to judge the performances of their own students. Schools may want the facility to confirm or defend their judgements with evidence from more formal tests, so we propose:

**RECOMMENDATION 3**

That, for the assessment of students' levels of competence in literacy,

(a) explicit definitions of adequate performance in the range of necessary skills at Year 12 to be developed; and

(b) test materials be developed to facilitate schools' assessments of their students' performance levels.

We do not propose that numeracy be treated in the same manner as literacy. We see the development of competence in numeracy as more clearly tied to the study of the specific subject of mathematics and so see the requirement of adequate performance in a Year 11 mathematics subject as a sufficient requirement.

3.2 Structure of subjects

At present, all Certificate of Secondary Education subjects, both Tertiary Admissions Examination and General, notionally require two full-time years of study. Subjects for Years 11 and 12 are actually chosen by students in the middle of Year 10, when they often have little appreciation of what the subjects involve. If students find their chosen subjects to be inappropriate, it is difficult for them to alter their choices after more than one term in Year 11. After that, all that most students can consider is dropping one subject altogether, and then at the cost of reducing the maximum aggregate they can obtain for either of the universities. Some students do substitute a new subject for
an existing one at the end of Year 11, but this is the exception rather than the norm. To obtain any certification of completion, students must complete the work required in the full two years of study in these subjects.

If courses in the upper secondary school were of less than two years' duration, there would be considerably more flexibility for students. In the Australian Capital Territory, course units are of one term's duration. In Queensland, they are a semester (half-year) in length. In other States, such as South Australia and Victoria, there are separate one-year courses for Years 11 and 12. The extent of the flexibility we urge for Western Australia is, in general, the reduction from the present two-year courses to one-year courses for most subjects. We want to leave open the possibility of smaller units, particularly for school courses, so we set only an upper limit on unit size in proposing:

RECOMMENDATION 4

That subjects offered in the upper secondary school be offered in modules which
(a) have a maximum of one year's duration;
(b) occupy a maximum of one-sixth of a full-time student's course of study; and
(c) where necessary, are developed as sequenced courses with the Year 12 unit presuming the content of the prior Year 11 unit as a basis for successful study.

Some subjects, particularly foreign languages, mathematics and science, have more clearly sequenced content and skills to be acquired than do other subjects. Under our recommendation, two-year courses in them would become two sequenced one-year courses. We are not proposing less science, for example, only that students who want less, can have access to less. Those who do want less could take only the first-year unit of a course and stop, having completed a viable unit of study.

We wish to see committees such as the present Joint Syllabus Committees of the Board of Secondary Education and the Tertiary Admissions Examination Committee have responsibility for the syllabuses for accredited courses in both Years 11 and 12. The initial task with all Certificate of Secondary Education subjects (both Tertiary Admissions Examination and General), will be to split them into two one-year courses. Some could be split into components which are not sequenced. The fact that small country schools often teach Year 11 and Year 12 classes together makes clear that much material is not as strongly sequenced as many might imagine. Where separate Year 11 and Year 12 units are developed without sequential study requirements, a student could undertake the Year 12 unit without having taken the Year 11 unit. This is not to say that there is no advantage in having taken the Year 11 unit. There clearly will be skills relevant to the subject as well as an understanding of its nature and content developed in the first unit which would be useful in the second. Our proposal is intended simply to allow in Year 12 what is already allowed in the first year of tertiary study. There students can enrol in many subjects, without prior study of them, and do so along with others who have taken the subject to Year 12 level.
Our proposals should not alter the current patterns of study in upper secondary school for many students with a clear view of their likely subsequent study. A strong mathematics and science student committed to the study of engineering, for example, would still be able to take two mathematics and two physical science subjects together with two other courses in both Years 11 and 12. To deny such a student this possibility would be too high a price to pay for restructuring the upper secondary school in ways which might save others from themselves.

A further advantage of the system we suggest in Recommendation 4 is that course units of less than a year’s duration could readily be accommodated. An individual school, for example, could develop options for students offered in half-year or one-term units. These could be fitted in with a traditional programme of tertiary preparation courses by students seeking additional breadth. It would also be feasible for the central certifying authority and its syllabus committees to develop such smaller units where they are appropriate.

There are some risks in developing a broad range of units of work. Enrolments in some options may reduce to a point where some units become impossible to mount, with their withdrawal then reducing flexibility in unplanned ways. It is possible, for example, that some of the present Tertiary Admissions Examination courses could be threatened in this way. In one of the schools we visited, English Literature was no longer offered because only about ten students wanted to take it.

We alert schools to the potential risk of ultimately reducing students’ options through:

RECOMMENDATION 5

That, in implementing more flexible patterns of enrolments in Years 11 and 12, schools ensure that subjects equivalent to the present Tertiary Admissions Examination subjects be offered in as great a range as at present.
4 Proposals for assessment and certification

4.1 Methods of assessment

The assessments currently reported for upper school performance are all norm-referenced. In other words, they indicate an individual student's standing in relation to other students. This is most obviously so with the Board of Secondary Education's decile ranks, which relate each student's performance to those of others taking the same subject, and its Index of Academic Standing, which is essentially a percentile rank relating each student's overall performance to those of all others completing at least five subjects. Marks awarded on the external examinations are also essentially of this type, assessing students in relation to one another. The scaling of marks is designed to adjust the marks initially awarded by the examiners to those likely to have been awarded had the comparison been with all examination candidates and not only those who studied the particular subject.

An alternative to measuring by comparison with others is to assess students' performances with respect to predetermined criteria. The only system in Australia where this is being attempted in any substantial way is that of Queensland. There the Board of Secondary School Studies has defined criteria in each subject for each of five categories of achievement: very high, high, sound, limited and very limited. The use of these definitions for criterion-referenced assessment is at the pilot stage, being implemented in only a limited number of schools. When this system is fully implemented, the students' certificates will report criterion-referenced assessments of their performance. The present norm-referenced Tertiary Entrance scores will still be created, however, to rank students for admissions to the Queensland tertiary institutions.

We believe there are advantages in seeking to define and use such criteria for assessments of achievement in Western Australia but believe that no rapid transition from the present system can be made or should be attempted. We have already suggested the use of such criterion-referenced assessment for the judgement of competence in literacy but we wish also to encourage a wider experimentation with this style of assessment by offering:

RECOMMENDATION 6

That the central certifying authority experiment with the definition and use of performance criteria for assessing students as an alternative to the present system of assessing students only in relation to the performance of others.
A thoroughgoing implementation of criterion-referenced assessment should free the educational system from the use of fixed distributions of assessments. It could also provide a more ready means of monitoring rises and falls in standards of performance from year to year and allow these to be reflected in the results awarded. The task would not be an easy one, for the technical measurement problems are substantial. We believe, however, there should be a serious commitment to research on the topic and genuine attempts at practical implementation of criterion-referenced assessment by the central authority responsible for certification of secondary education.

At present, final results in subjects are based, to varying extents, on external examinations and school assessments. Both sources of data have strengths and weaknesses. A view that the weaknesses of external examinations outweigh their strengths led to their abolition in Queensland more than a decade ago. This is not a view we share. We see the weaknesses of external examinations to be that they

- can cover only a limited part of the course syllabus within the three hours available at the end of a course;
- can capture only a small sample of a student's performance, even on the topics tested, within the three hours;
- can be biased against students who do not perform well under the unique pressure of an examination or who are not well on the day or whose examinations are concentrated in a limited period;
- may encourage a concentration in teaching on those aspects of a course which are most readily assessed by an external examination; and
- may encourage didactic teaching and rote learning.

In contrast to these, we see the strengths of external examinations to be that they

- provide an objective assessment of a student's performance without consideration of the student's personal relations with teachers or of the school attended; and
- define common standards of performance required for adequate completion of a syllabus.

While these considerations lead us to propose supplementation of the assessment which external examinations provide, in the first instance we propose:

**RECOMMENDATION 7**

That the external examinations be maintained, at least for all subjects which are central to the tertiary admissions process.

The supplementation of external examinations which we propose is a more systematic use of school assessments. We see the strengths of school-based assessments to be that they
• can be based on a substantial sample of student performance, over time and over the full range of the syllabus requirements; and
• in addition, can assess aspects of a course not accessible to external examination.

We recognize, however, that school assessments can have serious deficiencies too. We see these to be that the assessments
• can be biased for or against a student by the relationship between teacher and student;
• can, in some cases, take undue account of early performance in a course and, relatively, too little of the level a student finally reaches;
• can change the relationship between teacher and student by casting the teacher in the role of judge instead of that of supporter in the preparation for external assessment; and
• can be undertaken with variable criteria from school to school.

Whether or not there is an external examination in a course, we believe there should be school assessment of which formal account is taken, so we propose:

RECOMMENDATION 8
That school assessments of performance be obtained in all subjects
(a) covering all aspects of the syllabus, regardless of whether any part is also covered by external examination; and
(b) derived according to a structure defined by the central certifying authority to assure consistency of criteria across schools.

We propose in Recommendation 8(a) that the school assessments cover the whole syllabus because we do not want them to be confined only to aspects judged to be inaccessible to an external examiner. To use school assessment only for components not externally assessed would compensate for only some of the deficiencies of external examinations which we listed. The efficacy of the assessments used ought to be the subject of regular research. To this end we propose:

RECOMMENDATION 9
That the central certifying authority regularly investigate the relationships among various assessments of student performance, particularly between internal and external assessments, and their individual and joint relationships with measures of subsequent performance, such as results in tertiary studies.

The specification of a common structure for school assessments in each subject can only ensure that all schools attend to the same aspects of performance in judging their students. It cannot ensure that similar criteria are used in determining the level of a student's assessment. More rigorous moderation procedures are required to attempt that.
We outlined in Chapter 1 the three types of moderation the Board of Secondary Education currently uses. They are statistical moderation, consensus moderation and visitation moderation. We see all these having a continuing place and offer:

**RECOMMENDATION 10**

That, for all subjects accredited by the central certifying authority, comparability of school assessments be sought

(a) in the case of subjects with external assessments, by moderating the school's assessments against the external assessments of the students (transforming the distribution of the former to that of the latter); and

(b) in the case of other subjects, by various means of moderation such as reference testing on aspects of the syllabus, meetings of teachers and visits by moderators.

There would be value in the use of moderation of the type we propose in Recommendation 10(b) with the subjects covered by Recommendation 10(a). We recognize that to add further moderation provisions would increase the overall costs, so we have stopped short. We would urge, however, that some of the monitoring we propose in Recommendation 9 address the consistency across schools of the school assessment procedures for subjects with external examinations.

4.2 Scaling of subject results

The provisions of Recommendation 10 can only achieve comparability across schools, not across subjects. Scaling to achieve comparability across subjects, as we indicated in Chapters 1 and 2, is undertaken currently in Western Australia, Queensland and the Australian Capital Territory (using the Australian Scholastic Aptitude Test) and in New South Wales, Victoria and South Australia (using average performance in other subjects studied to adjust each subject in turn). The second of these procedures is also used in Western Australia with small subject enrolments in ethnic languages. There are difficulties with both of the procedures which we discussed in Chapter 2 and there are some calls, as we indicated, for the abandonment of all scaling.

The objective of scaling is, in our view, a valid one. It is to ensure, as far as possible, that a student is not unfairly advantaged or disadvantaged by the abilities of the other students in whose company a course is being taken and among whom results are competitively allocated when they are normatively established. We believe scaling cannot be abandoned unless a thoroughgoing adoption of criterion-referenced assessment becomes feasible, so it becomes for us a matter of what scaling process to use and to which subjects to apply it. Studies undertaken by the Tertiary Institutions Service Centre have shown that scaling against the Australian Scholastic Aptitude Test and scaling against average performance in other subjects studied produce very similar orders of academic merit of candidates. An important difference is that the scaling against subject averages produces a wider spread of aggregates. Since this is due, in part, to averages
based on more highly intercorrelated subjects themselves being more spread, we prefer the continued use of the Australian Scholastic Aptitude Test. Its use should lessen any arbitrary advantages for high achievers and arbitrary disadvantages for low achievers in studying more highly intercorrelated subjects.

We are conscious of concerns about bias in the Australian Scholastic Aptitude Tests. A new test is developed every year by the Australian Council for Educational Research, so its properties are not immutable. Its form and content could be altered in an attempt to reduce any biases identified. Each test is trialled outside Australia and items with inadequate properties are deleted. All items showing gender differences, for example, are deleted before the form used in Australia is developed, so the subsequent gender differences seen in the Australian Capital Territory must reflect fairly subtle influences. Their effects may then be difficult to remove. The current attempts in the Australian Capital Territory to account for the gender differences in terms of differences in patterns of retention and differences in patterns of subjects studied illustrate the complexity. We propose that the characteristics of the aptitude test be monitored regularly.

The need for scaling to achieve comparability across subjects does arise when individual subject results are being compared but it arises more acutely when any aggregate of separate results is formed. The real difficulty is that for some subjects there is no reasonable basis for scaling available. If a subject's results do not correlate well with the aptitude test scores, the aptitude test will not provide an equitable basis for scaling the results of those students who take the subject. The difficulty is not lessened by the use of an average performance in other subjects as the measure against which to scale results, because there are subjects which are not well correlated with other subjects either. We take the view, then, that scaling is essential for subjects central to the tertiary admissions process but better avoided in the case of some other subjects, so we propose:

RECOMMENDATION 11

That scaling of subject results to take account of differences in the academic abilities of the candidates in different subjects

(a) be undertaken at least with all subjects which may contribute to any tertiary admissions score;

(b) be achieved by scaling a 50:50 composite of external and moderated school assessments against the Australian Scholastic Aptitude Test; and

that the properties of the Australian Scholastic Aptitude Test be regularly and systematically investigated.

In addition to the scaled results in individual subjects, the Board of Secondary Education currently reports, in the Index of Academic Standing, an aggregate index of a student's performance. Whenever an aggregate is formed there is some loss of information. The cost of simplicity is that details of a student's strengths and weaknesses are lost in the aggregate. When it is necessary to form a strict order-of-merit of students, without giving
particular subjects special weighting, then an aggregate needs to be formed. In such cases, we believe aggregation can be justified. We see no justification, however, in the use of a global index of achievement such as the Index of Academic Standing. It invites too readily the conclusion that it provides an adequate summary of all of a student's achievements and its use necessitates the scaling of subjects for which valid scaling is extremely difficult to achieve. We propose, therefore:

RECOMMENDATION 12

That no general aggregate of assessments, such as the Board of Secondary Education’s Index of Academic Standing, be formed to provide some global index of a student’s achievement.

4.3 Certification of achievement

The existence of separate statements to students from the Board of Secondary Education and the Tertiary Institutions Service Centre is a cause of considerable confusion at present. The currency of the latter, with its indications of success in gaining eligibility for admissions to tertiary institutions, gives it the status of a certificate which, in a formal sense, only the former has. Certainly the Tertiary Institutions Service Centre has done all it can to make its communication with students appear as little as possible like a formal certificate, but the problem remains.

We believe that there must be only one certificate which a student receives and that it should carry all the necessary information about performance in the upper secondary school, including whatever is used for admissions to tertiary institutions. At present, of course, upper secondary students get no official certificate unless they complete Year 12. There is no reason, however, why any student who makes some progress in Year 11 studies should not receive a formal record of what has been done. Even though most of the subjects in which such a student has enrolled might be full-year courses for Year 11 or Year 12, the school will have partial results available, provided that at least a term has been completed. When the student does leave, the school can provide a transcript of studies completed. We would like to see the student also receive a formal certificate of achievement, reporting work completed and levels of performance. To avoid creating yet another type of certificate for this case, we are proposing a form of certificate which provides for this case as well as for the more common one of students who complete Year 12. Our intention is:

RECOMMENDATION 13

That, for any student who has completed at least one term of Year 11, a formal certificate recording achievements in upper secondary school be provided whenever the student leaves school.

We would like students to be able to obtain their certificates soon after they leave, though there could be administrative difficulties. It may be sufficient to produce it at particular
intervals during the year. The crucial thing for those who leave earlier is that all study undertaken should be formally reported. In Chapter 5, after we have considered the requirements of tertiary admissions as well, we suggest a specific format for the certificate. At this point, our concern is to begin to specify its content. To this end, we suggest:

RECOMMENDATION 14
That, for each subject studied in Years 11 and 12, the Certificate of Secondary Education show
(a) the size of the unit of study involved;
(b) whether it is a subject accredited by the central authority or one developed by the school;
(c) if it is a school subject, an unmoderated grade A, B, C, D or F or no grade, according to the school’s grading policy for the subject;
(d) if it is an accredited subject, a moderated grade A, B, C, D or F; and
(e) if it is an accredited subject with external assessment, as an optional addition, a mark on a 0-100 scale obtained as a 50:50 combination of external and moderated school assessments, scaled against the Australian Scholastic Aptitude Test, except that this additional mark be mandatory for subjects which may contribute to a tertiary entrance score, with
(f) the letter grades being interpreted as:

A — excellent achievement
B — sound achievement
C — satisfactory achievement
D — marginal achievement
F — fail.

In combining school and external assessments, we have suggested a 50:50 weighting. If a student were to be enrolled as a private student, the external examination would provide the entire result to be scaled. To avoid the possibility of students seeking to become private students during the year and thus trying to avoid a school assessment, we suggest an arrangement such as that in Victoria. There students have to register early in the year as private students or otherwise register through a school which then provides assessments the student cannot avoid.

For all subjects, the distribution of results can depend on some consideration of criterion levels of performance. There is no need with the scaled subjects for the grades to match consistently the scaled marks. The cut-off between C and D, for example, need not be 50. The professional judgement of the Chief Examiner in these subjects should be exercised within some general limits set by patterns over prior years, once patterns have been established.
For subjects which are not scaled, we suggest that the distribution of grades awarded be similarly determined as far as possible in terms of criterion levels of performance for each grade. Though there will be no Chief Examiner in these subjects unless external examinations are used, the moderation procedures used should be established in such a way as to deal with the need to set criterion levels for grades.

If a student completes all the requirements for secondary school graduation, we envisage this being indicated by an annotation on the certificate. Whether a separate 'diploma' might be provided we leave for others to decide. We see no real need for it but do not feel strongly about the matter. One of the requirements of secondary school graduation, which we proposed in Recommendation 2, was that a student must attain a satisfactory level of competence in literacy. Where this has been achieved, we envisage that it be also annotated on the certificate. If the secondary school graduation annotation is there, of course, satisfaction of this literacy requirement is implied. We suggest a separate annotation, however, because a student may achieve the literacy level without satisfying the graduation requirements, particularly a student who leaves before the completion of Year 12. To formalize this, we propose:

**RECOMMENDATION 15**

That, where a student has achieved a satisfactory level of literacy and where a student has satisfied all the requirements for secondary school graduation, these be shown by annotation on a student's Certificate of Secondary Education.

Much of the information on a student's certificate will come from the student's school. In the case of moderated subjects, the central certifying authority will have control over the total set of data submitted by the school. In the case of the literacy assessment, we envisage it being the school's judgement based on criteria set down by the central authority and supplemented by more formal testing where necessary. In the case of school subjects, the school alone and on its own terms will complete the assessment. Despite this mixture of sources, we propose:

**RECOMMENDATION 16**

That the Certificate of Secondary Education be issued by the central certifying authority.

We considered the possibility of the certificate being issued under joint authority of the school and the central authority but rejected it for two reasons. The major reason was that we believe all students' certificates will have a common credibility if the central authority alone issues them. The minor reason was that there are serious logistical problems in getting information to the central authority and certificates back to schools for counter signature by the principal prior to distribution when so many important matters such as tertiary admissions and employment are based on the information on the Certificate.
Our thinking on certification is consistent with that of the Committee of Inquiry into Education in Western Australia, chaired by Mr Beazley. That Committee is recommending that there be a common certificate covering Years 9 to 12. We have focused on Years 11 and 12 because that was our brief. Nevertheless, the certificate which we suggest in Chapter 5 is one which provides for all Years, from 9 to 12.
5 Proposals for tertiary admissions procedures

5.1 Criteria for admissions

The dominant criterion for selection for tertiary study in Western Australia since 1975 has been an aggregate of performances on Tertiary Admissions Examination subjects. For the two universities, aggregates are based on a student's best five performances (with some restrictions on the subject combinations which may be involved), 40 per cent of the student's result in a sixth subject and 10 per cent of the student's score on the Australian Scholastic Aptitude Test. The Western Australian Institute of Technology and the Western Australian College of Advanced Education both use aggregates based on five subjects, one of which must be English or English Literature.

In Recommendation 12, we proposed that no global aggregate such as the present Index of Academic Standing be used. For tertiary admissions in the present context, where virtually all admission is to courses with relatively limited numbers of places, we believe that an aggregate is a necessity. The only alternative would be to use different specific subject performances as the criteria for different tertiary courses, thus introducing a complex pattern of prerequisites. Including five or six subjects from the Tertiary Admissions Examination set in the aggregate, as the tertiary institutions currently do, however, places pressure on almost all students to choose five or six subjects from this set to keep alive their hopes of tertiary enrolment.

We see two general strategies for helping to reduce this strong pressure on students to take exclusively Tertiary Admissions Examination subjects, even when these may not be appropriate. One would be to remove the distinction between those subjects which clearly prepare students for tertiary study and those with equally valid but different purposes. In the present system, that would mean allowing both the Tertiary Admissions Examination and General subjects to count for tertiary admissions. An alternative strategy for freeing students' subject choices would be to maintain the distinction between the two groups of subjects but to legitimate study in a broader range of subjects in a way which would, without forcing all students to choose from outside the present tertiary admissions set, encourage those who would be better served by it to do so. This could be done by reducing the number of subjects in which a student's performance is considered for tertiary admissions while not reducing the number of subjects the student studies.

We considered the possibility of allowing performances from both the present Tertiary Admissions Examination and General subject sets to count for tertiary admissions. We did not consider removing the distinction between subjects entirely. A better approach
seemed to us to be to maintain the distinction and to use an aggregate based on five or six subjects, of which at least three must be drawn from the Tertiary Admissions Examination set. To give greater weight to these three subjects, we think such an aggregate should include the full scaled scores on the three and only one-fifth of the scores on the further two or three subjects.

The appeal of such a ‘3 + 3’ or ‘3 + 2’ aggregate is that, in taking some account of performance in subjects outside the Tertiary Admissions Examination set, it should provide some incentive for students to study them seriously. A crucial question, however, is whether results in these subjects should be scaled or not. In some of them, there would be no external examination but that is no impediment to scaling, as the Board of Secondary Education’s present practice shows. The difficulty lies not in whether scaling can be done but in whether it can be justified. Some of the subjects would correlate quite poorly with either an aptitude measure or an average performance in other subjects taken, so scaling these subjects would make invalid adjustments to the marks awarded to the students enrolled in them.

If the second group of subjects were left unscaled, then students’ aggregates would be influenced by their choices of subjects. Higher marks would be more readily obtained in some subjects than others simply because of the abilities of the students enrolled. Students able to obtain high marks in weaker competition would thus obtain an arbitrary advantage in their final aggregate. There would finally be a strong disincentive for any students to take all of their five or six subjects for their aggregates from the Tertiary Admissions Examination set. Far from simply legitimating study outside this set for some students, we would then have forced most students outside it.

We could justify the use of a ‘3 + 3’ or ‘3 + 2’ aggregate only if all subjects were scaled, but we would find it difficult to justify scaling some of them. For this reason, we have finally preferred a system in which only subjects from a limited set are considered for tertiary admissions and one in which only a part of the student’s total enrolment needs to be considered.

There are two crucial questions raised by our proposal that only a subset of the accredited subjects be used: which subjects should be in the subset and how many results should be considered for each student? The data in Table 6 provide evidence to help with the second of these questions. The table shows the correlations between various aggregates of the current Tertiary Admissions Examination subjects and first-year performance in Arts and Science at the University of Western Australia. The differences between the correlations with first-year performance of the University’s current admissions aggregate, based on six subjects, and those of an aggregate of ‘best three subjects’ are insignificant. In some years, the ‘best three’ predicted success at the University more efficiently than the current aggregate of six. In any case, variations from year to year were much greater than variations among the aggregates in any year.
TABLE 6

CORRELATIONS OF VARIOUS AGGREGATES OF RESULTS IN TERTIARY ADMISSIONS EXAMINATION SUBJECTS WITH FIRST YEAR SUCCESS AT THE UNIVERSITY OF WESTERN AUSTRALIA

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Current UWA</td>
<td>.56</td>
<td>.59</td>
<td>.57</td>
<td>.61</td>
<td>.70</td>
<td>.60</td>
<td>.63</td>
<td>.61</td>
</tr>
<tr>
<td>Best 5</td>
<td>.58</td>
<td>.61</td>
<td>.56</td>
<td>.62</td>
<td>.70</td>
<td>.62</td>
<td>.65</td>
<td>.61</td>
</tr>
<tr>
<td>Best 4</td>
<td>.56</td>
<td>.62</td>
<td>.57</td>
<td>.61</td>
<td>.71</td>
<td>.63</td>
<td>.63</td>
<td>.61</td>
</tr>
<tr>
<td>Best 3</td>
<td>.54</td>
<td>.58</td>
<td>.58</td>
<td>.59</td>
<td>.71</td>
<td>.62</td>
<td>.61</td>
<td>.60</td>
</tr>
</tbody>
</table>

Source: A.W. Anderson (Director, Research Unit in University Education, University of Western Australia).

We recognize that the results in Table 6 are for an aggregate of 'best three' in a context where students are studying in the expectation that six will be counted. If only three subjects were expected to be counted, the pattern for an aggregate of 'best three' could alter in unpredictable ways. Nevertheless, we are emboldened by the data in Table 6 to conclude that a reduction in the number of elements in the aggregate from the present five or six to three would leave the tertiary institutions with a selection criterion just as well correlated with subsequent tertiary performance as the present one.

We considered recommending the use of a simple three-subject aggregate as the ultimate criterion for admission to tertiary institutions. Had we done this, we would have proposed that there be no breadth requirement on the subjects in a student’s aggregate. It would have been simply the ‘best three’ of any subjects taken from the subset of accredited subjects approved for aggregation. The aggregate would thus have been a measure of the student’s strength on which tertiary study would be most likely to be built.

An aggregate of ‘best three’ would be simple to describe and use but it would have a serious risk. We want students still to take six subjects and will propose that adequate performance in them be a requirement for admission to tertiary study but we were concerned that, though we might thus be able to ensure enrolment in six subjects, there might be too little effort in any but the three which the student expects to form the aggregate. Students vying for places in Medicine, for example, might choose Mathematics I, Chemistry and Physics as the subjects for their aggregates and give little serious attention to anything else.

We thus see use of a three-subject aggregate as introducing too much pressure towards a narrow emphasis on the three subjects. Use of a ‘3+2’ or ‘3+3’ subject aggregate (where only the first three must come from the restricted set) we see as either necessitating unjustifiable scaling of subjects outside the set or giving unfair advantage to students whose additional subjects come from outside the set. The approach which we have finally
opted for is one which allows students to gain entry to tertiary institutions with only three of their six subjects from the restricted set of subjects, while attempting to avoid a penalty on students more confident of moving on to tertiary study who take more subjects from this set. Our proposal is for an average, rather than an aggregate; and for the average to be based on three, four or five subjects, depending on a student's enrolment and performance.

For all averages, we propose a simple breadth requirement. We suggest a classification of the restricted subjects into a humanities/social studies subset and a quantitative/science subset; and propose that, in all averages, there be at least one subject from each subset. To obtain a three-subject tertiary admissions average, then, a student's total enrolment need include only three subjects from the restricted set, provided the three include at least one from the humanities/social studies subset and one from the quantitative/science subset.

A student whose enrolment included four subjects from the aggregatable group would have some possible advantages. The first is that more than one three-subject average can be formed and the best chosen. A second and more important advantage for some students would be that the four-subject average which could be formed could be better than any three-subject average. A student strong in quantitative/science studies could have three subjects from this subset count in a four-subject average, but only two in a three-subject average.

Similarly, students whose enrolments include five subjects from the restricted set could have some additional advantages. More combinations of subjects are available for four-subject and three-subject averages from which the best is to be chosen. Furthermore, a five-subject average could be formed and it could be better than any three- or four-subject average where a student is particularly strong in either quantitative/science or humanities/social studies.

We propose that a student's tertiary admissions average be the best of any three-, four- or five-subject averages which can be formed according to the rules above. We must admit that the possibility of four- or five-subject averages being superior to a three-subject average arises only because we have imposed a breadth requirement in the average. This breadth requirement removes the possibility of a three-subject average measuring an individual's strength where the strength is in either the quantitative/science subset or the humanities/social studies subset. Such a strength can predominate only in a four- or five-subject average. An analysis of the results of students in the 1983 Tertiary Admissions Examination reveals that, for all but 12 per cent of students, a three-subject average was the best. Among those who qualified for admission to tertiary study, about 17 per cent achieved their best average with four and about 8 per cent with five subjects. Among students with the highest aggregates in 1983, about 30 per cent would have achieved their best average from four or five subjects. This suggests that the use of a variably based average, while providing some incentive for students strong in one domain to take more than three subjects from the restricted set, should
not produce a widespread pressure on students to do so. Certainly, there appears to be no advantage in an average on more than three subjects for students close to the margin for tertiary admissions.

The possibility of a three-subject average will provide an opportunity for students not sure of their likelihood of proceeding to tertiary study to take only three of the restricted subjects and to balance these with three other accredited subjects or two other accredited subjects and one school subject. The possibility of four- and five-subject averages should, we believe, provide sufficient incentive for students who are strong and sure of their objective of tertiary study to take much the same pattern of subjects as such students currently do. This is the reason why we prefer it to the three-subject aggregate.

In the aggregates currently used by the two universities, one-tenth of the student's score on the Australian Scholastic Aptitude Test is included. Students' collective performances on this test influence the scaling of their subject results, but addition of an element of their personal scores on the test into their own aggregates is thought to give them a more personal incentive to take the test seriously. We propose that such an arrangement be continued. Since the students' averages can be based on different numbers of subjects, the aptitude test component will need to be introduced after each student's best average is determined. To give the aptitude test a similar weighting to that used at present, we propose that the final tertiary entrance average be a 50:1 weighted average of the best subject average and the aptitude test score. We suggest that the final score be called the Tertiary Entrance Score. (It could readily be re-expressed on a wider scale by multiplication by five or any other appropriate number.)

In our comment so far, we have talked of the full set of accredited subjects being initially all those subjects presently reported on the Certificate of Secondary Education, both Tertiary Admissions Examination and General subjects. We have also talked of a restricted set of the accredited subjects which might contribute to the tertiary admissions average which we now propose. We do not believe that all the present Tertiary Admissions Examination subjects should be in this restricted set.

In Table 7 we suggest which of the present Tertiary Admissions Examination subjects should be in the restricted set which might contribute to a Tertiary Entrance Score. In developing this recommendation, we have used several criteria. A preliminary one is that the subject should provide a preparation for tertiary study, though not all subjects satisfying this criterion should be in the list. A second is that performance in the subject should correlate sufficiently well with that on the Australian Scholastic Aptitude Test and with that in other subjects in the restricted set for scaling and aggregation to be justifiable. A third is that enrolments should be sufficiently large for scaling to be reliable. For this third criterion, we suggest an enrolment of 125 as sufficient and a further requirement that the subject be taught in more than one school.
TABLE 7

PROPOSALS FOR INCLUSION OF PRESENT TERTIARY ADMISSIONS EXAMINATION SUBJECTS IN SET WHICH MAY CONTRIBUTE TO TERTIARY ADMISSIONS AVERAGE

<table>
<thead>
<tr>
<th>Subjects Which May Be Included</th>
<th>Subjects Which May Not Be Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities/Social Studies</td>
<td>Agricultural Studies</td>
</tr>
<tr>
<td>Economics</td>
<td>Ancient History</td>
</tr>
<tr>
<td>English Literature</td>
<td>Applied Technology</td>
</tr>
<tr>
<td>French</td>
<td>Art</td>
</tr>
<tr>
<td>Geography</td>
<td>Chinese</td>
</tr>
<tr>
<td>German</td>
<td>English</td>
</tr>
<tr>
<td>History</td>
<td>Hebrew</td>
</tr>
<tr>
<td>Italian</td>
<td>Home Economics</td>
</tr>
<tr>
<td>Music</td>
<td>Indonesian</td>
</tr>
<tr>
<td>Politics</td>
<td>Japanese</td>
</tr>
<tr>
<td></td>
<td>Latin</td>
</tr>
<tr>
<td></td>
<td>Malay</td>
</tr>
<tr>
<td></td>
<td>Mathematics IV</td>
</tr>
<tr>
<td></td>
<td>Technical Drawing</td>
</tr>
</tbody>
</table>

Quantitative/Science

<table>
<thead>
<tr>
<th>Accounting</th>
<th>Biology or Human Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry or Physical Science</td>
<td>Geology</td>
</tr>
<tr>
<td>Mathematics I or Mathematics II and III</td>
<td>Physics or Physical Science</td>
</tr>
</tbody>
</table>

In the listing in Table 7, we propose three specific restrictions to ensure that overlapping courses do not contribute together to an average. We would not want Biology and Human Biology counted together in an average, though enrolment in both would be permissible. In the other two cases, we presume that joint enrolment would not even be permissible. One is that Physical Science could not be taken with either Physics or Chemistry. The other is that Mathematics I could not be taken with Mathematics II or Mathematics III.

In the case of English and English Literature, we not only propose that they not contribute together, but suggest that English not be a subject which can contribute to an average. We see it as an important and valuable subject and one through which some students may prepare to satisfy the literacy requirement. One important reason
for excluding it from any average is that it is a subject for which may students presently take the external examination and perform well despite never enrolling in the course or studying the syllabus. To allow such a result to contribute to a three-subject average is to permit an effective study focus on two subjects in extreme cases. If procedures for the assessment of literacy cannot be implemented speedily we suggest, as an interim measure, that satisfactory performance in any subject with a substantial essay component be taken as evidence of competence. Among these subjects, we would include both English and English Literature and any of the humanities/social studies subset except other languages. In this case, consideration may need to be given to permitting English to be in the restricted set also.

We recognize that any proposal to reduce the present set is likely to be controversial, because membership of the set has been seen to confer status on the subject. Witness the efforts invested in having subjects transferred from the General to the Tertiary Admissions Examination set in recent years. We are committed to the view that secondary education should have status in its own right and that subjects offered for study should be valued for what they offer, not for what others might do with them. We do not wish to say that all subjects which prepare students for further study should, of necessity, be in the restricted set upon which admissions averages might be based. Conversely, we certainly do not wish to say that subjects outside the set are, of necessity, of less value in preparing students for further study. Our criteria for including subjects in the set relate exclusively to selection and not, more generally, to preparation.

To ensure that the student's study is not narrowed to the minimum number of subjects which could contribute to the student's Tertiary Entrance Score, we propose that two preliminary criteria for admissions be used. The first criterion would be completion of the requirements for secondary school graduation. The second criterion would be satisfactory performance in six subjects at Year 12 level, with at least five of them being subjects accredited by the central certifying authority. We have already suggested that this set should contain initially all subjects presently approved by the Board of Secondary Education, both Tertiary Admissions Examination and General subjects. We want the pattern of students studying six subjects to continue. We have proposed satisfactory performance in a minimum of five accredited subjects as our second criterion only to allow some students to take a school subject as their sixth. We expect many still to take six accredited subjects and, of those clearly intending to proceed to tertiary study, many still to take six of the type currently classified as Tertiary Admissions Examination subjects.

We leave 'satisfactory performance' imprecisely defined, because we see that as a matter for the tertiary institutions. We have suggested a grading scale of A-D and F for all courses; and we expect that C or better would serve. The definition could vary across tertiary institutions and from time to time for any one institution. It could, for example, be C or better in four, and B or better in two. We would, however, discourage any arbitrary categorization of subjects through specification of subsets for which different grade levels are required.
Our suggestion of these two preliminary criteria for tertiary admissions is not because completion of secondary school graduation or satisfactory performance in six subjects are necessarily good preliminary screening devices for choosing students likely to succeed in tertiary study. We propose them to ensure that students continue to study a full set of subjects in Years 11 and 12 and satisfy the breadth requirements prescribed for graduation. Setting these criteria is to use the influence of tertiary admissions procedures to maintain the overall integrity of secondary study. In recommending this, we are responding to requests from the secondary sector, not pressure from the tertiary sector.

We summarize our position, then, with:

**RECOMMENDATION 17**

That, for admission to a tertiary institution, a student normally be required to have

(a) completed the requirements for secondary school graduation;

(b) performed satisfactorily in six subjects, of which at least five are accredited Year 12 subjects; and

(c) achieved a sufficiently high ranking in the Tertiary Entrance Scores to have gained a place in a course for which application has been made; with

(d) satisfactory performance for subjects referred to in (b) being defined by the tertiary institutions in terms of level of result, A-D and F;

(e) the Tertiary Entrance Score being a 50:1 weighted average of the student's best mean score on three, four or five subjects from a subset of the accredited subjects (with at least one humanities/social studies and one quantitative/science subject contributing to the average) and the student's score on the Australian Scholastic Aptitude Test; and

(f) the subject results contributing to the average referred to in (e) being scaled values of a 50:50 composite of external examination results and moderated school assessments.

Our proposed format for the Certificate of Secondary Education is given in Figure 5. This format provides for the reporting of all academic performance in Years 9 to 12 and is consistent at the lower secondary level with the thinking of the Committee of Inquiry into Education in Western Australia chaired by Mr Beazley. In Years 9 and 10, the unit values of subjects taken can vary, with the total number to be taken in a year normally being 36. In those Years, the subject nomenclature provides for a title, a Year level, and a level of subject, with 3 for the most advanced, 1 for the least advanced and 0 indicating a subject undifferentiated in this way. At Years 11 and 12, the accredited subjects are all shown as six units, that number of units representing one-sixth of a normal full-time workload. For Year 12, we provide for the recording of both a grade on the A-D and F scale for all subjects and a scaled mark at least for all subjects in the restricted set. Scaled marks could, of course, be included for any other subjects if the central certifying authority were to want them.
CERTIFICATE OF SECONDARY EDUCATION

This is to certify that

has achieved the following grades in the subjects listed below

<table>
<thead>
<tr>
<th>LANGUAGE AND COMMUNICATION</th>
<th>ENGLISH 9</th>
<th>5</th>
<th>B</th>
<th>ENGLISH 10</th>
<th>5</th>
<th>C</th>
<th>ENGLISH LIT 10</th>
<th>6</th>
<th>C</th>
<th>ENGLISH LIT 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCIAL STUDIES</td>
<td>SOCIAL STUDIES 10</td>
<td>6</td>
<td>C</td>
<td>SOCIAL STUDIES 10</td>
<td>4</td>
<td>B</td>
<td>GEOGRAPHY 11</td>
<td>6</td>
<td>C</td>
<td>POLITICAL 12</td>
</tr>
<tr>
<td>MATHEMATICS</td>
<td>MATHEMATICS 1</td>
<td>6</td>
<td>B</td>
<td>MATHEMATICS 11</td>
<td>6</td>
<td>C</td>
<td>MATHEMATICS 12</td>
<td>6</td>
<td>D</td>
<td>12</td>
</tr>
<tr>
<td>SCIENCE AND TECHNOLOGY</td>
<td>SCIENCE 9</td>
<td>6</td>
<td>C</td>
<td>SCIENCE 10</td>
<td>4</td>
<td>C</td>
<td>SCIENCE 11</td>
<td>4</td>
<td>C</td>
<td>SCIENCE 12</td>
</tr>
<tr>
<td>PHYSICAL AND HEALTH EDUCATION</td>
<td>PHYS 9</td>
<td>6</td>
<td>C</td>
<td>PHYS 10</td>
<td>5</td>
<td>C</td>
<td>PHYS 11</td>
<td>4</td>
<td>D</td>
<td>RECREATION 12</td>
</tr>
<tr>
<td>PRACTICAL AND CREATIVE ARTS</td>
<td>ART 9</td>
<td>2</td>
<td>A</td>
<td>ART 10</td>
<td>1</td>
<td>B</td>
<td>ART 11</td>
<td>1</td>
<td>B</td>
<td>ART 12</td>
</tr>
<tr>
<td>PERSONAL AND SOCIAL RESPONSIBILITY</td>
<td>PHYS 9</td>
<td>5</td>
<td>B</td>
<td>PHYS 10</td>
<td>5</td>
<td>B</td>
<td>PHYS 11</td>
<td>5</td>
<td>B</td>
<td>PHYS 12</td>
</tr>
</tbody>
</table>

An adequate standard of literacy at the Year 12 level has been achieved.
The requirements for secondary school graduation have been completed.

Issued by the Board of Secondary Education
in the presence of the principal.
dated 25th December 1978

Figure 5. Proposed format for the revised certificate of secondary education.
The scaled mark for a subject is a composite of the scaled examination mark and the moderated and scaled school assessment. We do not wish to show the composite and the separate school and external components on the certificate, since it would become unnecessarily cluttered. We show only the composite result, because it is what contributes directly to the Tertiary Entrance Score. The separate components can be made available to tertiary institutions as supplementary information in the same way that school assessments are made known now without separate reporting on students' certificates. Lists of all results could also be provided to schools for students to check if they wanted fuller details.

We do not propose that the Tertiary Entrance Score be shown on the certificate. We do not wish to make public in this way an index which captures only part of what a student has done and which may be erroneously used as a global measure of a student's total secondary school achievement. We suggest that, when students who have applied for admission to tertiary study are advised of the outcome of their application, they also receive a slip containing their Tertiary Entrance Score but having no personal identification to give it a separate currency.

5.2 Other paths to tertiary admissions

In this report, we concentrate on education in the upper secondary school and upon the admission to tertiary institutions of school-leavers. We note, however, that all tertiary institutions have developed selection criteria for mature-age students which enable them to deal with applicants with a great diversity of backgrounds.

One area which we believe needs further attention is the treatment of graduates from technical and further education institutions seeking enrolment in tertiary study. At present, there is very little credit given towards tertiary qualifications for technical and further education qualifications. Considerable recognition of these qualifications occurs in engineering at the Western Australian Institute of Technology and in business studies at both the Western Australian College of Advanced Education and the Western Australian Institute of Technology. Credit is given in other cases too, but, in some areas, it is claimed that students are obliged to repeat in the tertiary institutions work done in technical and further education. We have not investigated the details and so do not know whether these claims can be justified. We urge an investigation in:

RECOMMENDATION 18

That tertiary institutions, in consultation with technical and further education authorities, review current arrangements for students moving to tertiary study from technical and further education.

5.3 Admission to highly selective tertiary courses

Some tertiary courses are in very high demand amongst students but offer only a limited quota of places. As a consequence, the current aggregates for admissions are used to make fine-grained distinctions among applicants. This places demands of precision upon
the aggregate which exceed its capacity. Decisions based on it do have face validity because of their objectivity, but the validity is, to some extent, illusory, because the precision of the decisions cannot be justified on the accuracy of the measurement. To some extent, this is true of all admissions decisions now because all tertiary courses effectively have quotas. Decisions in the less highly selective courses can be somewhat less crucial, however, because they are less clearly final and because students can often follow other routes to their career choices.

An ironic side-effect of the very strong competition for entry to highly selective courses is that career choice can become influenced by the selection device. When a qualifying aggregate for a restricted course is achieved, there can be considerable pressure on a student to enrol in the course. The final effects could be deleterious for the professions concerned, since the single criterion on which students are selected is academic performance. In the case of the Faculty of Medicine, currently the course with the highest cut-off, some argue that students thus admitted are more oriented in the long run towards specialization and research than general practice. If the medical profession needs a balance of both types of graduates, a more diverse group of students should probably be selected. In an attempt to achieve this, some medical schools in Australia use other selection information in addition to academic achievement. We have not examined this question in detail, since we have concentrated on more general questions of tertiary admissions, and so make no specific recommendation.

To reduce the pressures imposed on Year 12 study and assessment by selection for highly selective courses, more may be needed than the addition of other selection variables. Deferral of selection until the completion of the first year of tertiary study of a more general nature would not only reduce the pressure on students in secondary schools but would also allow the faculty concerned to use performance at tertiary level as the basis for selection. Deferred entry already occurs in a number of highly selective faculties, such as Law and Dentistry, and at one stage prospective medical students spent their first year as a special category of students from which some were selected for places in second year. The practice has been discontinued, both because of the pressures it placed on the students in first year and because of the costs of training of students subsequently denied a place in second year. The trend for more tertiary courses to become selective makes the question of deferral of selection to the end of first year a more complicated one, though it does not rule out the possibility of operating an initial selection to a first-year course common to a set of related courses. The health sciences provide an example but also raise the further problem of inter-institutional transfer at the end of first year, since the relevant courses to which students would be seeking access in second year are offered by the two universities and the Institute of Technology. We make no specific recommendation on this matter, but urge that the effects of competition for places in highly selective courses on subject choice in upper secondary school be monitored by regular investigation of the pattern of subjects taken by students gaining admission. We would not want to see the general benefits of our proposals lost simply because their provisions might be abused in efforts to obtain places in the most selective courses.
5.4 Role of prerequisites

In addition to requiring students to obtain a sufficiently high aggregate, some tertiary courses currently require students also to have completed particular upper secondary school subjects as prerequisites. Documents prepared by the tertiary institutions to advise Year 10 students on subject selection for upper secondary study use a wide variety of terms such as 'highly desirable', 'an advantage' and 'well prepared' to encourage study of particular subjects. The term 'prerequisite' is usually avoided by the tertiary institutions. In fact, the official policy of the two universities is to have no specific prerequisites for admissions. Nevertheless, there is an informal recognition of presumed knowledge for particular tertiary courses and, in some cases, students are advised at school to select certain subjects for Years 11 and 12, even though they are not formal prerequisites for the tertiary courses the students intend to undertake. At the tertiary level, specific background secondary school study is sometimes assumed in setting the pace of teaching, without a formal declaration that the knowledge is prerequisite, so the advice in schools is probably realistic. In the case of mathematics, some ambiguity in statements of requirements may lead some students to study both Mathematics II and Mathematics III rather than Mathematics I, even though Mathematics I would be sufficient for the tertiary study they have in view.

The Western Australian Institute of Technology does specifically use the term 'prerequisites' in its brochure for Year 10 students and the list of prerequisites for various courses is quite extensive. The list is currently being reviewed to remove all but those secondary school studies which are specifically built upon in the courses for which they are declared to be prerequisites.

We are concerned, on the one hand, about strong informal prerequisites not being declared and, on the other, with prerequisites being set but not being essential for subsequent tertiary courses. We would want tertiary institutions to be realistic in determining prerequisites and clear in their statements of what they are, so we suggest:

**RECOMMENDATION 19**

That tertiary institutions, in consultation with the central certifying authority for upper secondary education, review the Years 11 and 12 prerequisites set for courses of study at tertiary level.
Proposed administrative arrangements

In Chapter 1, we described the joint control of the Board of Secondary Education and the Tertiary Admissions Examination Committee over the syllabuses for Tertiary Admissions Examination subjects. We also described the role of the Tertiary Institutions Service Centre in conducting the examinations. The position is even more complex than that brief discussion might have suggested. The Joint Syllabus Committees are serviced by the Board of Secondary Education but the Committees report to the Tertiary Admissions Examination Committee first and the Tertiary Institutions Service Centre distributes their proposals to schools for comment and prepares the subject handbook. The Tertiary Admissions Examination Committee tends not to discuss matters of overall policy. Its role is largely one of reaction to the initiatives of the separate Joint Syllabus Committees. The Board of Secondary Education, on the other hand, does seek to discuss more general policy questions about upper secondary education, but some of its members believe it is rendered somewhat impotent by its present place at the end of the decision-making line with respect to all the present Tertiary Admissions Examination subjects.

Administratively, the conduct of all the Tertiary Admissions Examinations and all the data processing for both tertiary admissions and the production of the Certificate of Secondary Education are undertaken by the Tertiary Institutions Service Centre. The costs of the examinations are met by the State Government. The budget for these operations is considered, not by the Tertiary Admissions Examination Committee (on which the secondary sector has about one-third of the members), but by the Tertiary Institutions Service Centre Management Committee, which consists exclusively of representatives of the tertiary institutions. It is, of course, also considered by the State Treasury.

Although this mixture of responsibilities might appear to be a recipe for disaster, effective administrative co-operation has occurred between the Board of Secondary Education and the Tertiary Institutions Service Centre. Dissatisfaction appears to be greatest among members of the Board of Secondary Education, who feel that key decisions affecting secondary education are out of their control. They believe that the sequential consideration of issues which puts the Board at the end of the line denies any opportunity for real sharing of decision-making on those issues of key interest to both the secondary and tertiary sectors.

One way to deal with these concerns would be to give the responsibility for all the upper secondary courses to a single agency, representative of the schools and tertiary institutions and also of the general community, but with the secondary sector holding
a majority. A reconstituted Board of Secondary Education, with more extensive tertiary representation than at present, could perhaps assume responsibility for all centrally-accredited courses of study in Years 11 and 12 and for all centralized assessment and certification of student academic achievement in Years 11 and 12.

The Tertiary Institutions Service Centre would have a much reduced role, continuing only to process applications for, and offers of, enrolment in tertiary institutions. This is the pattern which occurs in other systems, including Victoria, where there are external examinations, and Queensland, where there are none.

We see several difficulties with this proposal. One is that, since the Board of Secondary Education is responsible for Years 8 to 12, it may be unable to give as much attention to Years 11 and 12 as is provided at present with the Tertiary Admissions Examination Committee being involved. Another is that representatives of tertiary institutions would be obliged to deal with a much wider range of matters in secondary education, from Years 8 to 12. A third, and perhaps the most important, point is that the secondary sector's current sense of impotence in regard to key aspects of its curriculum and assessment of its students will simply be replaced by the tertiary sector's sense of impotence in regard to the assessments which it uses in selecting its students. Trading one set of resentments for another seems to us an unproductive step and likely to lead to a separation of the two sectors, in the fashion now being considered in Victoria, under which tertiary institutions would establish a new set of examinations.

We would prefer to see a balance of power over the curriculum and assessment in Years 11 and 12, rather than the present imbalance in favour of tertiary institutions or an alternative imbalance in favour of schools. Our proposals in Chapter 5 involve two sets of subjects within the full set of accredited subjects, but they are not well described by the labels for the present categories of subjects, Tertiary Admissions Examination and General. The set of subjects which can contribute to a Tertiary Entrance Score is smaller than the present Tertiary Admissions Examination subset and it excludes some subjects which clearly prepare students for further study in a particular field. Some are excluded because their enrolments are too small to permit stable scaling of results. Others are excluded because they do not correlate well with other subjects which might contribute to the average, or with the aptitude test against which they would be scaled. The point is that, though we propose creating a set of subjects relevant to the Tertiary Entrance Score, they are not the only ones relevant to preparation for tertiary study or, because of our two preliminary criteria, relevant to tertiary admissions. Since there are no clearly appropriate descriptive labels for our two categories of subjects, we suggest the labels 'A' and 'B' and hope that neither will be used pejoratively. We propose A for the set from which averages for the Tertiary Entrance Score may be formed. Category B will include all the present General subjects as well as those of the present Tertiary Admissions Examination subjects we suggest in Table 7 should not be in Category A.
For the administration of the system we have proposed, we suggest that the Board of Secondary Education, the Tertiary Admissions Examination Committee and the Tertiary Institutions Service Centre all be replaced. The basic structure we suggest is a statutory authority with a standing committee, responsible for Group A subjects, representative of secondary and tertiary education. We envisage the authority being responsible for the accreditation of subjects and the certification of performance, including the conduct of external examinations and all other forms of moderation.

As the statutory authority, we propose a Secondary Education Authority with representation from the secondary and tertiary education sectors and from the general community. Specifically, we propose:

RECOMMENDATION 20

That the Board of Secondary Education and the Tertiary Admissions Examination Committee be abolished and a Secondary Education Authority be established, consisting of

(a) the Director-General of Education, ex officio, as chairperson;
(b) twelve representatives of the secondary education sector, Government and non-Government, and including both administration and teacher representatives;
(c) eight representatives of the tertiary education sector, two from each of the four tertiary institutions; and
(d) four general community representatives; and

that this Authority be responsible for the accreditation of courses of study and the certification of student achievement in secondary education, including the conduct of any external examinations.

For the detailed administration of the Authority we make only one specific proposal. That is to ensure a continuing involvement of the tertiary institutions in the oversight of the Group A subjects. We presume a continuing involvement in the current manner in Syllabus Committees and Examination Panels for individual subjects but, for the establishment and implementation of policy for the Group A subjects, we propose:

RECOMMENDATION 21

That the Secondary Education Authority establish a Standing Committee, responsible for all subjects in Group A, consisting of equal representation from the tertiary education and secondary education sectors.

As the administrative agency providing all service and support for the Authority, we suggest a body combining the present resources of the Board of Secondary Education and the Tertiary Institutions Service Centre. This agency could also handle, on behalf
of the tertiary institutions, all processing of applications for admission to tertiary studies. We propose this as:

RECOMMENDATION 22
That the staff and support functions of the current Board of Secondary Education and Tertiary Institutions Service Centre be combined into a single agency to service the Secondary Education Authority and to process applications for admission to tertiary studies, on behalf of the tertiary institutions.

We would urge the Secondary Education Authority, when established, to act expeditiously in implementing this recommendation. It is important that current staff be assured of their job security and advised as quickly as possible of the new arrangements of which they are to be a part.
Potential problems with proposals

Any attempt to make major changes to a complex system such as the present procedures for upper secondary certification and tertiary selection must run a serious risk of creating new problems in place of the old ones with which it attempts to deal. We are acutely conscious of this risk. In our discussion of tertiary admissions procedures in Chapter 5, we deliberately canvassed the three options to which we gave most serious consideration. All of them have strengths and all of them have weaknesses. On balance, we have preferred a selection index based on three-, four- or five-subject averages, but we believe its implementation should be closely monitored.

In suggesting the narrow grouping of subjects in our Group A which may contribute to the Tertiary Entrance Score, we are hopeful of breaking the present nexus between subject status and membership of some 'inner set'. Certainly, many of the subjects in Group B, including some not in the present Tertiary Admissions Examination set, can provide a good academic preparation for tertiary studies. We propose excluding them from Group A only on the grounds of their adequacy in selection. If we have misjudged, and schools are unable in their own terms to give status to subjects in Group B, then our proposal will need modification. Consideration of any modification should not, in our view, wait upon the establishment of some new committee of review. It should be an ongoing responsibility of the Secondary Education Authority we have proposed in Chapter 6.

Among the most important evidence which the Board should monitor will be enrolment trends. Our key objective is to encourage students presently not well served by the Tertiary Admissions Examination subjects to choose their subjects from a broader set, so we would expect to see some shift in enrolments away from the former. The trends which will need to be observed will be more subtle than global shifts in enrolments. Evidence should be sought to determine whether the availability of four- and five-subject averages acts as disincentive for weaker students to continue to take too many subjects from Group A or, on the other hand, whether the availability of a three-subject average acts as an incentive for able students to focus narrowly on only three subjects from Group A. Either of these trends we would judge to be unsatisfactory.

A further trend to be monitored should be enrolments in the present Tertiary Admissions Examination subjects which we propose should be in Group B. We would expect enrolments in many of them to increase as freer access to them is created. In the past, movement into the Tertiary Admissions Examination group has sometimes caused enrolments to drop in response to changes in the purpose of the subject. The most notable example is Home Economics. Movement out to Group B, as we propose, may have
the reverse effect of raising enrolments. If there are, in fact, substantial defections from these subjects, we would encourage the Authority to consider further the '3 + 2' or '3 + 3' weighted subject aggregates which we discussed in Chapter 5. Implementation of such an aggregate would require the solution of some serious scaling problems, probably by non-statistical means, but the attempt should be made if our three-, four- or five-subject average proposal stimulates the negative side-effects of which we are fearful.

The upper secondary school is changing dramatically. In our proposals we seek to respond to the needs created by those changes. We do not seek, however, to prescribe a strait-jacket from which secondary education can escape only with the aid of a major inquiry. We have highlighted the potential benefits and risks of both our proposed changes and other options throughout our report because we want to encourage a sensitive implementation of our proposals, with careful monitoring of their effects.
Appendix

Sources of submissions

(1) Written submissions were received from the following organizations:

- Australian Dental Association (Western Australian Branch)
- Australian Medical Association (Western Australian Branch)
- Australian Physiotherapy Association (Western Australian Branch)
- Australian Society of Accountants (Western Australian Division)
- Board of Secondary Education
- Education Department of Western Australia
- Faculty of Engineering, Western Australian Institute of Technology
- Fellowship of Australian Writers (Western Australian Section)
- G. Korsunski - Carmel School, Dianella
- Geographical Association of Western Australia
- Gifted and Talented Children's Association of Western Australia
- Guildford Grammar School
- Institute of Personnel Management, Australia (Western Australian Division)
- Institution of Engineers, Australia (Western Australian Division)
- Institution of Radio and Electronics Engineers, Australia (Perth Division)
- Joint Syllabus Committee, Ancient History
- Joint Syllabus Committee, Applied Technology
- Joint Syllabus Committee, Biology
- Joint Syllabus Committee, Economics
- Joint Syllabus Committee, English Literature
- Joint Syllabus Committee, French
- Joint Syllabus Committee, Italian
- Joint Syllabus Committee, Music
- Joint Syllabus Committee, Technical Drawing
- Matriculation and Admissions Committee, University of Western Australia
- Methodist Ladies' College
- Murdoch University
- Parents and Friends Association, Keenan College, Manjimup
- Parents and Friends Association, Wesley College
- Retired Teachers' Association
- Royal Australian College of General Practitioners (Western Australian Faculty)
- Scotch College
- Student Guild, Western Australian Institute of Technology
- Teachers of Politics
- Tertiary Admissions Examination Committee
- Wesley College
- Western Australian College of Advanced Education
- Western Australian Institute of Technology
- Western Australian Post Secondary Education Commission
(2) Written submissions were received from the following individuals:

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