Redesigning the secondary–tertiary interface

Queensland Review of Senior Assessment and Tertiary Entrance

Extract: Recommendations and major features of proposed design

Report submitted to the Queensland Minister
for Education, Training and Employment

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Extract	**Recommendations and major features of proposed redesign**

Recommendations

A general conclusion of this Review is that senior secondary assessment and tertiary entrance in Queensland are in need of attention. It is more than twenty years since the current OP system was designed, and the broad features of the senior assessment system have been in place even longer. Over the past two decades, assessment and tertiary entrance processes have been the subject of ongoing modifications. Although the current processes have served Queensland well, we believe that they will be less adequate in meeting future needs and that the time has come for a redesign.

Any redesign must recognise and preserve strengths of the current arrangements. The challenge is to design senior assessment and tertiary selection processes appropriate to Queensland in the 21st Century, rather than attempt to reconstruct arrangements from the past or to adopt solutions from elsewhere. We include among the strengths of existing Queensland arrangements the use of classroom teachers' judgments of students' performances and work, and believe that this aspect of the current system must be preserved as a significant element of future assessment arrangements.

The following recommendations list major features of our proposed redesign. It has not been possible in a Review of this kind to develop detailed implementation plans to accompany these recommendations. We recognise that this more detailed work is essential and will need to be undertaken prior to implementation. We also recognise that our recommendations have resourcing implications. A higher level of investment will be required to build the 21st Century system we envisage. And beyond this, there are likely to be implications for capacity building within the responsible agencies: QCAA and QTAC.

The current OP system

It is clear to us that the current OP system no longer functions as originally envisaged and is reaching the end of its usefulness. Shortcomings identified by the Review include:

- difficulties in translating the OP's theoretical basis into practice, with almost 50% of Year 12 completers being considered for university entrance on the basis of criteria other than the OP, most notably a ranking of OP-ineligible students that does not take account of differences in subject difficulty or subject-group enrolments;
- the inadequacy of OPs and FPs as a basis for differentiating among applicants to high-demand tertiary courses, and the construction and use of ATARs instead;
- the bypassing of the OP system through the use of the QTAC Selection Rank and associated concerns that schools may be directing students to this alternative route as a way of maximising their "OP" (actually OP-equivalent);
- the inability of FPs to provide the envisaged additional discrimination among applicants to high-demand tertiary courses;
- the increased and unhelpful status of the QCS Test as the major external examination and key assessment event during the senior secondary years;
- concerns about the amount of coaching that schools are accessing and providing for the QCS Test;
- the complexity of the current system with its subject Levels of Achievement, QCS Test grades, SAIs, QCS distribution parameters, OAIs, OPs, FPs, ATAR, QCS Test percentiles and QTAC Selection Rank, some of which have been introduced on an *ad hoc* basis; and
- a lack of transparency in current selection processes, with applicants sometimes unaware of the basis on which they are considered for admission to tertiary courses.

We found little support for the current OP system either among schools or universities, with these two groups usually expressing different concerns.

Recommendation 1

The OP system should be discontinued and the interface between secondary completion and university selection should be redesigned. The implications are that SAIs would no longer be generated, OAIs, OPs and FPs would no longer be calculated, and the QCS Test would be discontinued. Under the new model, Subject Results would be reported on a finer scale for use by universities in their selection decisions.

The separation of responsibilities

A central feature of the redesign we are proposing is the separation of responsibility for the certification of student attainment in senior subjects from responsibility for the selection of students for admission to tertiary courses of study. We see this as a fundamental distinction. At the present time, this distinction is blurred by the fact that the school curriculum and assessment authority undertakes work to produce rankings of applicants for tertiary selection purposes. These rankings are in the form of the OP, FPs and ATAR. The work of QCAA includes the development and use of the QCS Test and the scaling of SAIs and OAIs against this test – all for the purposes of tertiary selection.

We believe that a key role of QCAA should be to certify student attainment in senior subjects, and that its role at the interface between secondary completion and university selection should stop there. It is the role and responsibility of universities to decide the criteria on which their future students are selected, including such matters as the specification of prerequisites and any weighting or combining of evidence of student achievement. The ranking of applicants to tertiary courses, and decisions about which applicants are selected and which are not, are properly responsibilities of universities.

Recommendation 2

Responsibility for certifying student attainment in senior subjects should be separated from responsibility for selecting applicants for admission to university courses. The former should be the responsibility of QCAA, working directly with schools. The latter should be the responsibility of the universities and their agent QTAC.

Assessing and certifying student attainment in senior subjects

Subject Results

Under our proposed redesign of the secondary–tertiary interface, the activities of QCAA will culminate in the certification of student attainment in senior subjects. Each student's certified attainment will take the form of a "Subject Result" indicating the overall level of knowledge, understanding and skill the student has attained in that subject by the end of Year 12. Subject Results will be directly comparable across teachers and schools and will be reported on a scale that is fine enough to enable statistically meaningful distinctions and to be useful for tertiary selection purposes.

Importantly, Subject Results will be constructed as stand-alone measures of student attainment in senior subjects and be independent of how those results might subsequently be used (for example, by universities, other tertiary providers or employers). Subject Results will take the place of current Levels of Achievement (and SAIs) and will be the only information about performances in Authority Subjects reported and made available by QCAA.

Recommendation 3

Student attainment in each Authority Subject should be reported by QCAA in the form of a "Subject Result" indicating the level of knowledge, understanding and skill that the student has attained. Subject Results should be directly comparable across teachers and schools and function as stand-alone measures of senior secondary attainment, independently of how they might subsequently be used.

Specified assessment activities

The reliable certification of student attainment in a subject by QCAA depends on the ability to compare students' levels of knowledge, understanding and skill in that subject across teachers and schools. This, in turn, depends on all students in the subject being assessed in similar ways under similar (or identical) conditions. The assessment activities on which certification is based, while not necessarily identical, should be "equivalent" in the sense that they enable the performances of students in different schools to be compared directly.

Concerns were expressed to the Review about variability in the quality of teachers' assessment processes and instruments, the extent to which all schools' implemented assessment programs provide balanced coverage of intended syllabus outcomes, and variation in the level of demand in different teachers' assessment instruments.

We believe the comparability of Subject Results can be enhanced by tightening the specifications of the assessment activities on which certification by QCAA is based. For each senior subject, we are recommending that QCAA identify four types of assessment activities to be undertaken by all students.

For example, in a particular subject, the four activities might be an on-line multiple-choice test of facts and conceptual understandings; a field study with written report; a short-response test of students' abilities to apply their subject knowledge to unseen problems; and a practical exercise in manipulating and presenting data according to the conventions of the subject. In this particular example, all assessments would be completed under supervised conditions except for the written field study report. The parameters for the four assessment activities in each subject – including the nature of each activity, the conditions under which it is to be completed and marking schemes for assessing students' responses – will be specified by QCAA.

To further enhance comparability across teachers and schools, we are recommending that one of the four assessment activities in each subject be externally set and marked by QCAA. We envisage this externally set and marked assessment typically being a test of students' abilities to apply their knowledge, skills and understandings to relevant problems and contexts. If well designed and constructed, externally set assessment activities will enhance the comparability, reliability and validity of students' Subject Results.

These four specified assessment activities will be the basis for certifying student attainment in each Authority subject. Results on the four activities will be combined to produce a student's Subject Result. The four QCAA-specified assessment activities will complement other assessments that teachers make continually as part of their teaching – to establish and understand where students are in their learning, to provide ongoing feedback to students and parents, and to inform day-to-day classroom decision making.

Recommendation 4

The certification of student attainment in each senior subject should be based on a set of four specified types of assessment activities. QCAA should specify the nature of each activity, the conditions under which it is to be completed and the marking scheme for assessing students' performances. One of the four assessment activities should be externally set and marked by QCAA.
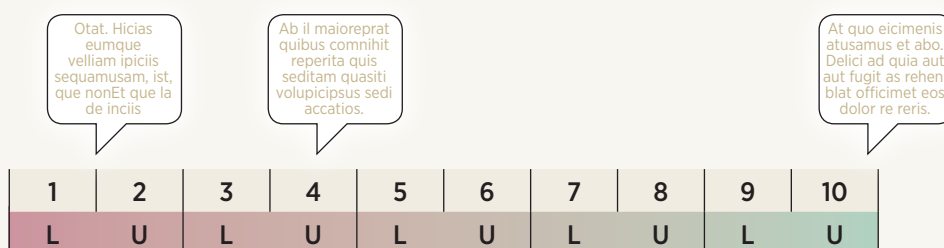
Calculating Subject Results

The model we are proposing ensures comparability of Subject Results by first ensuring that assessments of students' performances on each assessment activity are comparable across teachers and schools.

In the case of the externally set and marked assessment activity, this is relatively straightforward because all students will undertake the same task or set of items. We propose that performances on the externally set and marked activity in each subject be reported as integers on a scale of 1 to 30, with the possibility of a mark of zero being assigned for no attempt or lack of evidence of achievement.

In the case of the three assessment activities set and marked by teachers (using the parameters and marking scheme specified by QCAA), external moderation will be required to ensure that teachers' local assessments satisfy the QCAA parameters for each activity and that performances are marked consistently across teachers and schools. We propose that each of the three School Assessments be marked on a scale of 1 to 10, with the possibility of a mark of zero being assigned for no attempt or lack of evidence of achievement. Marks will be assigned by teachers in a two-stage process – first by judging the "level" of a student's work (based on five levels with up to five accompanying descriptions of performance developed by QCAA specifically for that assessment activity), and then by deciding whether the student's work is in the Upper or Lower half of that level (see Figure 15).

Figure 13: A marking scheme for a School Assessment activity

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Each student's Subject Result will then be calculated as the simple sum of the student's marks on the four assessment activities and reported on a scale of 1 to 60. Results in all subjects will be reported on this 60-point scale as integers only.

We envisage QCAA designing a Senior Statement (or a newly designed formal record of achievement) that will contain information to accompany Subject Results. This additional information might include performance descriptors and diagrammatic representations of students' results against distributions of Subject Results in each year.

No assessment information other than students' Subject Results (marks out of 60) should be transmitted by QCAA to QTAC.

Under our recommendations, the comparability of students' results in each subject rests on the specification of the three School Assessments by QCAA; the checking of schools' local assessment processes and instruments against these specifications; checks on the consistency with which teachers apply each 10-point scale in assessing student performances; and the use of an externally set and marked assessment activity (External Assessment).

Our proposal is that effort and resources be invested in ensuring comparability at the level of each of the four assessment activities. With this achieved, we see no requirement for – and indeed recommend against – the statistical scaling of teachers' assessments against the external assessment activity.

We also strongly recommend against attempting to combine features of past arrangements with the future assessment and moderation processes we are recommending. For example, there will be no need under our recommendations for judgments about students' "overall" performances in a subject or for the collection and review of end-of-year folios of student work. Any attempt to retain past features in this way would be an unnecessary expense, would complicate the straightforward processes we are recommending, and is likely to confuse schools.

Recommendation 5

> **Students' Subject Results should be reported as integers on a scale of 1 to 60. Each Subject Result should be calculated as the sum of a student's mark on the external assessment (in the range 0 to 30) and marks on the three assessment activities set and marked by teachers (each in the range 0 to 10). Teachers' assessments should not be statistically scaled against the external assessment.**

External Assessments

We are recommending that, in each subject, three of the specified assessment activities (the "School Assessments") be devised and marked by teachers according to parameters and guidelines provided by QCAA and that one assessment activity (the "External Assessment") be set and marked by QCAA. We believe that the inclusion of the externally set and marked activity will improve the validity of the assessments and the comparability and reliability of students' Subject Results. We also believe that, in most subjects, factual and procedural knowledge and the ability to apply subject-specific understandings to relevant issues and contexts can be efficiently and validly assessed using a common (that is, state-wide) test. We are recommending that the External Assessment contribute 50 per cent of the marks added to produce the Subject Result.

The four assessment activities for each senior subject should be designed to provide appropriate coverage of the subject syllabus and to address different kinds of learning and achievement within that subject. With this in mind, we recognise that an external assessment contributing 50 per cent of the Subject Result may not be appropriate for every subject. A decision will be required about the appropriateness and practicability of developing an External Assessment in subjects such as Dance and Drama. In such subjects, it may be more appropriate for the externally set and marked activity to be based on direct observations or recordings of performances than on a written test, and it may be appropriate for this activity's contribution to the Subject Result to be less that 50 per cent. In Languages other than English it may be appropriate that there is no External Assessment. These are judgments that will have to be made at the level of individual subjects by Expert Subject Groups. However, for the majority of senior subjects, we recommend that the External Assessment contribute 50 per cent of the Subject Result. We also believe it is important that subjects are not classified, stereotyped or valued differently on the basis of the External Assessment's contribution to the Subject Result.

We recognise that it may not be practicable – due to resourcing constraints – to develop External Assessments for all senior subjects. For example, it may not be practicable to develop such assessments for subjects with small enrolments such as Art. We recommend that priority be given to resourcing the development of External Assessments for all large-enrolment subjects, and that for subjects with smaller enrolments, External Assessments be developed where it is practicable and appropriate given the nature of the subject. Low-enrolment subjects that are university prerequisites or obvious precursors to successful university study, and subjects for which QCAA has already begun developing on-line assessments, also should be prioritised.

The External Assessment activity in each subject will be developed annually by QCAA. The nature of the activity will be appropriate to the subject and so is likely to vary from subject to subject. Most External Assessments will take the form of written tests (either paper-based or online) taken at the same time in all schools under supervised and timed conditions. We anticipate that many will include multiple-choice, short answer (open-ended or constrained response) or extended writing.

Results on the External Assessment in each subject should be recorded as marks (integers) from 0 to 30. We recommend that QCAA monitor the distribution of students' marks across this range for each External Assessment and give consideration to routinely scaling marks to ensure that the full range of marks on the 1-30 scale of External Assessments is used. Strategies might include linearly rescaling by setting the minimum at 1 and the maximum at 30, or to set the mean and standard deviation at fixed values (for example, 15 and 5), in each subject.

We also recommend that QCAA monitors the quality of the External Assessments developed for senior subjects. Where possible, the statistical methods used to monitor psychometric quality in national and international assessment programs also should be used to monitor the psychometric properties of tests developed by QCAA. Routine monitoring of this kind will become easier as External Assessments are increasingly completed online.

Recommendation 6

> **An External Assessment in each subject should be set and marked by QCAA and completed at the same time under the same supervised conditions in all schools. If resourcing is an issue, priority should be given to developing External Assessments for subjects with high enrolments, subjects which are foundational for university courses, and subjects for which external assessment is most practicable. For the vast majority of senior subjects, the External Assessment should contribute 50 per cent of the Subject Result.**

School Assessments

We are recommending that, in each senior subject, three School Assessments be set and marked by teachers in their schools. The general specifications for these three School Assessments will be developed by QCAA. The three assessment activities could take a variety of forms, depending on the nature of the subject, including projects, reports, investigations, orals, practical work, performances, presentations, essays, mid-semester tests, and the production of artefacts. Although QCAA will specify the nature of each of the three School Assessments for a subject, and the broad intentions and parameters for each activity, schools will design the details of the local assessment activities and instruments. QCAA already produces high-quality examples of these forms of assessment. The three School Assessments and the External Assessment should be designed jointly to provide appropriate coverage and balance of the subject syllabus and in general should address different kinds of learning and achievement within the subject.

QCAA also will develop a marking scheme for each of the three School Assessments. Each marking scheme will consist of five levels and up to five accompanying descriptions of performance to anchor these levels substantively. Marking schemes will be developed by Expert Subject Groups comprising academics, teachers, and curriculum and assessment experts. (Stringent selection criteria should apply in establishing Expert Subject Groups and consideration should be given to remuneration levels that will attract highly experienced teachers.) The marking scheme will be used to assess and record students' performances, based on a two-stage process in which teachers first decide the appropriate level and then decide whether the student's performance is in the upper or lower part of that level. In this way, performances on each School Assessment will be recorded on a scale of 1 to 10 (with the possibility of a student being assigned a mark of zero for no attempt or lack of evidence of achievement).

Our proposal represents a departure from the current "criteria and standards" approach to assessing performances on assessment instruments and activities. Under our approach, the current criteria – that is, the major aspects or dimensions of achievement identified in subject syllabuses – play an important role in the design of the assessment activities and in defining what it means for a student to do well in a subject. The three School Assessments and the External Assessment are designed jointly to provide appropriate and balanced coverage of these major aspects of achievement, and the corresponding marking schemes are designed to capture evidence of these achievements. However, our methodology does not involve teachers making separate judgments of performance against standards for a subject.

Instead, teachers assess students' performances on each of the three School Assessments separately (each on a scale of 1 to 10). It is the responsibility of the Expert Subject Group to ensure that the levels are defined in a way that provides an adequate distribution of student results across the ten-point scale. It will be important that these are piloted ahead of implementation. The (up to five) level descriptors may need to be adjusted from time to time to ensure that the distribution of student results remains appropriate (for example, to counter long-term drift in performances over time).

Recommendation 7

Three School Assessments should be specified for each subject. The nature, intentions and parameters for these three assessment activities should be specified by QCAA, with teachers in schools annually designing local versions of each. The three School Assessments and the External Assessment should be designed jointly to provide appropriate coverage and balance of the subject syllabus and in general should address different kinds of learning and achievement within the subject.

Moderation of School Assessments

An important feature of our proposed redesign is the maintenance of teacher judgment as a key element of the assessment process. We believe that many of the intended learning outcomes of senior subject syllabuses are best assessed by teachers using evidence collected through student projects, presentations, reports, performances, essays and other products of student work.

A difference between our proposal and current practice is that, for the purposes of certification, teacher judgments will be made of students' performances on three assessment activities (the School Assessments), the broad parameters of which will be specified by QCAA. Teachers will design annual instantiations of each School Assessment and marking schemes that allow students' performances to be interpreted and reported in terms of the 10-point scale (QCAA's marking scheme) for that assessment.

On any given School Assessment, the comparability of teachers' assessments will depend on: (1) the consistency of locally devised activities/instruments with the QCAA parameters for that activity; and (2) the consistency of teachers' interpretations of the corresponding 10-point scale. The "moderation" model that we are recommending will test the consistency of these two aspects of teachers' assessments.

The first component of the moderation process we are referring to as the "endorsement" of schools' proposed assessment activities. This process will occur prior to any use of School Assessments and will be undertaken by "Assessment Supervisors" appointed by QCAA. They will review schools' proposed assessment activities and marking schemes from the point of view of appropriate coverage of the syllabus, appropriate level of difficulty, and the opportunity for students to engage at different levels (ensuring some success for less advanced students, but also challenging more advanced students). An important aspect of the endorsement process will be the comparison of schools' proposed activities in terms of their levels of demand. If necessary, Assessment Supervisors will order revisions before assessments are endorsed.

For example, if one of the specified School Assessments is a multiple-choice mid-semester test, then Assessment Supervisors will review schools' proposed test questions (and their keys). If a particular school's test is considered to be inconsistent with the QCAA specifications for that assessment activity or to be significantly different from other schools' tests in terms of its level of demand, then there would be a requirement that it be resubmitted to QCAA for endorsement. We recognise that this endorsement phase of the moderation process will be resource intensive. But we also see it as essential to ensuring that students in different schools are assessed in similar ways.

The second component of the moderation process we are referring to as the "confirmation" of schools' applications of marking schemes. This process will occur after the School Assessments have been completed and marked. Teachers will meet to undertake blind re-assessments of students' performances against the 10-point scale for each School Assessment. The purpose will be to ensure accuracy and consistency in the way teachers apply the marking scheme. If a particular school is judged by the meeting to have been too harsh or too lenient in its allocation of marks on the 10-point scale, then there will be a requirement that the work of all students in that subject in that school be re-marked and resubmitted. QCAA will develop a plan for sampling assessments, subjects and schools over the life of an assessment program.

As a further check, we are proposing that QCAA annually undertake a light sampling and blind re-assessment of student work in sampled schools. This process will assist in ensuring the comparability of results across all schools. If a problem is identified, all student work in that subject in that school will be re-marked.

Finally, we see value in a check of a different kind. Although the four assessments in each subject will be designed to assess different aspects of student learning in the subject, and so will not necessarily be highly correlated, we believe that there would be value in routinely checking each school's marks on the four assessments for anomalies. Examples include a school in which students' marks are very much higher on the three School Assessments than on the External Assessment (or vice versa), and where one of the School Assessments is very much higher than the other two. These are predictable patterns, but other less predictable anomalies also may occur. We recommend that QCAA check routinely for anomalies and investigate and resolve any that are identified before verifying students' marks on the four assessments. Once anomalies are resolved, the "ratification" of students' Subject Results for certification follows.

Because the moderation of students' results will be conducted for each assessment activity over the course of at least a year (typically all in Year 12 but possibly one at end of Year 11 for some subjects), students will most likely know their marks on all assessments. It is therefore likely that they will have expectations of their Subject Results. It is possible that resolution of anomalies will affect some students' Subject Results. For this reason and for equity more broadly, an appeals process should be available to students after they receive their Senior Statements from QCAA. QTAC will need to be involved in discussions about the design of this process.

Recommendation 8

> QCAA should assure the validity and reliability of School Assessments in each subject through a revised approach to moderation that includes three elements: "Endorsement"; "Confirmation"; and "Ratification".
>
> - Endorsement of proposed assessment activities – For each of the three School Assessments, QCAA checks locally-devised assessment activities/instruments and marking schemes for their consistency with QCAA specifications and endorses their use with students.
>
> - Confirmation of accurate application of marking schemes – For each of the three School Assessments, QCAA checks that schools' applications of marking schemes are accurate and consistent across teachers and schools. This is done through "moderation" meetings in which teachers undertake blind re-assessments of student work against the relevant 10-point scale. QCAA also conducts annual spot sampling and blind re-assessments to check the consistency of marking across schools. Where a problem is identified, all student work in that subject in that school is re-marked. QCAA will determine which assessments in which subjects in which schools will have moderation meetings in a particular year.
>
> - Ratification of Subject Results – At the end of Year 12, QCAA checks each school's results on the four assessments for anomalies. If anomalies are identified, then these are investigated and resolved before verifying students' marks on the four assessments. Once anomalies are resolved, the ratification of students' Subject Results for certification follows.
>
> An appeals process will be available to students after they receive their Senior Statements from QCAA (or in some other way as determined by QCAA). QTAC should be included in discussions about the appeals process.

Assessment Supervisors

The changed moderation processes we are proposing will require a different understanding of the purpose and essential components of moderation. We believe that there will be a need to identify and train teachers who can lead the introduction and roll-out of these new processes. We are proposing that the QCAA establish a new role, "Assessment Supervisor". Assessment Supervisors will be responsible for ensuring the equivalence of schools' proposed assessment activities, confirming the accuracy and consistency of schools' use of marking schemes, and detecting and resolving anomalies as part of the ratification of Subject Results.

Assessment Supervisors will be a guild of teachers, heads of department, or deputy principals, respected by their peers and appointed on the basis of their subject expertise, demonstrated knowledge of assessment principles and practice, understanding of the operational model for moderation, and ability to act with authority and decisiveness. The method of appointment will be determined by QCAA (secondment, part-time working out of school, re-assignment of existing QCAA staff, and so on). The number of Assessment Supervisors will be constrained by financial considerations. We believe that some current QCAA staff have the skill sets required for the role of Assessment Supervisor, and could be allocated to this work through a restructure of the QCAA Brisbane office. We strongly suggest that QCAA give priority to funding the maximum possible number of Assessment Supervisors. The effectiveness of the revamped moderation system we are recommending will, fairly or unfairly, be one of the measures of confidence in the decision to retain school-based assessment.

Recommendation 9

> **QCAA should establish a guild of Assessment Supervisors to lead the proposed moderation processes (the endorsement of assessment activities; the confirmation of the accurate and consistent application of marking schemes; and the ratification of Subject Results) and to assist in teacher capacity building.**

Senior External Examinations

Currently, QCAA develops "Senior External Examinations" in 21 subjects under the provisions of the *Education (Queensland Curriculum and Assessment Authority) Act 2014* and associated regulations and amendments.

These examinations are based on an external syllabus that sets out the aims, objectives, learning experiences and assessment requirements for each subject and are conducted throughout the state in October and November of each year. The Senior External Examination is intended for Year 12 students enrolled at a Queensland secondary school who are unable to study particular subjects at their school, and for Queensland residents of any age not enrolled at a Queensland school.

We considered a number of factors: the history of the examinations, the number and nature of the school and non-school populations taking these examinations, the existence of a dual system for students in schools, the almost negligible number of non-school students taking these examinations, and the uniqueness in Australia of a single examination undertaken outside a school counting for certification and tertiary entrance purposes. We considered the effect on school-based candidates and non-school-based candidates if these examinations were no longer available. We were unable to find a reason for the existence of these examinations now. There are many alternatives for people wishing to gain a tertiary entrance rank or meet prerequisite requirements for further study. Most importantly, in the case on school-based students, there is no place for a single external examination in a redesigned system of senior assessment and tertiary entrance with its fusion of external and school assessments.

We are recommending that Senior External Examinations in all 21 subjects be discontinued and there be only one mechanism for obtaining a result in an Authority subject for certification or tertiary entrance purposes – the completion of the four assessment activities specified by QCAA for that subject (the three School Assessments and one External Assessment).

Recommendation 10

> The Senior External Examinations currently developed by QCAA should be discontinued. Instead, all students who are undertaking an Authority subject should be required to complete the four assessment activities specified by QCAA for that subject (the three School Assessments and one External Assessment).

Selecting students for admission to tertiary courses of study

Transparency in tertiary selection

In comparison with tertiary selection processes used in some parts of the world, the evidence used to select applicants to Queensland institutions is often complex and not always particularly transparent. Even for applicants who have completed Authority subjects in the senior secondary school, the basis on which some applicants are selected ahead of others can be obscure. Some selection decisions are based solely on applicants' OPs. However, if universities are unable to differentiate on the basis of OPs, then they may also consider applicants' FPs. If this still does not provide the differentiation universities seek, they may use Levels of Achievement in senior subjects and QCS grade (unlikely to be fine enough), or request other evidence, including applicants' ATARs and their percentile ranks on the QCS Test. All of this means that students may be left unclear about the precise basis on which they have been compared with other applicants and selected or rejected for admission to tertiary courses. Added to this is the complexity introduced by growth in universities' use of bonus points and in the use of the QTAC Selection Rank to produce equivalent OPs, with accompanying questions about fairness.

We believe it is appropriate for universities to consider a range of evidence in their selection decisions and we recognise that it may not always be possible to make transparent the basis on which some applicants were selected ahead of others. Nevertheless, we believe that current selection processes are overly complex and opaque. Universities are sometimes resorting to the use of supplementary data that were not collected for that purpose and are of questionable reliability and validity for making fine distinctions between applicants.

Tertiary institutions should make as transparent as possible the evidence to be used in comparing applicants to competitive tertiary courses. This evidence already takes a wide variety of forms, including senior results, portfolios of student work, auditions, interviews, aptitude tests, language proficiency tests, applicants' written statements and employment experience. As already occurs, institutions should specify any prerequisites for course admission. And if evidence is to be weighted, scaled and combined, and applicants are to be ranked, then as far as possible, those processes should be explained in everyday language and the results of the numerical scaling and aggregation processes should be made public.

Recommendation 11

> Tertiary institutions should make as transparent as possible the basis on which applicants are selected for admission to tertiary courses. This should include clarity about the nature of the evidence to be considered (for example, subject results, aptitude test scores, interviews), course prerequisites, any preferential weighting to be applied to subject results, and any processes for aggregating student results to rank applicants.

Role of QTAC

As the agent of the Queensland universities, QTAC processes applications to most undergraduate courses in Queensland and is responsible for implementing the course admission policies, rules and procedures established by individual institutions. QTAC provides information to enable applicants to make informed decisions about tertiary entry pathways and provides a streamlined process to deliver tertiary offers to applicants.

In delivering these services, QTAC currently uses student data provided by QCAA. Selection decisions are based firstly on the individual's OP. In the event of ties in OPs (when there are not enough places for applicants within an OP band), FPs are considered. Institutions make public their primary and secondary FPs for various courses. If further information is required to differentiate between applicants, this information may be an ATAR, Level of Achievement in prerequisite subjects, school reports, additional information provided by the applicant or QCS grade, depending on the policy of the tertiary institution. Some tertiary institutions also apply bonus points (e.g. for Mathematics C). For some courses, the completion of prerequisite subjects, or success at interview or audition is required before applicants are considered in the multi-stage selection process above.

We are recommending (Recommendation 1) that the current OP system be retired and that the QCAA's responsibilities at the secondary–tertiary interface be limited to the certification of attainment in senior studies (Recommendation 2). It follows that any future scaling or aggregation of Subject Results for the purposes of ranking applicants to tertiary courses would become the responsibility of universities and, presumably, would be undertaken for them by QTAC.

This recommendation has implications for the work program of QTAC and may have implications for capacity building and the resourcing of that Agency. The scaling and aggregation of senior subject results to produce rank orders of applicants are tasks undertaken by a number of other Australian tertiary admission centres on behalf of universities. Some have established technical committees to oversee this process. There is considerable experience in these agencies and also technical expertise within QCAA which may be of value to QTAC in its design and implementation of any processes that universities choose to implement.

Recommendation 12

> **The current responsibilities of QTAC for processing applications to undergraduate courses and implementing institutions' admission rules and procedures should be extended to include any scaling and aggregation of senior Subject Results to produce rankings of course applicants.**

Construction of an ATAR

When there are more applicants to a tertiary course than places available, institutions have to compare applicants and choose some applicants ahead of others. Inevitably, this involves some form of ranking. At the present time, many tertiary courses do not face this task and are able to admit most if not all students who apply. Among courses for which it is necessary to manage a competition for entry, the basis for ranking applicants often depends on the nature of the course. For example, competitive tertiary courses in music, dance and drama use evidence of performance in selection decisions.

In Australia, the practice has developed of producing a single rank order of the majority of applicants to tertiary study. In 2010, the Australasian Conference of Tertiary Admissions Centres agreed to refer to this ranking by overall academic achievement as the Australian Tertiary Admission Rank (ATAR). In most states, an ATAR is intended to indicate percentile rank in the relevant age population and takes values between 0 and 99.95 (in practice 30.00 to 99.95) in increments of 0.05. In some high-demand courses, selection decisions are based solely on ATAR; in others, ATAR is used with other evidence, sometimes in a multi-stage selection process.

A common way of calculating ATAR is to scale students' subject results to take into account differences in the academic abilities of students enrolling in different subjects. In effect, this inter-subject scaling process estimates what students' results in a subject would have been if all subjects had been studied by all students. The scaling does not change the rank order within any subject. The intention of the scaling is that a student should be neither advantaged nor disadvantaged by the subjects they choose and so should be encouraged to take the subjects that best suit them.

We believe that, with the many pathways and entry points now being used by students to gain admission to tertiary study, coupled with the opening up of universities under a more demand-driven approach, a question exists about the appropriateness of attempting to place the majority of applicants to tertiary study in a single queue, regardless of the course or institution to which they are applying. Nevertheless, we recognise the need to rank applicants to competitive courses and to be able to do this efficiently. If tertiary institutions choose to construct an overall rank of applicants to tertiary courses, then we recommend that an inter-subject scaling process be implemented by QTAC using Subject Results provided by QCAA.

We also recommend that, subject to technical advice, four not five subject results are used as input into an ATAR. If tertiary institutions chose to construct a ranking of applicants on the basis of Subject Results eligibility rules will need to be set. Eligibility for the OP required five subjects (actually expressed as semester units but not relevant to this discussion) and there were no restrictions on subject combinations. There are statistical issues in combining results that are not highly correlated. In considering a new rank ordering it might be timely to reconsider other options – for example only four subjects and restrictions on subject combinations. Implications for the senior school curriculum would need to be considered.

Recommendation 13

> If tertiary institutions choose to construct an ATAR, then this should be computed using an inter-subject scaling of Subject Results reported by QCAA (each on a 60-point scale). In setting new eligibility rules tertiary institutions should consider reducing the number of subjects and restricting combinations of subjects.

Monitoring consequences and exploring alternatives

Inevitably, tertiary selection processes influence decisions and practices in the senior secondary school as students attempt to maximise their chances of being admitted to their courses of choice and schools attempt to maximise the numbers of students making successful transitions to tertiary study. It is important that tertiary institutions recognise the significance of this influence and, particularly, the unintended ways in which their selection processes can influence the behaviours of students and schools. Current examples of this influence include the prominence that the QCS Test has achieved – and not necessarily for the right reasons – with some schools now engaging commercial test preparation providers; concerns that some schools are gaming current OP processes through the strategic distribution of SAIs across the available rungs; and concerns that schools are increasingly encouraging Year 12 students to use the QTAC Selection Rank as a way of maximising their chances of being admitted to tertiary courses and in the mistaken belief that removing those students from the OP-eligible group will necessarily maximise the school's number of OP1s.

The influence of tertiary selection processes on decisions and practices in the senior secondary school is not limited to Queensland. In other states there are concerns about decisions that students are making in an attempt to maximise their ATAR. For example, there are concerns in NSW that many students are choosing not to study advanced mathematics, but to take the lower-level, general mathematics course instead, in the belief that this strategy will result in a higher ATAR. Although inter-subject scaling is intended to ensure that students are neither advantaged nor disadvantaged by the subjects they study, what matters in practice are students' and teachers' beliefs, and these are currently producing an unintended and undesirable drift to lower-level mathematics in that state.

We recommend that tertiary institutions systematically monitor the impact of their course selection processes on the behaviours of students and schools and act to modify their processes if they are promoting unintended outcomes. This would require collaboration with QCAA as impact studies would involve an investigation into curriculum patterns in Years 11 and 12 and changes to these over time.

We also believe that tertiary institutions should continue to explore improved ways of selecting students for admission to tertiary study. An impression we formed during the Review was that a primary concern of some universities was for administrative convenience. They were seeking a simple way of ranking and differentiating between applicants in a short time period over the summer. The meaningfulness of numerical differences sometimes seemed of less concern than access to additional data that would allow them to "break ties" between applicants. This was especially true for high-demand courses. For some, the administrative solution was to have the school curriculum and assessment authority rank all their applicants for them on a 2000-point (ATAR) scale.

We recommend that consideration be given to selection processes that take more account of the subjects students have studied and their relevance for particular tertiary courses. One way to do this would be to weight subjects in the selection process on the basis of their substantive relevance and academic demand. An advantage of this approach is that it could be applied to subjects and courses of quite different kinds (for example, Authority Subjects, Authority-registered subjects, VET certificate studies, International Baccalaureate).

Recommendation 14

> Tertiary institutions, in collaboration with QCAA, should conduct ongoing monitoring of the impact of tertiary selection processes on the senior secondary school (particularly possible impacts on students' choices of senior subjects). Institutions should also continue to explore improvements to their selection processes and alternatives to rankings such as ATAR.

Planning and introducing change – senior secondary certification

Legislative Changes

QCAA was established under the *Education (Queensland Curriculum and Assessment Authority) Bill 2013*. Under this Act of Parliament, QCAA currently has responsibility for functions relating to tertiary entrance. In particular, it is responsible, in consultation with the Minister, for developing processes to rank applicants for tertiary entrance; the annual implementation of those processes to produce rank orders of tertiary applicants; and the issuing of documents to applicants advising them of their tertiary entrance ranking.

Our recommendation is that there be a separation of responsibilities, with QCAA having responsibility for the certification of student attainment in the senior secondary school, and tertiary institutions through QTAC being responsible for tertiary selection. This recommendation will require a change in the relevant legislation to divest QCAA of its current responsibilities for ranking applicants to tertiary courses.

Recommendation 15

> **The Queensland Government should make the legislative changes required to divest the QCAA of its current responsibilities relating to tertiary selection (including scaling and aggregating results to produce rank orders of tertiary applicants).**

Funding implications

The reform of senior secondary assessment and certification will require an investment on the part of Government. It is clear that some of the cost implications of our recommendations could be off-set against, or transferred from, existing activities. For example, there will be savings in discontinuing the QCS Test and in QCAA's end-of-year procedures such as the verification of schools' distributions of results in Authority subjects, checking schools' assignment of SAIs, generating OPs and FPs from SAIs and QCS Test group parameters, and generating an ATAR based on scaled OAIs. (The Review was provided with an indicative cost of $5.7m for the annual development and implementation of the QCS Test and an indicative cost of $0.4m for scaling and ranking.) The costs of the components of the proposed moderation system (endorsement, confirmation and ratification) will be off-set at least in part by the discontinuation of the current operational model that uses review panels at state and district levels. Their work (monitoring, verification) involves the reviewing of schools' submitted folios of student work.

Our proposal that moderation be undertaken in relation to each assessment activity separately, although more expensive, is an imperative in the new system for at least three reasons: first, the reporting of Subject Results on a 60-point scale based on four assessment activities (rather than as five overall Levels of Achievement in a subject) increases the need for close moderation; second, rightly or wrongly, most if not all key stakeholder organisations appear to have lost confidence in the current review panel process; and, third, the success of a revitalised school-based assessment system hinges on an enhanced quality assurance mechanism (moderation).

Submissions to the Review referred to reduced funding as a factor in the erosion of moderation over the past decade. However, we are not persuaded that allocating more money to an unchanged moderation model is the best solution. We believe that increased funding tied to improved processes will deliver enhanced comparability and public credibility while at the same time providing in-built professional development.

There will also be significant costs associated with the design and development of the proposed school assessment activities and their associated marking schemes and annual external assessment instruments.

Some of these costs will be incurred mainly or only in the set-up phase; others will be recurrent. We also believe that there may be opportunities for efficiency benefits and savings over time as increasing use is made of technology. The precise costs of implementing the Review's recommendations will need to be further developed. They will depend in part on the number of subjects for which external assessment activities are developed annually. Our recommendation is that consideration be given to developing an External Assessment in every Authority subject, but we recognise that there may be budgetary constraints on the number of subjects for which External Assessments can be developed, administered and marked annually.

We also recognise that developing External Assessments for some subjects but not others risks creating two classes of senior subjects which may be treated differently by users. We recommend that a priority list of subjects be developed by QCAA and that External Assessments be developed for as many Authority subjects as possible. In developing this priority list, consideration should be given to the nature of the subject (for some subjects an External Assessment might not be feasible or desirable), student enrolment (low student numbers may be a reason not to develop an external component), and university prerequisite (a reason to include an external component).

Recommendation 16

> **The Queensland Government should invest additional funding in the creation of high-quality assessment and certification processes to underpin a reformed senior secondary credential. A priority order of subjects should be established in the event that it is not possible to fund the development of externally set and marked assessments in all senior subjects.**

Organisational capacity of QCAA

Our recommendations will have significant implications for the work of QCAA. Many current activities of the Authority will no longer be required. These will be replaced by a range of new activities, including the design, development and marking of external assessments in Authority subjects. We envisage these external assessments increasingly being delivered in digital format, and this also will have implications for the kinds of skills and work required within QCAA.

We consider it important that, to the extent possible, modern psychometric methods are used to supervise the development and use of external assessments by QCAA. This is important for monitoring and ensuring the quality of the assessment instruments. Although these psychometric methods are used routinely in most standardised testing programs, they tend not to be used routinely to monitor the quality of external examinations.

The feasibility of delivering external assessments in digital format will need to be investigated. However, we expect that most, if not all, external assessments eventually will be delivered in this form, with students completing assessments online for either automatic or human marking by QCAA. This will require the development and ongoing maintenance and enhancement of delivery platforms and associated software. As increasing use is made of technology in senior secondary assessment and certification, QCAA will need to continue to build its capacity to deliver assessments in digital formats.

Recommendation 17

> **The QCAA should continue to build its staff capacity in educational assessment, educational measurement and information and communication technologies.**

Evolving curriculum priorities

Changes in the senior school curriculum are also likely to have implications for how students are assessed in the future. The Australian Curriculum, in common with the curricula of many other countries, is placing increased priority on the development of skills and attributes necessary for life and work in the 21st century. In addition to subject-specific knowledge and skills, greater emphasis is being given to students' abilities to work and create solutions in teams, to respond flexibly to complex problems, to manage information dynamically, and to produce new knowledge. Assessments of student attainment in the senior secondary school will need to reflect these changes in curricular priorities. It seems likely that skills and attributes of these kinds will be best assessed through school assessment activities in each subject. In the design of an assessment package (four assessments), QCAA should stipulate that at least one of the skills mentioned above (or facets of it) be assessed. The 21st Century skills do not belong to one discipline alone. However, as there is to be no new test of Key Cross-Curriculum Capabilities or a QCS Test, assessing such skills within a subject requires that these important skills are made explicit in teaching and learning.

Recommendation 18

QCAA should include in its specified assessments processes a greater focus on skills and attributes now being identified in senior secondary curricula as essential to life and work in the 21st Century (for example, teamwork, problem solving, creativity, verbal communication).

Communication strategy

The reforms we are proposing will need to be communicated and explained to a range of stakeholders, including students, teachers and parents. This will require a communication strategy and a variety of forms of communication targeted to particular stakeholder groups. It will be important for the Government to explain the rationale and benefits of the proposed changes. It also will be important for QCAA to explain clearly to students and parents the nature of future assessment processes in the senior secondary school and the form in which subject results will be reported (60-point scale). And it will be important for tertiary institutions and QTAC to describe how they will use subject results (alone or in combination) in selection into tertiary courses.

An important element of the communication strategy will be clarification of the timeline on which changes will be introduced, and the identification of the cohorts for which new arrangements will apply.

Recommendation 19

The Queensland Government should devise a multi-platform information strategy to precede and accompany any significant changes or reforms to senior assessment and tertiary entrance.

Planning and introducing change – tertiary entrance

Review of admission processes

It is timely for tertiary institutions to review processes for selecting and admitting applicants to tertiary courses of study. Over the past twenty years there has been a significant increase in the number of students being admitted to tertiary study. Recent moves to establish a more demand-driven system and new pathways and entry points are making tertiary study more accessible to larger numbers of school leavers. In this context, selection and gate-keeping processes of the past are largely irrelevant for many of today's tertiary courses and some institutions. Nevertheless, for many courses, the number of applicants exceeds the number of available places and institutions face the challenge of managing competitions for entry.

At the same time, admissions decisions involve more than managing competitions. It is essential that tertiary institutions select and offer places to applicants who are adequately prepared and likely to benefit from tertiary courses. Many courses do this by specifying assumed knowledge in the form of minimum levels of achievement in senior subjects; through prerequisites such as the successful completion or specified senior subjects, the submission of a portfolio or presentation for an interview; and by requiring the completion of bridging, preparatory or appropriate introductory subjects prior to or during a student's first year of study.

Among the questions that a review of tertiary admissions processes should consider is the adequacy of currently specified course prerequisites and assumed knowledge. A recent communiqué by Australian tertiary mathematics teachers called on Universities Australia to provide greater clarity about the levels of mathematics required for the successful study of engineering and science, arguing that current requirements are contributing to high failure rates, an increased need for bridging courses, and increased costs associated with the re-taking of subjects. Specifying prerequisites for tertiary courses would, of course, have backwash effects on the senior school curriculum. Backwash effects are not necessarily negative. For example, if Engineering required three subjects, say English, Mathematics C and Physics, it is likely that more students would choose to study higher-level mathematics, which could hardly be deemed to be a negative for the student or the country.

A second question that should be considered is the appropriateness of attempting to construct a single queue of all school leavers regardless of the courses and senior subjects they have studied or the tertiary institutions or courses to which they are applying. Although administratively convenient, this simple queuing of school leavers (for example, on the basis of an ATAR) is less relevant than it might once have been – especially given the number of tertiary courses for which there is no serious competition and the variety of pathways through which students now enter tertiary study. Although the ranking of applicants to high-demand courses will continue to be necessary, it does not follow that all school leavers should be ranked in the same queue, or that the ATAR is the most appropriate way to rank applicants for every course.

Recommendation 20

> **Queensland tertiary institutions should undertake a review of their admissions processes, including options for comparing and selecting applicants to competitive tertiary courses. This review should consider the appropriateness of constructing a single rank order of school leavers regardless of the course or institution to which they are applying, and options for ranking course applicants (ATAR; a "points system").**

Capacity building

Under our recommendations, the ranking of applicants to tertiary courses will be the responsibility of tertiary institutions themselves and presumably will be undertaken on their behalf by QTAC. One implication of this is that staff of QTAC will undertake any scaling, weighting and combining of evidence to produce rankings of course applicants. These will be new processes which will require high-level technical oversight, appropriate software routines and staff expertise in their implementation. It is recommended that the planning, design, development and pilot testing of any new scaling processes be commenced as soon as possible to ensure that these are fully operational at the time new arrangements come into force.

Consideration also should be given to establishing a high-level Technical Committee to provide advice on, and oversee, the introduction and ongoing implementation of any new statistical processes for combining evidence to produce rank orders of applicants. A report to tertiary institutions on the annual implementation of these processes may be appropriate.

Recommendation 21

Queensland tertiary institutions should consider enhancing technical capacity within QTAC to undertake any new scaling procedures to produce rank orders of course applicants. Consideration also should be given to establishing a high-level Technical Committee to oversee the technical quality of these procedures.

Monitoring impact on senior secondary schooling

It is inevitable that the processes used to admit applicants to tertiary courses will influence decisions that students, teachers and schools make during the senior secondary years. In many cases, these influences will be desirable (for example, students choosing senior subjects in areas of personal interest that will also prepare them for further study of those subjects at tertiary level). However, past experience in Queensland and elsewhere suggests that other, less desirable, decisions are likely to be made by students, teachers and schools simply to maximise the chances of successful selection. All tertiary entrance processes are susceptible to some form of gaming.

We recommend that the proposed Technical Committee be tasked by QTAC with the continual monitoring of intended and unintended consequences of tertiary selection processes. This monitoring should include impact on patterns of senior subject choice (bearing in mind that students, parents and teachers often develop beliefs about how indicators such as ATAR can be maximised by the judicious choice of subjects). Attention also should be paid to tactics such as the use of alternative pathways in an attempt to secure an advantage for some students (a tactic that many believe is now being employed by schools that use the QTAC Selection Rank to by-pass the OP).

Recommendation 22

The proposed QTAC Technical Committee should, as part of its responsibilities, monitor on an ongoing basis any impact (positive or negative) that tertiary selection processes have on the senior secondary school, including any impact on students' choices of subjects, and recommend changes to selection processes where appropriate.

Ensuring a world-class certification system

Senior secondary qualifications are undergoing change globally. The reasons for change include the emergence of an increasingly global marketplace for senior secondary qualifications; advances in technology which are beginning to allow courses and assessments to be delivered online anywhere in the world; a growing focus on the development and assessment of 21st Century skills and attributes, including teamwork, creativity and problem solving; growth in senior secondary participation rates resulting in increasingly diverse student populations and needs; and the emergence and growth of new qualification providers, including for-profit companies. These developments will create a significantly changed international qualifications landscape over the next few decades.

The vision in Queensland should be for a high-quality, highly-regarded credential that is internationally recognised as providing an excellent preparation for life and study beyond school.

We believe that, taken together, the recommendations of this Review lay the foundations for the further development of the Queensland Certificate of Education as a world-class credential. A key will be to enhance the capacity of QCAA to develop and deliver this qualification. Our recommendation that tertiary selection processes be separated from senior secondary assessment and certification processes is designed in part to free QCAA to focus on its core role of developing and delivering an innovative, future-oriented senior secondary credential.

We also believe that the achievement of this vision is made more difficult currently by the fact that QCAA is responsible for curriculum and assessment throughout the years of school (K–12). Structural changes within QCAA may be required, possibly including the establishment of a group of specialist staff capable of further conceptualising, leading and implementing our proposed changes. This group would be responsible for designing new processes, overseeing their implementation and ensuring the ongoing quality of a world-class senior secondary qualification. Consideration also could be given to the creation of two separate authorities, one with responsibility for curriculum and assessment in Years K–9, the other with responsibility for Years 10–12.

Recommendation 23

As part of the Queensland Government's commitment to further development of the Queensland Certificate of Education, consideration should be given to enhancing the capacity of QCAA to develop and deliver a world-class senior secondary qualification. This may include establishing a group of specialist staff within QCAA capable of further conceptualising, leading and implementing the recommendations of this Review. It may also include the creation of two separate authorities, one with responsibility for curriculum and assessment in Years K–9, the other with responsibility for Years 10–12.