HOW CAN A SYSTEM WITH NO PUBLIC EXAMS BE FAIR?

Kerry J Thomas, Head of Mathematics, The Southport School, Queensland, Australia.

Abstract:

For 25 years, I have worked in a high school education system, where for the final 2 years of schooling, teachers at each school write their own programs of work and write their own assessment items. They then mark and report on this assessment. There are no final public statewide exams, and as an outcome students right throughout the State are ranked for University entry.

What follows is an exploration into the procedures that are put in place to ensure that each and every student is treated fairly and equitably. I will discuss the various levels of moderation that take place between schools, the processes that aid in keeping a level playing field for all concerned.

Introduction:

Imagine teaching in a system, where there are no final exams, teachers organize their own coursework, then their own assessment items. All in a student's last 2 years of high school before entering university.

How can such a system be fair? How can there be a guarantee that students at school XYZ are not advantaged or disadvantaged when compared to school ABC in the next suburb, the next town?

First however I will need to give you a little history and geography of my country, Australia.

Australia, a spacious country for its 20 million inhabitants, is made up of 6 states and 2 territories. Each state has its own Governmental Education Body, and as such, each of the States and Territories tends to set their own educational agenda. As a result there is a different curriculum, assessment and reporting framework in each state.

My State of Queensland, which has 20% of Australia's population, and is the fastest growing state, adopted this new school-based assessment in 1972, when public exams where abolished. The Queensland Studies Authority (QSA) is the state body responsible for the overseeing of all learning and reporting in years 11 and 12. Bear in mind that what follows applies to every subject offered but I will concentrate on Mathematics as it is what I am most familiar with.

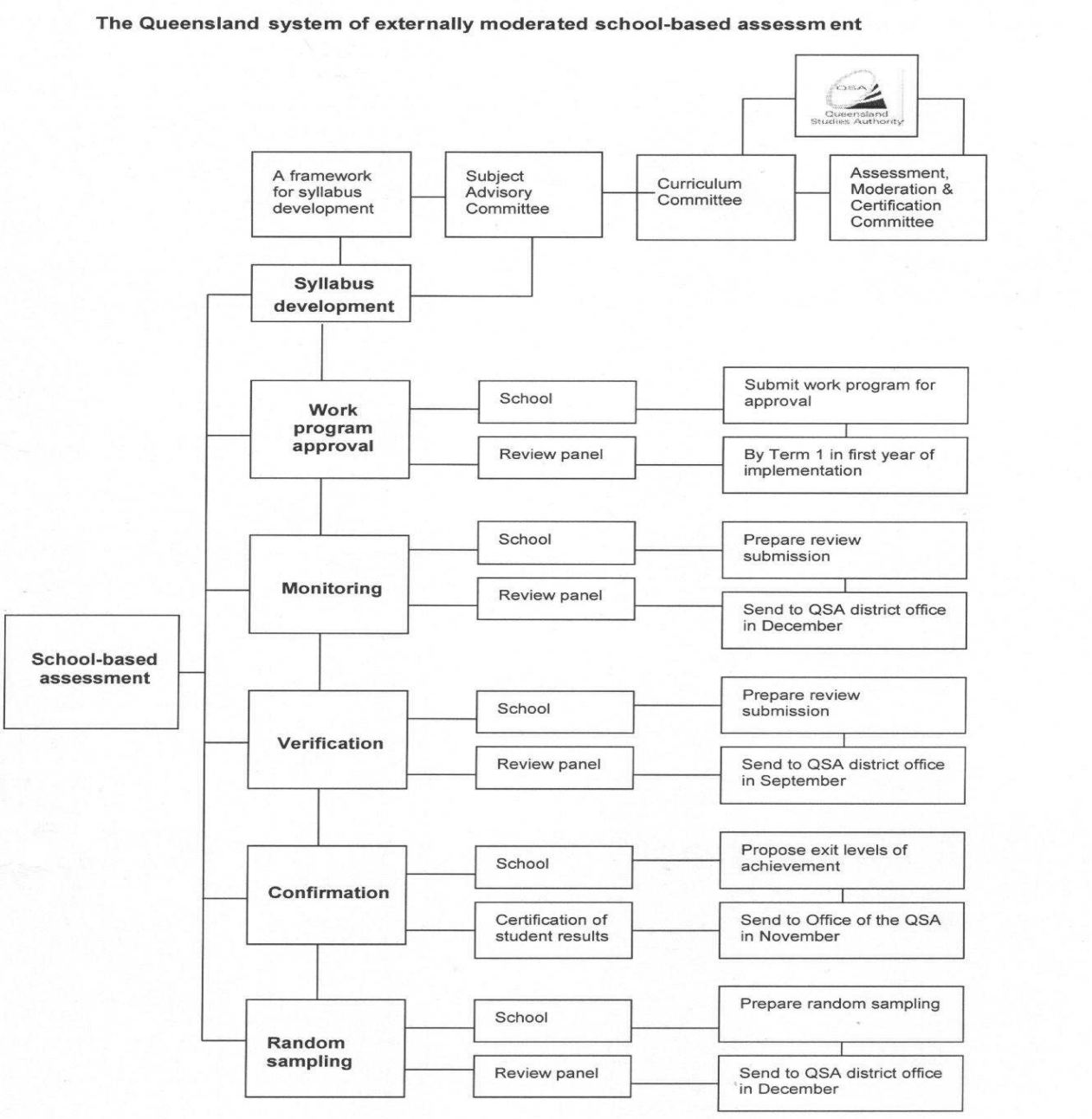
Overview:

The QSA develops, reviews and approves syllabuses for subjects for the Senior Certificate. Senior syllabuses form the basis for the preparation of work programs and study plans by schools.

Teachers assess student work and determine levels of achievement according to criteria-and-standards descriptors outlined in the subject syllabus.

Schools provide learning experiences and assessment opportunities for their students based on work programs approved by the QSA. Schools are responsible for setting up appropriate accountable processes and procedures for assessing student achievement and communicating these processes and procedures to students.

The school principal (or nominee), acting as the school moderator, ensures that implementation of assessment and judgments of standards within the school are consistent with the procedures outlined by the QSA. This person is responsible for the total assessment program in the school and for moderation processes within the school.
Within each school, subject moderators (subject teachers, subject coordinators or heads of department) are directly responsible for preparing and implementing work programs, setting assessment standards consistent with syllabus descriptors, internal moderation processes with the subject where these are required, and preparing external moderation submissions.
Assessment in Authority subjects is externally moderated. The QSA, through state and district review panels, operates quality-assurance procedures, approval of work programs, monitoring of standards of assessment, reviewing (verification and confirmation) of proposed levels of achievement before certification of results, and random sampling of student folios after certification.
The following diagram summarises the Queensland system of externally moderated school-based assessment. (taken from "Moderation Processes for Senior Certification", QSA, 2005)



Quality Assurance Framework – Stage 1

Developing a Work program from a Syllabus:

The QSA develops a syllabus for each of the three Mathematics subjects on offer to Year 11 and 12 students. The subjects are called Mathematics A, Mathematics B, and Mathematics C.

The Contents page of the Mathematics B Syllabus gives a good idea of the standards set. (taken from "Mathematics B Senior Syllabus", QSA, 2008)

From this document, teachers at each school develop a Work Program. This is submitted to a QSA panel to ensure the Syllabus requirements are met. This usually takes place in the 1st term of the school year. A panel will consist of a group of a dozen or so teachers in the district.

This process will be repeated about once ever 7 years when each syllabus is revised or re-written.

The detail given to each of the many topic in the syllabus is outlined in the example which follows. Note that the Suggested Learning Experiences (SLE) have been truncated. (taken from "Mathematics B Senior Syllabus", QSA, 2008)

Exponential and logarithmic functions and applications (notional time 35 hours)

Focus

Students should be encouraged to develop an understanding and appreciation of exponential and logarithmic functions and the relationships between them. They should be conversant with the three methods of representation (algebraic, graphical, numerical). Emphasis should be placed on the application of these functions to solve problems in a range of life-related situations (e.g. finance and investment, growth and decay). The use of technology should help students in these processes.

Subject matter

- *index laws and definitions (SLEs 1, 3, 5, 9)*
- *definitions of a^x and $\log_a x$, for $a > 1$ (SLE 1)*
- *logarithmic laws and definitions (SLEs 1, 2, 9)*
- *definition of the exponential function ex (SLEs 4, 6)*
- *graphs of, and the relationships between, $y = a^x$, $y = \log_a x$ for $a = e$ and other values of a (SLEs 3, 6, 12, 14, 16, 17, 18)*
- *graphs of $y = e^{kx}$ for $k \neq 0$ (SLEs 3, 6, 8, 14, 17, 18)*
- *solution of equations involving indices (SLEs 5, 8, 9, 11)*
- *use of logarithms to solve equations involving indices (SLEs 8, 9, 11, 13)*
- *development of algebraic models from appropriate datasets using logarithms and/or exponents (SLEs 2, 5, 7. 10, 17, 18)*
- *derivatives of exponential and logarithmic functions for base e (SLEs 3, 6, 7)*
- *applications of exponential and logarithmic functions, and the derivative of exponential functions (SLEs 2, 5, 7, 8, 10, 11, 13, 14)*
- *applications of geometric progressions to compound interest including past, present and future values (SLEs 19, 20, 21)*
- *applications of geometric progressions to annuities and amortising a loan (SLEs 22–32).*

Assessment:
Underlying principles of exit assessment:
The policy on exit assessment requires consideration to be given to the following principles when devising an assessment program for the two-year course of study.

1. Information is gathered through a process of continuous assessment.
2. Balance of assessments is a balance over the course of study and not necessarily a balance over a semester or between semesters.
3. Exit achievement levels are devised from student achievement in all areas identified in the syllabus as being mandatory.
4. Assessment of a student's achievement is in the significant aspects of the course of study identified in the syllabus and the school's work program.
5. Selective updating of a student's profile of achievement is undertaken over the course of study.
6. Exit assessment is devised to provide the fullest and latest information on a student's achievement in the course of study.

Assessment techniques in this syllabus are grouped under categories. The following categories of assessment techniques may be considered:

- extended modelling and problem-solving tasks
- reports
- supervised tests.

Assessment of student achievement should not be seen as a separate activity, but as an integral part of the developmental learning process which reflects the learning experiences of students. There should be variety and balance in the types of assessment instruments used, thereby enabling students with different learning styles to demonstrate their understanding.
Assessment techniques other than supervised tests must be included at least twice each year and should contribute significantly to the decision making-process in each criterion.

Quality Assurance Framework – Stage 2

MODERATION via Monitoring, Verification and Comparability.

So now we have a Work Program that has been endorsed by the QSA panel and we can commence teaching and assessing over the 2 years of the course.

- At the end of the first year (Year 11) half a dozen students scripts together with a ladder of student achievement are submitted to the QSA panel for **Monitoring**.
- Three quarters of the way through the second year of the course (Year 12), 10 students scripts and a more detailed ladder of student achievement are submitted to the QSA panel for **Verification**.
- And finally there is the process Random Sampling that ensures **Comparability** between the districts in the state.

These three processes are now explained in more detailed.

MONITORING

Monitoring is the process by which review panels consider the schools' implementation of the course and the standards of assessment in Authority subjects after Year11.

The focus of the monitoring meeting is on the quality of implementation of the course and organisation of the submission. That is, monitoring is about answering the question:

"How well is the school implementing the course?"

Monitoring review panels are required to give schools advice on:

- Implementation of the course of study, as indicated by the assessment instruments and possibly the course organisation in the work program
- Standards of assessment at this stage of the course
- Quality of decision-making about student **Levels** of Achievement at this stage of the course
- Organisation of the submission
- Assessment design that will inform future design and practice

Monitoring review panels are NOT required to give schools advice on:

- **Relative Achievement** of each sample student
- The overall distribution of relative achievements of students nor should any inference or implication be drawn
- An alternative rung placement on the R3 ladder form for any sample students
- An individual assessment item without consideration of the entire package
- The shortcomings of an approved work program

The bottom lines:

The Monitoring review aims to provide feedback on the school's decisions about the implementation of **the course**

If a syllabus does not demand it, then a panel CANNOT demand it

VERIFICATION

Verification is the process by which review panels advise schools on standards of student work and the relative achievement of students in Year 12.

The focus of the verification meeting is the quality of each schools' decision making, informed by comparing standards of student work with the level of achievement descriptors outlined in the criteria and standards matrix of the syllabus. That is, verification is about answering the question:

"How good are the schools' judgements about student achievements?"

Verification review panels are required to give schools advice on:

- Overall standards of STUDENT work compared with exit standards descriptors
- Quality of schools' decision-making with respect to SAMPLE students
- RELATIVE ACHIEVEMENT of SAMPLE students
- HOW WELL SUPPORTED AND ACCURATE are the schools' judgements

Verification review panels are NOT required to give schools advice on:

- The modes of assessment undertaken
- Work program issues
- Placement of other students on the R6 ladder other than the Sample students.

The bottom lines:

The Verification review aims to substantiate the school's decisions wherever possible regarding relative achievement of sample students

If a syllabus does not demand it, then a panel CANNOT demand it

COMPARABILITY

Comparability is the process by which state review panels ensure understanding of and advice about standards and levels of achievement by district review panels are consistent across the state.

The focus of the comparability meeting is matching the judgments concerning interim levels of achievement of agreed-to submissions of districts to the syllabus standards. That is, comparability is about answering the question:

"Do judgments made in schools across the state match the syllabus descriptors of standards?"

Comparability review panels are required to give the Queensland Studies Authority feedback related to:

- the appropriateness of levels of achievement that have been awarded
- Quality of advice provided by district panels to schools.

Comparability review panels are NOT required to:

- Conduct Verification reviews of the sample submissions
- Necessarily review every folio provided

The bottom lines: The comparability review aims to ensure that standards and levels of achievement are maintained across Queensland and judgments made match syllabus standards.

Conclusion:

So that explains the multi-level Moderation System used to ensure there is equity for all. So what are **the benefits of a moderated school-based assessment** program?

Studies done by the QSA show that Queensland's system produces reliable and comparable assessment of student achievement - at significantly higher levels than typically found in the marking of standardised public exams. These are some of the added benefits:

- Teachers can write work programs that reflect the school's clientele in terms of interests and issues, and that make best use of school and local facilities.
- Teachers can use a range of assessment techniques - including group work, oral presentations and supervised exams - to cater for the varied learning styles found in any group of students.
- Continuous assessment provides more opportunities for teachers to give feedback to students about how they might improve their performance.
- Students are judged on their performance over 2 years rather than in a once-only exam.
- The external moderation process helps teachers improve their understanding of assessment and provides valuable professional development.

The next question is that as a teacher, working in this system for 25 years, as well as being a QSA panel member, **"Does it work?"**

In a nutshell, yes I believe it does. I'm not saying that the system is not open to abuse, but on the main, there appears to be equity for all. Teachers certainly have an increased workload, particularly setting and marking assessment items that they know are going to be openly scrutinised. Many are also members of the various QSA panels that look at other schools work, but even though there is time commitment (approx 3 days per year) and responsibility aspects to these positions, there is also the positive outcome of enrichment and professional growth.