# *EDUCATION AND INNOVATION COMMITTEE*

**Members present:**

Mrs RN Menkens MP (Chair)
Mr SA Bennett MP
Mr MA Boothman MP
Mr MR Latter MP
Mrs DC Scott MP
Mr NA Symes MP

**Staff present:**

Ms B Watson (Research Director)
Ms D Cooper (Principal Research Officer)

# PUBLIC BRIEFING—INQUIRY INTO THE ASSESSMENT METHODS USED IN SENIOR MATHEMATICS, CHEMISTRY AND PHYSICS IN QUEENSLAND SCHOOLS

## TRANSCRIPT OF PROCEEDINGS

**WEDNESDAY, 6 MARCH 2013**

**Brisbane**

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**Committee met at 8.51 am**

**CHAIR:** Before we start I would ask members of the media who might be recording any proceedings that they adhere to the committee's endorsed media guidelines. Committee staff have a copy of the guidelines available for you if you require one. I would also ask that all mobile phones be switched off or set to silent.

On 14 February 2013 the Queensland parliament directed its Education and Innovation Committee to inquire into and report on the assessment methods used in senior mathematics, chemistry and physics in Queensland schools. It directed that in conducting its inquiry the committee should consider ensuring assessment processes are supported by teachers, student participation levels in these subjects and whether assessment processes support valid and reliable judgement of student outcomes.

Today's preliminary briefings are to assist the committee to gain an initial understanding of how assessment processes work in these subjects and what the key issues might be. These briefings are not submissions; they are to give us further information about the terms of reference. We are interested in the terms of reference and information you can give us about the methods and processes used to assess students in senior level maths, chemistry and physics along with any perspectives on how well these methods are implemented in schools as well as any advice you might have about levels of teacher support for the current system.

Following the briefings the committee will determine its approach to this inquiry, which will include inviting submissions from and consulting with the public as well as education and subject matter experts. I urge all who are interested in this inquiry to refer to and subscribe to the committee's web page for regular updates, including information about the consultation process.

Today the Department of Education, Training and Employment will give us the department perspective on the assessment processes for senior maths, chemistry and physics in Queensland schools as well as advice about how the assessment system is implemented in state schools. Then we will hear from the Catholic and independent schools about how assessment is approached within those school sectors. After a short break we will then hear from Professor Peter Ridd, who has been representing the concerns held in some quarters about the current Queensland approach to assessment of these subjects at the senior level. Tomorrow we will hear from the Queensland Studies Authority, which is responsible for the overarching senior assessment system in Queensland.

I would like to introduce the members of the Education and Innovation Committee. I am Rosemary Menkens, member for Burdekin and the chair of the committee. With me are my committee members: the deputy chair, Mrs Desley Scott, the member for Woodridge; Mr Steve Bennett, the member for Burnett; Mr Mark Boothman, the member for Albert; and Mr Michael Latter, the member for Waterford. This briefing is being recorded and will be transcribed by Hansard for future publication on the committee's web page. It is also being webcast live and the video will be available on the committee's web page until it is superseded by a subsequent webcast recording.

Parliamentary privilege applies to committee operations, including this briefing. On the other hand, to mislead parliament, including this committee proceeding, is a serious offence. If you are unable or unwilling to provide an answer to any question the committee might put to you, you should advise me accordingly and give your reasons. We will consider the reasons and provide the opportunity for you to seek any advice or assistance you may need. You might also wish to take questions on notice if you do not have information at hand. As well, you may request that any material you provide be kept private and, again, the committee will consider that request. All of this is detailed in the parliament's standing orders, particularly schedule 3 and schedule 8 for public servants, to which I believe you have been directed. For the benefit of Hansard I ask that those speaking state their name the first time they speak. Honourable members, I ask that you put any questions through me as chair after each of the groups has completed their initial briefing.

**ROSENGRAVE, Ms Robyn, Director, State Schooling Operations and Strategy, Department of Education, Training and Employment**

**SINCLAIR, Ms Gabrielle, Deputy Director-General, Policy and Programs, Department of Education, Training and Employment**

**WALKER, Mr Andrew, Assistant Director-General, Strategic Policy and Portfolio Relations, Department of Education, Training and Employment**

**WHITEHEAD, Ms Annette, Acting Director-General, Department of Education, Training and Employment**

**CHAIR:** I now welcome officials from the Department of Education, Training and Employment: Ms Annette Whitehead, the Acting Director-General; Ms Gabrielle Sinclair, the Deputy Director-General, Policy and Programs; Mr Andrew Walker, the Assistant Director-General, Strategic Policy and Portfolio Relations; and Ms Robyn Rosengrave, the Director of State Schooling Operations and Strategy. I now invite you to start off, Ms Whitehead. Thank you.

**Ms Whitehead:** My name is Annette Whitehead. I thank you for the opportunity to speak to the committee today. My department welcomes this opportunity to ensure that Queensland senior assessment processes reflect best practice and are clearly understood by students, teachers and parents. I would like to make some opening remarks and provide a context and background for the committee on Queensland assessment of senior maths, chemistry and physics. I would be happy for questions to be directed to me or to my colleagues.

At this point it may be useful to clarify the respective roles of my department, schools and the Queensland Studies Authority, the QSA, in relation to senior school assessment and this inquiry's terms of reference. There are three schooling sectors in Queensland: the state system, the Catholic system and the independent system. The Department of Education, Training and Employment has responsibility for supporting all sectors but at the same time has responsibility for the running of state schools. The department maintains close liaison with the two non-state sectors, the Catholic and the independent sectors. The department administers funding arrangements and statutory frameworks that support the operation of the non-state sectors. However, non-state schools are approved to operate by an independent statutory authority, the Non-State Schools Accreditation Board. Their funding eligibility is approved by the minister on advice of an independent committee of the board. Similarly, the implementation of senior assessment processes is a matter for the non-state schools and schooling systems to determine within the state-wide framework set by the QSA.

The non-state school sectors are independent of the department in this respect, although, of course, the state and non-state sectors cooperate and share curriculum and assessment resources. Accordingly, the representatives of the non-state sectors are best placed to inform the committee about their views on important aspects of the inquiry's terms of reference; namely, ensuring that assessment practices and processes are supported by teachers and the ability of assessment processes to support valid and reliable judgements of student outcomes.

With respect to state schools, in my department there is a division, Education Queensland - and Robyn is here on their behalf today - which has responsibility for the operations of the state schooling system. This includes the implementation of syllabuses in Queensland state schools. Education Queensland is aware of the concerns raised regarding senior mathematics, chemistry and physics assessment processes and the request to return Queensland to a system of external state-wide exams. Education Queensland supports the suite of assessment tasks outlined in the current QSA senior maths and science syllabuses as students are able to demonstrate what they know, understand and can do across the course of study through rigorous authentic assessments. Committees that guide both the development and approval of syllabuses comprise representation from all levels of Education Queensland including teachers, heads of department and school leaders.

My department has yet another separate role in addition to providing direct services through schools in terms of providing policy advice to the Minister for Education, Training and Employment. Over recent years this has included a range of briefings about ministerial correspondence relating to senior assessment processes. This has included correspondence raising concerns with senior assessment processes in mathematics and science subjects, as well as correspondence that supports the current approach. So we have had correspondence portraying both points of view.

The stakeholder concerns that we have received primarily relate to the use of extended written tasks rather than quantitative assessment in mathematics and science subjects, and the appropriateness of that; the use of grades rather than marks to report student results; and perceptions that assessment processes are deterring students from taking up senior maths and science.

It may be useful to summarise significant features of Queensland's present system of secondary assessment as they relate to the committee's current terms of reference. There are two major features of Queensland's secondary assessment system that I believe are relevant. Queensland's senior assessment system is both school based and standard based. School based assessment originated in the early 1970s, so it has been with us for some time, when it replaced senior external examinations. Today, all Australian states and territories use school based assessment for at least part of their senior assessment. Under school based assessment, schools are able to determine their own curriculum and ways of assessing it within a common framework for all schools that is set by the QSA. The school creates a work program setting out its specific curriculum and assessment and this must be approved by the QSA. Furthermore, to ensure comparability across schools, each school's assessment results are externally moderated by review panels and teachers from other schools.

Standards based assessment was introduced by the review of school based assessment and implemented from 1980. In standards based assessment, instead of being rated against other students, each student's results depend on how well they have met standards on the essential elements in the course. It is important that subject assessment and reporting of results reflects student achievements against the standards on the core elements of the syllabus. As committee members are probably aware, students' overall achievement against the standards in each subject is reported as five achievement levels, ranging from very high achievement to very limited achievement.

Looking at the overall process, the assessment of students in Queensland schools in any senior subject is derived from two main sources: firstly, the QSA developed assessment requirements and part of senior syllabuses to guide consistency in how to measure what students know and can do; second, schools set the actual assessment items used in the classroom using the syllabus as a framework. For instance, in a language subject the syllabus may specify a minimum number of written items and a minimum number of oral items. The school may then choose which content it will assess in written or oral form, observing the minimum that has been set by the QSA. So schools and teachers can and do choose to assess the same syllabus content using different methods from each other.

The QSA is an independent statutory authority. It has responsibility under the Education (Queensland Studies Authority) Act, the QSA Act, for development, revision and approval of syllabus documents for use in Queensland schools from years 1 to 12. Assessment requirements for senior maths and science subjects, such as maths B or physics, are set out as part of the senior syllabus documents developed by the QSA. The QSA is required to exercise its syllabus development role independently. The minister is prohibited by the QSA Act from directing the QSA in relation to syllabus content. QSA senior syllabuses include a number of elements, including a subject rationale, syllabus content, achievement standards and assessment processes.

With respect to assessment processes, syllabuses include advice on planning and assessment programs, assessment techniques and a requirement for student folios. When developing syllabuses, including assessment requirements, the QSA consults with the employing authorities in the state, the Catholic and the independent schooling sectors. The QSA also maintains data on the annual student enrolments and levels of achievements in senior subjects. The QSA itself is best placed to provide data to support consideration of student participation levels under the committee's inquiry terms of reference.

The timing of this inquiry is particularly opportune as the committee's findings will also be available to inform two major reform agendas: first, the implementation of the senior Australian curriculum and, secondly, the OP review, that is, the review of Queensland's tertiary entrance system, which is based on a student's overall position or OP. The Australian curriculum in maths, science and other senior syllabuses is set to be implemented in Queensland schools over the next few years replacing the senior syllabuses developed by the QSA in those subject areas. The Australian curriculum will provide nationally consistent syllabus content and achievement standards for each subject, but it is worth noting that the assessment requirements for the subjects will remain

a matter for the state and territory curriculum authorities, such as the QSA. The outcome of this inquiry can influence the development of assessment elements to support Australian curriculum senior syllabuses in Queensland schools.

The OP review will commence in the first half of this year. The OP ranking is a ranking of all eligible students so they can be selected for entry into tertiary institutions. Students' OPs are based on their results in senior subjects, adjusted so they can be compared across subjects and across schools. The terms of reference for the OP review have yet to be finalised by government. However, the timing of this inquiry means the committee's findings will most likely be available for consideration as part of that OP review.

The department recognises the importance of ensuring that senior assessment processes are able to meet four goals: they must ensure, fairly and consistently, what students know and can do against the curriculum, content and common standards, that is, that they are valid and reliable; they must reflect what students will be required to do in their future studies and employment; they must be appropriate in terms of teacher and student workloads; and they must provide an appropriate foundation for senior certification and tertiary entrance.

The commentary around the issue to be examined by the inquiry has been longstanding, characterised by strong and divergent views, but without an independent avenue of objective determination and consideration of the facts that is probably now necessary. I welcome the opportunity for students, teachers and other members of the community to provide their views on these issues. It is important that the committee's inquiry and any subsequent findings are based on an accurate understanding of the existing senior assessment process.

In conclusion, can I thank the committee for providing a valuable opportunity to clarify what is actually set out in the syllabus, to understand how the syllabus is used by teachers, schools and schooling authorities to decide how to best assess students, and to hear the perspectives and experiences of those involved in day-to-day education in Queensland schools. I am very happy to take questions, as are the other DETE staff here.

**CHAIR:** Thank you, Ms Whitehead, for that very valuable overview of the whole education system. Members, I invite you to ask questions if you wish to. I will start with a question to Ms Whitehead. What professional development is provided to teachers of these subjects in respect of understanding of the assessment process?

**Ms Whitehead:** My understanding of that is that that is provided by the QSA, but I will hand over to Robyn to outline that in more detail.

**Ms Rosengrave:** My understanding of the professional development system is that, on release of any syllabus throughout senior syllabuses, the QSA provides a series of professional development sessions to all teachers. In particular, if a new syllabus or a trial syllabus—a syllabus that has been reviewed—is released, the QSA provides a series of workshops to allow teachers to get an understanding of the changes that may have been made to the revised syllabus or to build their understanding of the new syllabus and allow them to learn about the assessment practices, to give them that information, and to give an opportunity to further develop their understanding of the standards that are involved in that. That process is conducted by the QSA.

**Mr BOOTHMAN:** Ms Whitehead, thank you for that very informative brief. My question is: what support is actually given to the students and parents to ensure that they actually understand the assessment processes? How do you know if parents and students actually understand the processes themselves? I suppose Robyn will take that?

**Ms Rosengrave:** I will answer that, thank you. Our process is that we would encourage all schools to work very closely with our students, particularly, and with parents. Schools are encouraged to give students a copy of both the assessment that they will be undertaking as well as the criteria sheet that outlines how they will be assessed, so it outlines the standards that they will be assessed by. Students will be given both of those items and schools are encouraged then to work with students to ensure that they have an understanding of both the assessment expectations and the criteria sheet or matrix, if you like, for what they will be assessed against.

Schools also are encouraged to build a relationship with families and with community to ensure that the parents understand what those expectations are of their students, particularly in senior schooling, so that they understand what the expectations of the assessment are, for example, the students will be completing this particular assessment and this is how they will be assessed against those standards.

**Mrs SCOTT:** We sometimes hear states claiming, with the new Australian curriculum, that their state curriculum is superior and that it has been dumbed down, or the other way around. I am just wondering where you feel Queensland sits in relation to that? Have we got a huge climb to reach the new curriculum standards from where we have been up to date?

**Ms Whitehead:** Thanks for the question. That is something probably best directed to the Queensland Studies Authority, which would have a lot more detailed information about the content of the curriculum.

**Mr BENNETT:** Do all schools actually offer maths, chemistry and physics subjects at the senior level? If not, is it possible to find out which schools do and do not? What determines whether schools offer particular subjects?

**Ms Whitehead:** The QSA would have the data, but Robyn is able to talk to you about the offerings and how we make decisions about what is offered.

**Ms Rosengrave:** All schools would consider the cohort of students that they have. For example, a small rural school would particularly pay attention to the students who are attending and if it was an agricultural area they might think that it would be appropriate, for example, to offer agricultural science to those students. For schools along the coast, though it might still be an appropriate course to offer them, they might consider the group of students who they have to offer that course to. However, for the majority of subjects, given that it is so very important that we offer all students an array of subjects and the opportunity to have pathways post school, most schools offer as many subjects as they can to ensure all students have an opportunity to study a pathway that will support them for tertiary entrance or support them in other post-school qualifications or careers. There is a range of courses that are offered.

**Mr BENNETT:** Just to clarify, so there is flexibility within the model for schools to make those selections?

**Ms Rosengrave:** Yes, there is flexibility. Schools can offer any of the courses. There is no mandation of any particular course that has to be offered.

**Mr LATTER:** I was wondering, in the nature of this investigation, are you aware of any significant dissatisfaction by teachers or students in respect to the current assessment model for maths, chem. or physics? If so, what is the basis?

**Ms Whitehead:** As I said in my introductory remarks, in our sector we find that there is broadly support for school based assessment and for standards based assessment, but obviously there are divergent views within the sector and we have a lot of teachers. I will hand over to Robyn who can give you some more detail about what some of those views are.

**Ms Rosengrave:** As Annette said, broadly, the system itself is supported. As with any system, there are concerns that some, particularly teachers, may have. Concerns arise around sometimes the quantity, particularly in large schools, for example, that have large numbers of students who may be studying a particular subject area. So the concerns come around the areas of marking and attending to getting that marking done in a timely manner to provide feedback to students.

The system of panels that are used is very broadly supported by most teachers as they see that it is an opportunity to provide for themselves some really valuable professional learning. They get an opportunity to see what is occurring in other schools within their district and within their area. So that is a really valuable professional learning opportunity for them. I do not have any information around students, however, to be able to provide.

**Mr SYMES:** In relation to maths testing—for example, maths B when there are practical problem-solving questions—would a student who did the practical steps to solve the maths problem but who got the final answer wrong be disadvantaged compared to a student who got the steps wrong but somehow got the correct final answer?

**Ms Rosengrave:** I might be able to answer that for you. Within assessment tasks the use of criteria standards allows for students to be able to demonstrate what they know and can do and not necessarily have to get a correct answer at the end of that. The processes are a very important part of that, particularly in mathematics and particularly in science—that there is a process that the students know and are able to demonstrate to teachers.

The idea of getting the correct answer, while it is very important to do that, whilst students will not be considered better than someone else against that, it is not as important as getting it correct without the process. So the process is a very important part of that that they need to demonstrate. The QSA will have more information around the actual assessment and what they need to do with that.

**Mr SYMES:** My follow-up question is in relation to the OP review. If you have an excelling student who is at a school where the average QCS testing is below the average, would that lower that student's overall position score?

**Ms Whitehead:** That is a very technical question and probably one that is best directed to the QSA in your session with them tomorrow.

**CHAIR:** It looks as though it will be a busy day tomorrow. Do we have any further questions?

**Mrs SCOTT:** I just wondered if you might expand on the requirement for very lengthy, wordy assessments. You often hear parents complaining greatly about the time their children spend writing huge essays. I am sure teachers would love it if it was reduced to 1,500 words or so to try to get students to be concise in their assessments and to reduce their workload and the teacher workload in their marking.

**Ms Whitehead:** Thanks for the question. Obviously, that is related to the whole system of standards based assessment. I might just refer to Andrew, who can give you some more advice on that.

**Mr Walker:** Thanks very much. Again, this is a matter of the QSA syllabus and you will be able to get more information from them. Until a few years ago the syllabus did entail—the physics syllabus, for example—did entail extended experimental investigations that had lengthy word limits. You mentioned a 1,500-word limit. If you look at the current syllabus it is, in fact, 1,500 words for the year 12 student who is doing this piece for their final folio that will be counted towards their achievement level. So the word limits have been reduced, I think, in pursuit of what you have been saying, which is that part of what is being tested is the ability of the student to conceptualise and to summarise and be succinct. Thank you.

**Mrs SCOTT:** I was interested in our specialty schools, like Aviation High and I think Toowong is a maths and science school and so on. When looking at the curriculum that they study, I imagine that that is at a very high level and there has been greater input from industry and so on into those schools. Is that so?

**Mr Walker:** My experience is not totally current, but I was involved in the establishment of these institutions so I will give you the best answer I can from that experience. The Toowong academy uses the International Baccalaureate, which is not a QSA curriculum; it is an international curriculum that is approved for use. It is used in quite a number of non-state schools and in some state schools and in all of the Queensland academies. I do not want to get into a question of whether the Queensland curriculum or the International Baccalaureate are better compared to one another, but, yes, it is obviously a high-quality curriculum. When it comes to Aviation High, yes, there is a relationship with the aviation industry and the subjects include things like avionics, which is a QSA subject, I think—it was, anyway, when they set it up—but also there would be a lot of vocational education and training programs that come into that as well. So it is a mixture of QSA subjects and VET subjects—vocational education and training subjects—that are designed for that group of students and the industry pathway, the jobs, that they will be heading for.

**Mr LATTER:** I understand that this may, in fact, be a question for the Queensland Studies Authority and, if so, I am happy to take it up with them later. My very limited and preliminary investigations into this matter, which I find of some interest, have indicated to me that perhaps there seems to be a bit more concern around the time frames involved with the assessments as opposed to the assessments themselves. I note one of the issues that was raised before from my previous question that perhaps those who are grading the assessments may be having some difficulty with regard to the time frames for them to get their responses back and to get their grades in. So from both a student perspective, where indications to me at this point are that they seem okay with the assessment, it is just the time factor, is there anything that you can contribute from that perspective?

**Ms Rosengrave:** I believe that was one of the comments that came from the teachers when we spoke to them, particularly in those schools where teachers are working across a number of subject areas. For example, some teachers might be working in both chemistry and physics, where

there are similar expectations for teachers around assessment in that both subject areas have an extended experimental investigation that would need to be marked and assessed and feedback provided to students. So the feedback from the teachers when we spoke to them was that that is one area where they have difficulty and that is around balancing their time in both marking those and then getting them back to the students. So that is an issue that came up when we had our conversations with teachers. I do not know about students, however, around that matter.

**Mr LATTER:** Just to follow on from there—and thank you, I appreciate that—with respect to time frames around students. Obviously, with the time frame for them to be able to complete the assessment, one of the reasons that this issue is being raised, I understand, is the requirement to demonstrate fairly in-depth knowledge in the workings that, again, students seem to be so far—and this is very preliminary—okay with having to demonstrate that knowledge; they just do not particularly feel that there is enough time in order for them to complete the assessments. I am well aware that that is obviously not the case for all students, but in terms of the assessment models themselves, what consideration is given to determining the length of time that a student should have in terms of completing these assessments.

**Ms Rosengrave:** Schools in the development of their work programs take into consideration when they are developing that work program. Annette mentioned earlier the idea that the work programs are developed by schools based on the syllabus. So they use the syllabus as a framework to do that. Schools develop their own local work program that allows time within the school program to both have an opportunity to do the learning and the classroom work around it and then an opportunity to do the assessment as well. So it is a school based decision on that planning and that timing to be developed through the work program based on the syllabus document.

**CHAIR:** Thank you, Ms Rosengrave. I thank you all, because we are on a fairly tight time line this morning. I really do thank you and appreciate the information that you have given us this morning. I understand that you are not able to stay for the remainder of the session, but you are very welcome to stay. I note that you have offered to assist us with any follow-up questions that we might have at the end of this briefing. I thank you very much for that as well. Thank you.

**ANDERSON, Ms Mandy, Director, Queensland Catholic Education Commission**

**COVILL, Mr Noel, Head of Mathematics, St Joseph's College, Gregory Terrace**

**CHAIR:** I now welcome the Queensland Catholic Education Commission. I believe you were present at the beginning, but would you like me to go through all the preliminaries again?

**Ms Anderson:** No. I believe we have heard it, thank you.

**CHAIR:** Thank you, yes, I would think so. Thank you both for attending here today to brief the committee on how the assessment of senior maths, chemistry and physics is implemented within Catholic schools in Queensland. As I said earlier, this is a preliminary briefing to assist the committee to determine its approach to its inquiry. We are interested in the terms of reference and advice that you can give us about methods and processes used to assess students in senior level maths, chemistry and physics along with any perspectives on how well these methods are implemented in your schools as well as any advice you might have about levels of teacher support for the current system. I will hand over to you, Ms Anderson and Mr Covill. Thank you.

**Ms Anderson:** Thank you and good morning. Thank you for the opportunity to appear before this committee and to input into this briefing as a representative of the Queensland Catholic Education Commission. I need to give some background to the QCEC and its operation. The Queensland Catholic Education Commission is the peak strategic body with state-wide responsibilities for Catholic schools in Queensland. There are 294 schools that are administered by five diocesan schooling authorities. That is Brisbane, Cairns, Rockhampton, Toowoomba and Townsville. They are, in effect, regions that administer their own schools and there are another 17 religious institutes that operate a further 34 schools. There are 95 Catholic secondary schools in Queensland.

The QCEC does not own or operate any schools, but it has delegated roles in relation to liaising with state and federal governments, negotiating and distributing government funds to Catholic schools and facilitating collaboration, consultation and planning with Catholic schooling authorities. I shall return to this process of collaboration and consultation later. It is fundamental to how the QCEC operates.

As Ms Whitehead has indicated, the Minister for Education, Training and Employment is the minister for all education, as he reminds us often. The Department of Education, Training and Employment has overarching responsibility in supporting all sectors of education. Catholic education is part of the non-state sector and we identify as distinctly separate from Education Queensland or state schools. I have to acknowledge, though, the very collaborative relationships that exist across all three schooling sectors. This extends to the model of senior assessment. With the exception of those schools using the international baccalaureate, which was mentioned previously, all secondary schools write their program from the same source syllabuses and all participate in the same processes of school based assessment, external moderation and scaling through the Queensland core skills test.

I turn now to the context of this briefing and our input this morning. QCEC has been anticipating the review of OP and tertiary entrance processes as identified by the state government's six-month plan to June. We have anticipated a review of school based assessment processes in all subjects as part of that broader review. We agree that it is timely to review the OP system and tertiary entrance processes. The current system has been in place for 20 years. The nature of the senior student cohort has changed. Government policies around tertiary education have escalated so that currently the aim by 2020 is that 40 per cent of the population to 24 should have tertiary education. Processes for tertiary entrance have changed significantly in this time. We see the outcomes of this inquiry dovetailing into that broader process of review and consideration.

I referred earlier to the process of consultation with Catholic schooling authorities being fundamental to how Catholic schools and QCEC operates. Obviously I am participating in this briefing today without the full process of consultation and shared discernment having taken place, and I know this committee appreciates that fact. We look forward to the opportunity to provide a full submission at the appropriate time should the inquiry take that course.

Over the past week QCEC has engaged with a sample of teachers in the subject areas of mathematics, chemistry and physics. One of those teachers is with me today, Noel Covill, a real, live teacher on the ground. Anecdotally, there is broad support for school based assessment processes as they operate in Queensland secondary schools. The terms of reference of this inquiry focus particularly on teacher support for assessment processes used in maths, chemistry and physics. In the short lead time to this briefing we canvassed the opinion of a small reference group

of teachers in these subjects in our schools. These teachers may not be typical. They are experienced teachers and they are well versed in Queensland's senior school assessment processes. I share the following points not as answers to this committee, but as questions to be further explored of teacher support.

There is a range of opinions across teachers regarding assessment in these areas. Discussion in chemistry and physics assessment tends to hone in on extended experimental investigations and extended research tasks and the time and the workload engendered by these methods of assessment. It appears—and I think the committee alluded to this before—that evolved custom and practice in these areas does not always replicate the intention set out in the syllabuses. Syllabuses identify word limits of 1,500 words in these tasks, but that is not always replicated in the tasks produced by students. Some exceed beyond these limits. Extended tasks have been in place in maths for a longer period than in chemistry and physics and appear to be better accepted than in the other two subjects in the discussions we have had. Again, that requires some further consideration. Professional support and development for teachers is critical to a quality assessment and moderation processes. Getting the balance right in terms of assessment in all subjects, not just maths, chemistry and physics, is essential.

QCEC looks forward to the opportunity to provide input into ongoing processes of inquiry and review. It is important that there is full and representative understanding of the current assessment practices as Queensland goes forward in reviewing OP and tertiary entrance processes for the future. I thank the committee for the opportunity to address this briefing and I am happy to take questions.

**CHAIR:** Thank you for that. We do appreciate it. I noted your comments about—I will paraphrase your comments—the EEI and the ERT tasks. Since schools have the flexibility to determine the type, number and timing of assessments for students, could or do some of your schools choose to not implement either of those processes?

**Ms Anderson:** I will turn to Noel for that question as an on-the-ground teacher.

**Mr Covill:** Thank you for the opportunity to speak today. I am Noel Covill from St Joseph's at Gregory Terrace. I do not teach physics or chemistry, but my understanding is that the syllabus documents that QSA produces do mandate at some instance over two years that those tasks are completed.

**Mrs SCOTT:** Since the period that external examinations were done away with and we moved to internal assessment, do we have any data on how we have gone? You hear voices saying that we have dumbed down and all sorts of things. Teaching and the world are very different places now. The students are doing things that we never ever dreamed of when we were younger. I am wondering how you feel that we have been going in maths, physics and chemistry and whether this internal assessment is, indeed, advantaging us.

**Ms Anderson:** It is an interesting question. We always like to think that the world was a smarter place back in our day. I was working out the other night that you would have to be heading towards 60 to have experienced an external exam in a Queensland school. There has been a process in place for a very long time of school based assessment. It is interesting to go back to the introduction of school based assessment, because it came about in the 1960s when the pass rate for the physics exam set externally by the University of Queensland was 30 per cent. At that stage it was realised that the tasks set in those exams were unrealistic in terms of the population. There has obviously been very significant change in the intervening years in terms of the number of students who continue on to enter tertiary education in terms of the number of students who remain at secondary school to the end of year 12. In fact, it is part of our Education (General Provisions) Act, as you would know, that students must remain to the end of year 12, until they are 17 or until they have a Queensland certificate of education or a certificate III. So there is a different population at school that is being accommodated, but the world is a different place, too. The types of knowledge that students need are different to what they would have been in a previous era.

**CHAIR:** Ms Anderson, I noticed your comment that there was a range of opinions from the group of teachers that you have canvassed—and I do appreciate the time line. Would you be prepared to enlarge further on that range of opinions?

**Ms Anderson:** I believe it is fair to say that—and this relates more to the extended tasks than to any other element of assessment—some teachers would be highly supportive and others would have reservations about the size of the tasks and the impact not just on teachers—because teachers by and large are very committed people who want to do the best by their students—but on students' own wellbeing if those tasks become too extended. I have to reinforce that those tasks

extending to the size they do is not always an issue of a school or school practices or a teacher or teacher practices. The students in years 11 and 12 view that period of their life as very high stakes time. It is where they do battle, for want of a better term, to get into tertiary education and they want to give themselves whatever edge is possible in that pursuit. With an externally set exam, we would still see students who spend many, many hours studying. That personality, that nature and that desire to do well is part of a young person as well as part of our system.

**CHAIR:** Mr Covill, would you be interested to comment on that particular area as well?

**Mr Covill:** I believe there is somewhat of a discourse between the teachers from the mathematics domain and perhaps the teachers from the science domain. Some people would sit in between both of those teaching either maths and physics or maths and chemistry. As Mandy alluded to, I would feel that the consensus around the community of teachers of mathematics is that the extended task, which has been in the syllabus documents for some time, is welcomed in our community, that those tasks are valued and there is a greater appreciation of the value of those tasks. The tasks in the science domains are more recent. They have only just been coming in terms of the more recent syllabus documents and perhaps that is where most of the challenges, therefore, are coming from.

**Mr SYMES:** Are you aware of any significant disadvantage or dissatisfaction by teachers and/or students in respect of the assessment methods for senior maths, chemistry or physics?

**Ms Anderson:** Certainly not significant disadvantage. It is always a good thing when teachers engage in discourse about how they do their work and how they assess their students. It is part of the progress in education that those quality professional conversations take place. As new ways of doing assessment roll out into different subjects, those conversations take place. I am not aware of significant disquiet among teachers. We were certainly aware of a lobby group, if I may call them that, that had a particular perspective that they were putting. I cannot say that there would be no sympathy across teachers towards that. There is a diversity of opinion.

**Mr BOOTHMAN:** I actually asked this question to Ms Whitehead just before. What support do students and their parents get to ensure they understand the assessment processes? Is there any difference between the answer that Annette gave and what Catholic Education or the independent schools are actually doing?

**Ms Anderson:** Essentially the answers are not different. Within Catholic schools obviously the partnership with parents is a critical part of how we operate. I would not see these things as the exclusive prerogative of non-state or state schools. These things happen in all good schools: parent information nights to ensure that parents understand what the assessment expectations are, to understand what happens in assessment and why assessment happens that way. I would have to say that the generation of parents in our schools now by and large have been the product of school based assessment themselves, where they are Queensland raised, so they have some understanding of it. At the time that the current system of assessment in Queensland schools was introduced a good 20 years ago now Professor Viviani said, 'You can't have fair and simple at the same time.' The system that is in place is not simple or easy to understand. The mathematics that sit behind it are not easy to understand. But giving parents the opportunity to understand how it operates, why it operates, is very important to parent and, as Annette alluded to, student understanding of the criteria that they are addressing. It is really important that a young person knows, as they undertake assessment, what is it they are aiming to achieve as part of that.

**Mrs SCOTT:** I am just wondering, given that Queensland is such a vast state and things like our mining industry are peculiar I guess in the Gladstone area and so on, do you have the ability to put into your subject content items that are actually designed for youngsters who wish to go into, say, the mining industry, for example?

**Ms Anderson:** Certainly there is a capacity, when schools write programs, to address the particular area where the school is in the particular context of that schooling. There is an overarching syllabus, obviously, that gives the framework for the work program development, and we always have to be cautious that if we aim a school's program exclusively at one industry that we are not limiting young people in their choices post that. But one of the beauties of school based assessments, school's written programs, is that there is that capacity to incorporate what is within the school context and interest of the students.

**CHAIR:** You did mention having the ability to put in submissions. We will be welcoming those. We certainly do encourage you to watch the website because after 8 March those procedures will be on the website. We have no further questions. Thank you very much for the information you have given us this morning. I hope you can both stay on for the rest of the briefings

this morning. You are welcome to remain in the chamber for the briefing that we are very much looking forward to from Independent Schools Queensland. As I said, we are certainly looking forward to receiving the submission from the Queensland Catholic Education Commission as well as from principals, teachers, students and parents in Catholic schools right across the state. We are looking at hopefully a very broad range of submissions because, as you said, this is a particularly important inquiry, we believe.

I have very much pleasure in welcoming from Independent Schools Queensland, Mr David Robertson, who is the chief executive officer and Ms Janelle Wills who is the director of ISQ. I have no doubt that you do not require me to go through the preliminaries again because I know that you were here. Thank you both for attending here today to brief the committee on how assessment of senior maths, chemistry and physics is implemented in independent schools in Queensland. As I have said, this is a very preliminary briefing just to assist the committee to determine its approach to its inquiry and it is not actually a submission. I now invite you to start with an overview of the approach to assessment in senior maths, chemistry and physics in the independent school system. Mr Robertson and Ms Wills, thank you.

**Mr Robertson:** Thank you to the committee for the invitation to be involved in this inquiry. At the outset I would like to take this opportunity to declare to the committee that I am a board member and an executive committee member of the Queensland Studies Authority. Those positions on the QSA board and executive is as a nominee of Independent Schools Queensland as provided for under the QSA legislation. However, I obviously appear today as a representative of Independent Schools Queensland.

Independent Schools Queensland is the peak representative body for the independent schooling sector in Queensland. Membership comprises some 186 independent schools operating on some 200 campuses throughout the state. These schools are educating over 115,000 students this year, or approximately 15 per cent of all Queensland students. Further, independent schools educate nearly 20 per cent of all Queensland secondary students. The majority of independent schools are prep to year 12 schools. We have 140 independent schools that provide year 11 and 12 programs. The vast majority of those offer the QSA curriculum in those years. Those particular schools enrolled 21,118 senior secondary students in 2012. A small number of independent schools do offer the International Baccalaureate in years 11 and 12, just as a small number of independent schools offer specialist programs at year 11 and 12 which may not, in fact, be based on the QSA curriculum.

I am sure that you all as committee members are aware that independent schools are autonomous schools governed at the local level. Each school's governing body is responsible for the educational programs offered by the school and the delivery of those programs. Independent Schools Queensland does not operate any schools, similar to the Queensland Catholic Education Commission, nor do we have any role in determining the curriculum provision of any independent school. We obviously represent and contribute on behalf of independent schools to the policy issues, such as that of this inquiry, and we also provide support to independent schools in terms of building their capacity to deliver excellent education programs and achieving excellent education outcomes, whether it be through professional development, school improvement strategies or assistance with policy and operational advice.

I make this point to alert the committee that on matters before this inquiry I believe it will be appropriate and very important for you to seek direct feedback from independent schools and, chair, I was very encouraged by your comments that that clearly will be the case. One of my recommendations today was to encourage the committee to actually seek direct feedback from school principals and school communities because ultimately in our sector it is our principals who are dealing on a day-to-day basis with the parents, the students and the matters that are currently before this inquiry.

Once those arrangements have been made in terms of public submissions, Independent Schools Queensland will be more than happy to facilitate information to our schools about their engagement with the committee and I am sure that schools that will have matters to raise in relation to the assessment methods for senior maths, chemistry and physics will, I am sure, welcome the opportunity to provide information directly to the committee.

Independent Schools Queensland is aware of the issues that have been raised in relation to the assessment methods for senior maths, chemistry and physics. These are very much in the public arena, just as one example through the website www.platoqld.com. When we became aware

that the Queensland parliament had referred these matters to the Education and Innovation Committee on 14 February, I asked my staff to commence consulting with independent schools and seeking feedback on the issues. Whilst we have not had the opportunity to consult with all of our independent schools, we have so far had the opportunity to speak to a number of our key committees and various gatherings of principals and curriculum leaders in the independent sector. I have to inform the committee at this early stage that principals are not raising specific concerns in relation to the assessment methods for senior maths, chemistry and physics. I do emphasise that this does not mean that there will not be principals and schools who wish to raise issues, but at this early stage we are not having issues directly raised with us. I also would expect that many parents may wish to raise issues as well as students themselves. Again Independent Schools Queensland does not engage directly with parents and it will be the principals of our schools who are best in touch with parents and their concerns.

I am very confident that as an organisation we are quite good at gauging the general mood in our sector about particular issues and, as I say, at this particular time I am not having principals raising issues directly with me on the matters under consideration. What principals do raise with me on a very regular basis are concerns about the overall Queensland senior secondary system across a range of areas, including the school based assessment system, the OP system, the associated core skills test, moderation panels and processes and the provision of professional development associated with these. Clearly maths, chemistry and physics are all part of this system of assessment and reporting, but the issues that are being raised with me are more related to the overall system not in relation to the three specific subjects.

As I speak to principals around the state on the overall Queensland senior secondary assessment and reporting system, it would be fair to say that there are a very wide variety of views within our sector. Many principals are very passionate in their support of our current system as educational best practice, while others are critical of the system, particularly around the moderation processes. There would be many principals who would advocate a role for external assessment, for example, in our system.

As committee members will be aware, and as has been mentioned this morning, the state government has indicated its intention to undertake a review of Queensland's school based assessment and the OP system. The intention to undertake that review is listed in the latest Queensland six-month action plan, but to my knowledge the details have not yet been announced. Committee members will also be aware that there is a review being undertaken at the current time of the functions and governance of the Queensland Studies Authority. We also heard mention this morning and questions have been asked about the Australian Curriculum. Schools are in the process of implementing Australian Curriculum from prep to year 10 and discussions have recently started with schools about what the implementation arrangements might be for Australian Curriculum for years 11 and 12 which has recently been approved by ministers.

I mention all of these matters in the context of this inquiry as I do see some concerns developing in schools about uncertainty around the future assessment and reporting arrangements. As you, I am sure, would all be aware, reviews and inquiries often generate expectations and even sometimes speculation about what changes might occur in the future.

Whilst it is vital that we get our senior secondary system right, I also believe that principals want some certainty and stability in the system in the interests of parents and students. I am sure schools would recognise the need for a review and improvement, but I think they would also wish for the current arrangements to be reviewed professionally and with some degree of urgency so that conclusions can be made and, if necessary, changes implemented as soon as practicable. I think the last thing that any school or, for that matter, any parent or student would want is a long period of uncertainty and instability as to what the future assessment arrangements will be.

I am sure that when the review of the school based assessment and OP system is formalised it will generate a great deal of interest and engagement from individual schools. No doubt some of the issues being considered in this inquiry will also be the subject of consideration in that review. In that regard, the work of your committee in relation to this inquiry will no doubt be an important input into the school based assessment and OP review.

Finally, I would like to say it is important that our senior assessment systems in Queensland are rigorous, fair and transparent. They must be held in high regard both educationally and by the wider community. Our assessment systems must be supported by schools and teachers and be valid and reliable in their outcomes in terms of assessing student outcomes. I am confident that the

committee's inquiry can significantly contribute to all of these objectives, and Independent Schools Queensland will be pleased to assist the committee in any way possible. I thank the committee for the opportunity to make this statement and would be happy to take any questions.

**CHAIR:** Thank you, Mr Robertson, for those very valuable comments. I certainly welcome your comments about your assistance in encouraging schools and, through the schools, parents and students to engage in the actual submissions to this committee which will be available. I welcome questions from the committee.

**Mrs SCOTT:** Given that your sector of education is the most autonomous, I am interested in the feedback that you get from your principals and whether at times all of the independent school principals get together. I guess there is competition for students at the upper echelon of academia, sports and so on. I just wondered how you get feedback from them, whether you regularly meet and also whether there is an ability within the system for them to deliver the national curriculum but to get that edge that they wish to have in their school to deliver over and above.

**Mr Robertson:** Thank you for that question. Firstly, obviously Queensland is a very big state so principals do not get together on a weekly basis et cetera. However, we have a wide range of activities where we are in contact with schools and principals on a very regular basis. As one example, we are currently running briefings for principals on the Australian curriculum, and we do that two to three times a year. So we have staff out and about in each of the regional areas and we are using those forums to start schools discussing and generating viewpoints and feedback on the issues before this inquiry.

Whilst you correctly point out that independent schools are autonomous, I think it is important to note that when it comes to years 11 and 12 if they are running the QSA curriculum—which the vast majority do—then the QSA sets the rules and the arrangements for the curriculum, the assessment and so on. Ultimately, in that respect schools across the three schooling sectors are treated the same way by the Queensland Studies Authority and the assessment. Clearly, at the individual school level schools will have different ways of supporting and communicating with parents and students, but ultimately it is important to recognise that it is the same system for all schools in terms of years 11 and 12.

Again, virtually all schools use the QSA curriculum and system. I know you asked a question before and there has been some talk about external assessment. So I might place on the record that within the QSA's system there is provision for external exams. Some schools do undertake external exams across a range of subjects, principally around languages. For example, in our sector we have two or three schools which have all of their students do external exams because of the nature of those students. I do not like to mention particular schools but many of you would be aware of Hubbard's School, which is quite well known for its particular provision for a group of kids who have particular needs. They use external exams, as an example.

For the record, the QSA has made a decision to phase out those external exams. External exams for languages will remain because it is an agreement across other states and territories, but unfortunately for those schools which use external exams—which are across the three schooling sectors—they will no longer be available from I think 2015.

**Mr SYMES:** Are you happy with the professional development that schools such as Moreton Bay College and Churchie provide to their teachers? If so, what professional development is provided?

**Mr Robertson:** In terms of the issue of professional development, I assume we are talking about professional development around these subjects and the assessment system rather than more generally. Again, I would point out that it is the same system for all schools. Most schools would rely upon the professional development provided by the Queensland Studies Authority. Yes, independent schools would have the ability to undertake—and they probably do—their own professional development that they design and resource et cetera but, again, because the rules are set by the QSA it would be fairly risky for a school to be doing a lot of things on their own outside of the system. I would prefer not to comment on individual schools, but I think generally across the sector our schools would recognise the need for very high quality teachers and would invest heavily in professional development in a general sense as well as around the senior secondary areas.

**Mr LATTER:** The question has been asked of the department when it was here and subsequently Catholic Education whether or not they were aware of any dissatisfaction from teachers or students. So far the response seems to indicate that there are varying levels of interest that have been raised from the perspective of teachers. There certainly does not seem to be

anything compelling from the students' perspective, but surely given that there is some concern out there that the current assessment model may be placing some undue stress on students—and I note earlier comments that reflected upon the competitive nature of gaining access to tertiary education and certainly I would imagine that is the case—is there any indication that you are aware of from independent schools to suggest from a student perspective there needs to be a change to the assessment model?

**Mr Robertson:** Thank you for that question. I will reiterate what I said: I think as an organisation we are fairly good at reading the mood amongst our principals and schools. At the very early stages, as I say, principals are not raising directly with me these issues very specifically around these subjects. Yes, the wider issue of school based assessment versus external exams is a topic of much debate and interest in our sector. There are very divergent and diverse views on it, as you would expect, in an independent sector. I would have to say that school principals very genuinely have the best interests of students at heart. They want to do the best by every student, but I would suspect that some of their concerns are driven more by the environment of the OP system. The decision made in 2007 to publish OP results on a school-by-school basis has changed the game a lot. I do not think it is a secret that it is a very high stakes outcome for schools in a marketing context and parent perceptions et cetera. I think they are some of the issues that are driving some of those concerns.

**Mr SYMES:** Do all schools offer maths, chemistry and physics at a senior level? If not, which schools do and which schools do not? Could you provide us with a list?

**Mr Robertson:** Thank you for that question. The QSA will be able to provide that data and I am sure you will probably ask the QSA. In a general sense, for an independent school again it would be an individual school choice about the curriculum offerings that they provide. I think I could say in a general sense that most independent schools offering years 11 and 12 are large schools, because obviously you need numbers to be able to deliver years 11 and 12, and therefore they would offer a pretty broad curriculum. I would suggest without having seen the figures that probably a very vast majority of schools would offer those subjects.

**CHAIR:** Mr Robertson and Ms Wills, the general concerns that have been raised with us so far in this area seem to be around the extended experimental investigation and the extended research task. Looking at the requirements for the extended experimental investigation, they certainly do seem to be fairly extensive. If you will pardon me, I will read out those requirements. One does wonder how possible it is to accomplish that in 1,000 to 1,500 words. What must a student do to complete an extended experimental investigation, to develop a planned course of action, clearly articulate the hypothesis or research question, provide a statement of purpose for the investigation, provide a description of the experiment, show evidence of modification or student design, provide evidence of primary and secondary data collection and selection, execute the experiments, analyse data, discuss the outcomes of the experiment, evaluate and justify conclusions and present relevant information in a scientific report? Do you think that is too broad or perhaps too difficult for our current years 11 and 12 students?

**Mr Robertson:** Madam Chair, you are probably thinking, like me, that you are glad you have finished your schooling and you do not have to complete that.

**CHAIR:** How true.

**Mr Robertson:** That is a difficult question. What I would reflect on, again, is that those requirements are across all schools. I think schools will probably vary in the extent as to how they support students. Every school obviously wants to do the best thing by every student. Some schools are better placed to do that, I would suggest. Again, given the technical nature of that question, I would certainly be interested to hear the QSA's reflection on it. Perhaps Janelle may wish to comment.

**Ms Wills:** In the conversations we have had thus far with teachers, they tend to value the learning that can be demonstrated through that extended investigation and the depth of knowledge that can be demonstrated. One of the issues that was raised at one school was the need to assist students organisationally in being able to carry out that investigation. Sometimes just the requirements around storing their individual experiments and things like that can be a consideration. So far I have found that our teachers value the opportunity that the extended investigation gives for students to demonstrate depth of knowledge.

In terms of the word limit, I cannot comment. However, I know that part of that—and I think Mandy was speaking about it—is the ability to synthesise and to communicate that information succinctly. Speaking as a parent, I can also talk about my own children going through that process. They actually really enjoyed that opportunity to go in-depth in their learning. It is one instance but it is an example.

I think the other thing that also needs to be considered in this is that a lot of people have spoken about the anxiety issues and stress upon students. I do not think that is just a condition in Queensland. I think we really need to look at the practices in other states as well because I do not think that it is just the zone of school based assessment that can create that anxiety. I think you can have just as much stress and anxiety in an external assessment process as well. So it is probably worth the committee inquiry looking into some of the practices in other states and, indeed, some of the issues that they face. In New South Wales we often hear about the stress levels of students in their assessment processes.

**CHAIR:** Thank you. Those comments are very relevant and we would hope that our committee will be looking at that, too. As a further comment—and this is something that is raised often—scientific brains and mathematical brains, not so much brains but students who are particularly clever in those areas, may not be as clever in literacy. Therefore, they will let themselves down in these assessments. Do you have any comments on that?

**Ms Wills:** That is something that has been raised by some of our teachers as a concern. I think that was even part of the reason behind reducing the word limit. Yes, it is certainly something that has been raised as an issue. I think the terminology that was used was the feminisation of mathematics and science.

**Mrs SCOTT:** We have talked a lot about assessments and so on but not much about OPs. I am just wondering whether you are preparing a submission on that. We often hear about people being able to get into universities in professions where they should be at a much higher OP than they are actually getting into a university course for and so on. Teaching is one of those professions where we want to attract the brightest and finest of our students. Also, I am just wondering how we are trying to foster more and more students into the sciences and so on because, if we as a state and as a nation are going to head towards being as smart as we want to be, we need more and more of our students to be actually undertaking those high-range subjects.

**Mr Robertson:** In relation to OPs, when the government finalises the arrangements for the review, we will certainly as an organisation be making a submission. I think as a general comment what we see happening is a broadening of pathways into tertiary education. Many universities have direct arrangements with schools these days, so there is less reliance probably on the OP as the ultimate measure for tertiary entrance.

I think your reference to the level of OP, particularly for intakes into the teaching faculties, is a very current issue. Yes, I think there is a very strong recognition that the quality of teachers is one of the keys to continual improvement in our schools and education systems. One of the areas, again, that we received considerable feedback from our schools about is the quality of beginning teachers. It is not an easy issue to resolve obviously; otherwise we would have done that. In fact, to me there seems to be a little bit of a disconnect between the universities who actually train our teachers and the schools and the sectors who employ them. You would be aware that that is also the subject of a current report that is out from the state government.

In relation to the question on encouraging students to undertake science subjects, I have not seen the data. Again, I am sure as a committee you will get that data from QSA in terms of what have been the trends around enrolments in those subjects, and I will actually be very interested to see that data. I think as a general comment it would probably be recognised that many students of high ability will do those subjects. They are seen as academically rigorous. I think the only thing I would say in terms of the overall system is that clearly this is an assessment system which not only is designed to assess student outcomes but also does have an element which is about tertiary entry. So it does need to be rigorous. It is not going to be easy. There are high stakes involved for students.

**CHAIR:** Thank you. Are there any further questions? No. Thank you very much for this briefing. I do note that I think there is a much broader area of concern out there as well. However, this inquiry does have its certain terms of reference, so when the committee actually invites

submissions we will define and clarify the actual scope of this inquiry which naturally we have to adhere to. So if there are no further questions, would either of your groups—the Catholic Education Commission or the Independent Schools Commission—like to make any further comments for the inquiry at this stage?

**Mr Robertson:** I do not think so other than to repeat that we are more than happy to assist the inquiry. It is an important inquiry. As an organisation, we will certainly be keeping our schools informed of what is happening and their ability to engage with your committee.

**Ms Anderson:** On behalf of the Queensland Catholic Education Commission, I would just like to thank people for the opportunity. It is wonderful to have parliamentarians interested in education, so we thank you for your interest.

**CHAIR:** I would like to thank you all very much for the briefing. I hope you can stay on in the gallery for the briefing from Professor Ridd, which will commence at 11 o'clock. We certainly look forward as a committee to receiving submissions from you all and from all levels of education—as we said, from principals, teachers, students and parents—in the independent and Catholic school systems in due course. I thank you all very much for coming in.

**Proceedings suspended from 10.22 am to 11.00 am**

**RIDD, Professor Peter, Head of Discipline, Physics, School of Engineering Sciences, James Cook University**

**CHAIR:** Welcome everybody. Welcome to Professor Peter Ridd from James Cook University. I am Rosemary Menkens, the member for Burdekin and chair of this committee. The other committee members are: Desley Scott, the deputy chairman; Steve Bennett, the member for Burnett; Mark Boothman, the member for Albert; Michael Latter, the member for Waterford; and Neil Symes, the member for Lytton. We also have Ms Bernice Watson our research director with us.

The preliminary briefings today and tomorrow are to assist the committee to gain an initial understanding of the assessment processes in these subjects and the concerns. These briefings are not submissions. They are to give us background information about the scope of the terms of reference. Following the briefings, the committee will determine its approach to this inquiry, which will include inviting submissions from and consulting with the public as well as education and subject matter experts.

Professor Ridd if you heard my introduction earlier you would know that the briefing is being recorded and webcast and you would have heard my opening remarks about parliamentary privilege and the contempt rules. Do you need me to explain anything before we start?

**Prof. Ridd:** No.

**CHAIR:** Professor Ridd, the committee has invited you to give us a briefing identifying the concerns that are being raised about the current approach to assessment of senior maths, chemistry and physics in Queensland. Committee members will also have some questions to ask you. As we are limited to an hour for this briefing, I ask you to keep your opening statement to around 20 minutes or thereabouts to allow plenty of time for questions from committee members. Professor Ridd, I invite you to address the committee.

**Prof. Ridd:** Thanks very much. I have already given the committee a background briefing which may be a little bit outside your scope. I thought I would do that just to give you some of the information around this issue. I will come back to the terms reference in a little bit. I would like to go to certain aspects of this that do not seem to have cropped up in this morning's proceedings.

The first one of these is about the assessment system where marks are effectively forbidden. In the Queensland Studies Authority syllabi, every exam question will be given a rating from A to E or some of them might only have a maximum of C. So for some questions you can get full marks but you only get a C. The exam might have 10 questions all with letters and then the teacher must make a holistic judgement, which is just a guess really, as to what the final grade will be. It might be B minus.

They then have to take the results of maybe the three or four exams and the EEIs and the ERTs and they will have a matrix of letters, which is on the back page of the submission I gave to you, and they make another holistic judgement about what the final mark will be. If necessary, I can go through the details of that. But to cut a long story short, it is an extremely time-consuming procedure. I suspect that none of the students have any idea what is going on. It is very well to say that all good assessment systems will be a little bit complex, but this one is so complex that I certainly do not understand it, and I have tried for a long time.

In terms of whether it is reliable, in a survey that came out yesterday from the QIEU—a survey of teachers, there were about 700 respondents—fewer than 50 per cent of maths and science teachers said they had confidence in the results that it gave. Some of these teachers liked various other aspects of the syllabus, but in terms of confidence in the final result, I think if you have 50 per cent who do not have confidence in it then we have a bit of problem.

Another very large problem about this assessment scheme is that the students do not know what their assessment is worth. At university I sometimes get a little bit miffed when a student comes up to me and says, 'Sorry, Peter, your tutorial that is due tomorrow is only worth two per cent. I have a maths test tomorrow that is worth 30 per cent so I am not going to do too well on this one; I am going to study for the other one.' That is a legitimate decision that they have made. We all have to prioritise our time.

The problem with the A, B, C system is that there is no weighting given to each of these. So students do not know whether the EEI that is due tomorrow is worth two per cent or 30 per cent. They do not even know whether the exam next week is worth two or 30 per cent. So they cannot prioritise their time. That is a big problem.

Interestingly, the QSA is somewhat hypocritical in its approach to marks. Once they have their letter grade from the teacher and then the teacher somehow or other puts the students in rank order, the QSA entirely uses a marked based system with the QCS test and the OP to give a final number. So the exact procedures which they ban the teachers from using they actually end up using themselves.

With regard to the EEIs and the ERTs and the assignments, firstly I would like to say that I am actually in favour of experimental investigations. It is the extended bit that is the problem. They are going on for too long. Some of these might go on for a whole term. They learn nothing else. They just do the investigations or the extended response task. They need to be shorter and they need to be motivational. You need to do some really cool physics. You set something on fire or you blow something up. But then do not kill it with a 5,000 word write-up. The sort of child who might be really interested in physics—the people we want to come to our universities to do engineering—are the ones who light stuff. They like to do experiments. They often like the mathematical side. They are often not very good on the written side.

My niece who is in year 12 has at moment six of these extended tasks due and she is coming up to exams. It is very well to say that all systems are high stress—and that is true—but there is no point putting stress on if it is not necessary. These long tasks are not necessary, especially in maths, physics and chemistry. At university we do not particularly value writing very long essays. We value brevity. We value scientific reports in a scientific style. Most of these EEIs are not in that style. Children are stressing themselves out to do things which really do not do them a great deal of good in the first place.

The QSA has also made a lot of bungles with regard to this word limit. Exemplars on their own website until recently had up to 6,000 words in them even though their rules said 1,500 words. Teachers point out to me all the time that in order to cover all the criteria—and by the way, Madam Chair, it ends up being much more than that list because each one of these EEIs will have five or six pages of criteria which they have to address—and get it passed a panel, teachers say, 'Just write as many words as you like.' The record I have seen is from somebody who is a friend of the family and it was a 50-page maths assignment. I know there were a lot of figures in it, but that was completely ridiculous.

I have a little bit of a motto in maths, physics and chemistry. That is it is numbers not adjectives. We are interested in calculations. You have to make sure that the bridge does not fall down. Some of the other subjects are more interested in adjectives—history and English—and that maybe entirely appropriate for those subjects. Universities want quantifiability. I think it does discriminate against quantifiable kids and I think that we should make sure that if we are interested in English we look at their English grades.

I mentioned before the clear and reliability aspect of it. The rules are extremely unclear. There are continuous arguments between teachers and panels. I just got three emails yesterday where teachers have had problems with their panels changing rules. The QSA will give one rule, they will then change it and they will have disclaimers saying, 'We have said this, but it may not necessarily really be the right interpretation.'

In addition, the syllabi are not clear because there is no list of content—content, which is almost a dirty word in educational circles; the stuff that you have to teach. So in physics it would be you shall teach conservation of angular momentum or something like that. In the QSA syllabi in physics there is no list of content. There is a list but it effectively says that it is neither exhaustive nor compulsory. So it is a list which is not compulsory and students can do jolly well what they wish.

In terms of reliability, a colleague of mine, Shaun Bellwood, has done testing on first year university engineering students. These are people who have a sound in maths B. He gave them tests at year 10 level—not year 12 level—and the average mark was 12 out of 20. These kids should have blitzed that exam. A lot got much more than sound. They have high achievements and very high achievements. In terms of the grades that the QSA is giving us, it is not actually very useful to us because in fact they have much lower levels of maths than is indicated.

There is another thing, which I am sure you have thought about. That is because the QSA has considerable power it effectively decides what every school in the state will do, apart from those like our elite academies that use the international baccalaureate—and it is interesting that they decide not to use the QSA syllabus. The QSA rules the rest. There is a degree of intimidation, either

intentional or at times otherwise. It will be difficult to draw out from not just the teachers but even the parents their true feeling about it. That is certainly what I have heard from parents. They do not really want to say anything. Their child is at school. If you attack the system people can feel that you are attacking the teacher and attacking the school.

With regard to the terms of reference and the assessment being supported by teachers, as I have said fewer than 50 per cent have confidence in its accuracy. In terms of student participation, if you have a subject which should be numerical and mathematical and you force English onto the students, you will scare them away. There is no doubt that you will do that.

Two or three years ago QSA had a report from ACER which said that over the last 30 years Queensland maths at the year 10 level has slipped by the equivalent of two years of learning. Queensland used to be in the 1960s and 1970s the leading state in Australia in terms of maths. We are now the last, with the exception of the Northern Territory.

The assessment is not valid and reliable. I can make some suggestions about what we should do. We do need to have a rewriting of the syllabi and we need to take into the account the views of professional bodies like the institute of engineers.

We must not go back to the old internal exams, where the University of Queensland set the exams. To put it frankly, they totally messed it up. We went to a system of internal assessment, which has worked reasonably well but I think there is cause for us to think that perhaps we should bring back some fraction of external exams. Universities should play some part in that. They should not play the whole part like they did in the 1960s, but they should play some part in it and we should introduce expertise from the institute of engineers, from the medical people, and we must listen less to the educational theorists who have brought some of these rather unusual systems on to our children.

I would say that the QSA and the other people pushing our systems have never explained, 'Are these systems actually better than what are working in other parts of the world? Are other countries flocking to the QSA system?' The answer is, in fact, no. We need to move to a marks based system and move away from this letters and a continuous comparing with criteria. In the end, assessment is about ranking. I think we possibly do need to move to an external exam of some fraction. The EEI should be kept, but they should be worth much less and they should be motivational. In maths, we should not worry about assignments at all.

There is some reason to believe we need to have some overhaul of the QSA. I would encourage the committee to take a wide view of their terms of reference. I know there is a limit to what you can do. But what happens in the lower school is absolutely critical here. If you have the same systems of long experimental investigations and long assignments in maths and very unclear assessment in grades 8, 9 and 10, then you will be putting children off at that lower level and they will not even take up physics, or maths C, which has almost disappeared in schools. Of course, that will then affect us at university.

I do not want to go on for too long so I will just finish up by saying that there are certain people who I think will be very useful to talk to if you wished. The one of them is Professor Gabrielle Matters from the ACER, who has some views and a lot of expertise. She consults all around the world to various places about assessment systems and she has some interesting ideas that would be useful. The other one is Professor Igor Bray, who is a professor of physics at Curtin University. The system that we have in Queensland is not that much different from what was used in Western Australia up to three years ago. It turned out that what happened there was that there was an absolute uproar. The equivalent of the QSA tried to put all this across the whole system rather than do it very slowly over a period of 20 years, which happened here. The teachers rebelled. The parents rebelled. It caused the resignation of the education minister and probably contributed to the removal of that particular government. Professor Igor Bray was one of the people involved with that and he will be able to relate a lot of the experiences with their equivalent of the QSA and I am sure he would be most willing to come and speak to you. I think I will leave it at that, otherwise I will go on for too long.

**CHAIR:** Professor, thank you very much for that. You have raised many pertinent points. I certainly will be inviting questions from the honourable members. I will start the questioning. You have answered this to a certain extent—in fact, fairly broadly. How well prepared for university maths, chemistry and physics are Queensland high school students? Do you find that there is a distinct level of unpreparedness, shall we say? What is the comparison between the levels that these students come to you and your expectations at university and perhaps other universities as well?

**Prof. Ridd:** I think throughout—and I talk to my colleague Matt Dean at the University of Queensland—we have real problems. I am not sure how we compare with other states, but I suspect we do not compare particularly well. I do not know and nobody has actually done the research on this to my knowledge.

In our first year maths subject, which we have watered down twice significantly in the last 20 years—and now we are going to do the same again; we have to bring it down once more—we are still failing 50 per cent of the students on the first go through. We are not talking about the old days where academics were just ridiculous in what they expected. They were in their ivory tower. Nowadays, we at university cannot afford to fail students. So we bend over backwards. We do a lot of extra tuition to try to bring these students up, but there is a limit to what you can do. As I say, if you are bringing in students with sounds and highs and they are only just barely passing what boils down to a year 10 maths test—we are literally starting with fractions in that particular test—there is a limit to how far you can get. So we are having to water things down. The same is occurring in the physics as well.

**CHAIR:** Any further questions? Michael?

**Mr LATTER:** Thank you, Professor Peter Ridd. Are there any other jurisdictions inside this country or out that have a model that fits within the reform agenda that you are floating at the moment? Is there anywhere that you are aware of that has demonstrable outcomes in this space?

**Prof. Ridd:** Of what I am suggesting?

**Mr LATTER:** Yes.

**Prof. Ridd:** I would say New South Wales and Victoria would be very similar to what I would be suggesting. The United Kingdom has moved away from some of the things which we are seeing here. For instance, they have moved totally away from assignments in mathematics.

**Mr BOOTHMAN:** I was reading through this report I received during the week. It certainly mentions New South Wales and Victoria. What are the key benefits to that system over the system that we have in this state?

**Prof. Ridd:** Firstly, they use marks. So students actually know what things are worth and they can understand how things are added up. The second thing is that they have syllabi where they are told what they are supposed to teach, which we do not have, but we ultimately will have with the national curriculum, thank goodness. Finally, they have an external exam, which is essentially used as a way to reference the schools and compare the schools. One thing you can do with that is instead of using moderation to compare the levels of different schools you can look at the results from the external exams and see what the school is giving.

The sort of thing you may pick up is that if students are doing very well on the assignments but then do very badly on the exam, then you may have to do something about that. I think it is a more balanced thing. It moves away from the totally internal exam. By the way, up to probably two to three years ago I would have said very strongly, 'No external exams.' That is what I would have said. But as I have looked at it more and more, I think there is probably no choice to have some component of external exams.

**Mr BENNETT:** I am very interested in the comment about the year 10 assessment for mathematics that one of your colleagues did.

**Prof. Ridd:** Yes.

**Mr BENNETT:** Are we suggesting then that there is a clear correlation between the current assessment model and what would be seen to be a lower achievement in our year 12 graduates?

**Prof. Ridd:** It probably is related, but more of what I am saying is that if a student has a C—a sound achievement in maths B—then it really does not mean very much to us as university educators. It does not tell us whether they know anything. It is an unreliable assessment system. Some students may know things, some students may not know things, but the assessment does not tell us that. This I think is occurring right through the system. It is occurring in grades 8, 9 and 10. Students will rarely get a report card back which says, 'You got 89 per cent for your maths. You are really good.' There will be a whole lot of descriptors which mean almost nothing. Of course, the maths teacher has to try to add up all of these letters somehow to give the final result. It is a very difficult thing to do. Because there are too many assignments, there is not enough practice, there is not enough drill, students are coming through woefully unprepared for maths and physics and engineering, which is the big one. That is really the most important one at university.

**Mr BENNETT:** My limited experience with university as a mature student is that universities did put a lot of work in the front end in terms of their own assessments and getting students prepared to go forward into their academia. So would not that be part of the university's criteria or expectations about getting the best fit, or their expectations from their students?

**Prof. Ridd:** It is, and certainly alternative entries—people who may have finished at year 10 and are coming through—we do all of those things. So we have some very, very low levels, which really do start at almost upper primary school level, to bring the people in. That is what we have to do and there is no problem with that. But the problem I have here is that we have people at the QSA saying they are competent at these things at maths and when it boils down it, they are not.

**Mrs SCOTT:** Professor Ridd, you mentioned that the list in physics was not exhaustive and not compulsory. I take it that that will be corrected when the national curriculum comes in. As students apply for places in universities other than in their own state and so on, I imagine that then becomes quite a difficulty sorting that out. It sounds to me as though we need a national rating system. We have changed many things in our state and other states have changed to be national. It just seems to me that maybe we need to be trending that way. Do you want to comment?

**Prof. Ridd:** Yes, I think it is a very important point, because at the moment the national curriculum is only about the content. It was great that they have done that, but in the end if you control assessment, you control what is going on. At the moment, even when the national curriculum is rolled out in 11 and 12, they will control the assessment. I personally do not trust them whatsoever in terms of giving valiant and reliable assessment. So I want one of two things. I want either the Queensland government to somehow get valiant and reliable assessment and, if that cannot work, I just hope the Nationals in New South Wales and Victoria will force it on us ultimately.

Can I just add one extra thing to that? This has already been done to Queensland already with the NAPLAN test. Before NAPLAN, in the junior school—so 3, 5, 7 and 9—there has been no moderation of grades and in grades, 8, 9, and 10 since either the late 1970s or the early 1980s. So there was drift. Different schools were doing different things. NAPLAN comes along. There is a Queensland syllabus but, of course, the principals of the schools want to make sure that their kids do well on NAPLAN. They know exactly what is going to be in the NAPLAN test, because it is very well prescribed. So all the teachers are told by the principal, 'You make sure you do those fractions and you do this and do you that.' So by controlling the assessment you are controlling what is going on. I think NAPLAN has been a huge advance for Queensland, because it is actually the de facto junior school syllabus, even though it is hated by a lot of people in the education establishment. One of the reasons it is hated is they say something like, 'All that happens now is we are teaching to the exam.' So, 'Yes, exactly, because before you were teaching anything you jolly well liked. This way, we can actually have some confidence that you are actually doing the things that you are supposed to be doing as a teacher and a school.'

**CHAIR:** Professor, we are aware of your Plato website. A concern that has been raised on that website is that school based assessments and EEIs and ERTs can be done in any setting, which means that there is no proof that students themselves have done that work. Can you point to any examples—no names, of course—where it has been found or even strongly suspected that a student did not complete the assessment task themselves?

**Prof. Ridd:** I would hate anybody to suggest that I would help my children to do their physics exam. I would never do something like that, because that would be an illegal thing to do, would it not. But I know lots of people who help their children. Why would you not help your children? It is a good thing to do. But, of course, if you are doing the physics EEI on something very complicated and your father does not happen to be the professor of physics at the local university, you may be at a little bit of a disadvantage. This is always going to be the case. Kids from disadvantaged backgrounds are always going to have less parental help and there is not a lot you can do about it. But it is a bit of a problem when the parents, or the tutors, or the elder brother who is at university is not just helping them; they are doing the actual assessment themselves. It is one thing to get a bit of help from dad about the exam that is coming up tomorrow. You want to be able to solve your differential equation—'Dad, can you give me a hand with this?'—but it is another thing when they are actually doing the assessment. We are not talking about little assessment. We are not talking about 10 per cent here. These are worth—because we do not have marks I cannot give you the number, but it is more than half of the total value of the assessment.

**CHAIR:** Professor, I realise this is a fairly broad question but, with the entry students coming into university, do you notice any difference between students coming from, say, small regional schools and those coming from larger schools in more populated areas where there is no doubt a higher educational expectation, shall we say, within the community than there is in a lot of our smaller regional schools, of which I have quite a few in my electorate?

**Prof. Ridd:** Yes. Well some of the schools in your electorate actually have phenomenal standards in fact. It seems to come down to the individual teachers as to what they do. One of the problems we have with our present syllabus is that because there is no content you can teach what you like. Some schools are taking what you might call a more traditional approach and they are giving us what we want—the students have done the things that we want. Other students are coming from other schools and they have done totally different things and not necessarily what we want. It does not necessarily equate to little country school—bad; big city private school—good. It does not work like that. There is no commonality amongst the different schools in terms of the assessment they give or the stuff that they do. But there are certainly differences.

**Mrs SCOTT:** During the break I was relating the time when medical faculties moved to doing interviews as well as looking at OPs and whatever. I am just wondering throughout the university sector whether they may have a number of different avenues when they are selecting students rather than just going by the OP score.

**Prof. Ridd:** I certainly would encourage that. I think the move to interviews is a good thing. You can screen out some people who obviously should not be doctors. If they cannot even make eye contact with you, they should never be a doctor. The reality is though that, with the lowering of the OP entrance for so many of the degrees, the OP has become less and less important than it used to be. In medicine, say, at JCU, it is probably oversubscribed 10 to one but it is fairly unusual. In engineering, even the University of Queensland has dropped its level quite low. We have now got to the point where we are not turning away people who could become engineers. In medicine, we are turning away people who could become doctors; we just do not have enough spaces for them. If they are below the OP cut-off—I do not know what it is; it is 10 for JCU—they probably really should not be doing it because they just do not have that background information. For other subjects where you do need that personal touch then, yes, I think there should be other ways of entering; you should not just be looking at the OP.

**Mr BENNETT:** It is a very interesting subject this morning. I am interested in going back to your introduction and your thoughts about improving the process. I may have missed that and, if I have, I do apologise for not acknowledging that. Quite clearly, there is a fairly intensive system that has been put together by a lot of academic people as well as school based input. Could you reiterate how you would change the process of achieving more university entrance acceptable standards for year 12 students in these three subjects?

**Prof. Ridd:** The first thing is that we have to reduce the amount of written stuff. So we keep it but we reduce the amount of it because we do not particularly value that. We want to see a return to a list of content which should have been taught and we should be very careful about the depth at which it is taught. This would have been in the old syllabi. It is in the New South Wales and in the Victorian syllabi, and to some extent it is also in the national curriculum. So the teachers now have a good idea of exactly what they need to teach. We then need a system where we do not have all this A, B, C stuff. If you get it all right, you get 100 per cent. If you did not it get it all right, you get part marks. If you did not get the right answer but you have a few steps there, you get some part marks. And you add those things up—I am sure this is what would have happened when we were at school.

Then, in order to get some sort of comparability, you will have the exams in your school and that will be worth most of the grade but there should be an external exam to make sure that the internal assessment really does look like its valid, that it is not giving some spurious results, such as you have a large number of students who have got As. It can be fair dinkum that that is the case. The present system is that you go to panel and they will look at that. In many cases they will say to the teacher, 'You've got too many As. This cannot possibly be right.' And they will look at the exams and they will come to some sort of agreement—'Yes, it is not really as good as it was originally said to be.'

But the problem now is that it is very difficult because you have all this written stuff, you have all these letters, you have these huge matrices of marks and you cannot tell who has actually done the EEI anyway. It looks like Einstein did it, so was it actually the student? So the panel now has a devil of a task trying to moderate across the different schools. An external exam would solve that problem because we would be able to say, 'Your internal assessment is saying you have got everybody with As but it looks like they really should be at a B level,' and that could be used to adjust the marks accordingly.

**CHAIR:** Professor, I know this is simplistic question, but I have read claims where a student who may have got the wrong answer but who gave a very detailed analysis of the process used in getting to the answer—we are talking about maths but I guess the same thing could apply in physics—may get a better mark than another student who may have got the right answer but did not show the process. Would you comment on that? Is that statement rather too broad?

**Prof. Ridd:** No. That could happen. There is probably an even bigger problem with our present system. In the old days or in New South Wales you will have a question that might be worth five marks. If you get the whole thing right, you get the full five marks. If you got the right answer but did not give your working, it would depend but normally they would give you the full marks. If you did not get the right answer, you would get part marks. So you would get maybe three out of five. In Queensland that question might be only worth a C even if you get it right because some questions are A level questions. So you can get up to an A, some questions would be up to a B and some would be a C. The maximum you can get is a C. So if you make a mess of that you end up with a D. That really is pretty bad. You have made a bit of a slip-up, so you cannot be worth a C and now you are worth a D. So one of the problems with the whole system is big switches. You can go down a lot of grades by making relatively small errors.

It is not like marks. There are problems with marks too, and I am sure the QSA and various other people will point that out, and that is fair enough. It is a little bit like Winston Churchill's quote about democracy: 'Democracy is the worst form of government; it is just better than any other form of government.' There are lots of problems with marks, but I still think that is the best way of trying to aggregate the grades. It is at least the clearest and it gives fewer of these very spurious results.

**Mrs SCOTT:** Are there uniform views held by all of the universities in Queensland that this is, indeed, a huge problem of assessment and we need to be in a more specific marking regime?

**Prof. Ridd:** In terms of the marking regime, my feeling is that most academics have no idea what is going on, except if they have a child at school. That is my experience. I do not know because I have not surveyed them, so I do not want to say something that I cannot be sure of. What I can be totally sure of is that it does not matter which university you go to as they are all very concerned about the standard of maths entry. It is a problem for all of us.

When I find an academic who is willing to listen to me on the assessment scheme and this A, B, C or D system, usually when I explain it to them their eyes glaze over and they think, 'He's a nice guy but it just can't be as silly as that,' until their kid goes to school. Then they realise that this really is what is happening. They have no idea how their child is actually being rated and how that final result is being arrived at. So I do not know. It would be very interesting to see, and it would be great if the inquiry could get some submissions from engineering and maths and physics departments around the state.

**CHAIR:** We are also interested in hearing from students. I gather you are a parent yourself and no doubt are aware of other students. Would you be prepared to make any comments on what students may think about this?

**Prof. Ridd:** I am really not sure what they think because they have never seen any other system. Some love the EEIs. They have a great teacher and they get a good EEI and it obviously works very well. That teacher may somehow be able to reduce the size of the write-up. A lot of them really hate it. I have done surveys with students who come to the university and we are trying to convince them to do physics and maths and engineering. One of the things I say is, 'No EEIs, no ERTs in your maths and your chemistry and your physics,' and 'Did you like your EEIs and your ERTs at school?' And the majority of them seem to say, no, they did not. I do not know because I have not got a decent survey. But my feeling is that a large fraction of them really do not like that large written component. But how you are going to get students to talk to you, I do not know. It is hard enough to get parents to talk to you.

As an example, there was supposed to be a QSA meeting at the local P&C at Pimlico State High School and some of these matters which I had raised came up and the QSA person was meant to be there. A person who is very close to me was going to make a submission but his wife very wisely said, 'Don't you dare,' because he was worried that if he made comments it could be seen as being prejudicial to the marks that his daughter might get. So this is this degree of fear that there is. Parents are not going to want to say too much. I wonder if the only students you can really get hold of are the ones at first-year university as they have left the system. But that is going to be difficult.

**CHAIR:** To follow on from that comment, do you believe that there is a certain amount of external human influence over the results that the students may get?

**Prof. Ridd:** Because it is much more subjective than it used to be, I think that is inevitably the case. You have this matrix of letters. How you add up letters—it might depend upon whether little Johnny has been a bit of a ratbag recently or not. I do not know. I think there is probably a little bit of that. I do not think that is actually the biggest problem. I really do not think that is the biggest problem. I just do not know how you do it, full stop.

**Mr LATTER:** Professor, I am not sure if you were here for the earlier briefings but there were some comments that were made that I would like to put to you. One of the issues that was raised was the competitive nature of entry to tertiary education and the impact that that seemed to be having in those particular circumstances that were raised this morning in that in fact it is increasing student participation in the subjects that we are talking about today so that students can try to gain some kind of competitive edge in gaining entry. In saying that, I note your previous assertions that marks presently hold little weight from a university's perspective in terms of the subjects that are being delivered through that body. Can you tell me where does that fit with what you are seeing with regard to student numbers perhaps increasing in those subjects in high school? Does that fit with what you are seeing?

**Prof. Ridd:** To my knowledge, numbers are not increasing in maths, physics and chemistry. It would be interesting to get the final numbers from the QSA. But they are not increasing. Maths C has almost completely disappeared. That is not the fault of the QSA. That is the fault of the universities because we are failing to require it as a prerequisite for any subjects. So I do not think we are getting more participation from this. The comment I think that was made about that was that students will always try to get any advantage that they can and they will work themselves almost into the ground, and I have no problems with that whatsoever. It just has to be useful work; it must not be a waste of time. And that really is my point about this whole thing.

**Mr LATTER:** Thank you, Professor Ridd. I note that this is a line I will continue to pursue through the QSA with regard to data outcomes as to student numbers in those courses, but I thank you for your response. One of the other things that was raised, and it seemed to be a bit of a common theme, is that the concerns seemed to centre in this space more around time frame, the ability to deliver outcomes from both a student and a teacher perspective, particularly when you have competing interests in subjects as well. I think that goes somewhat near the issues that you have raised with regard to trying to prioritise outcomes based on their weightings. Would you like to provide any further input in that space or provide further clarification as to how those concerns that were raised in the previous briefings might fit in with what you are saying?

**Prof. Ridd:** Probably all I can do is reiterate that you do need to be able to prioritise your time for the students. They need to be able to work out what they have to do and what is the most important thing, and they can't do that at the moment. In terms of the teachers, are you interested in the teachers and their time commitments as well? Yes? My feeling is that those of them who have worked in a marks based system and the present system feel that the workload is greatly increased, as in markedly increased on what it was because it just takes such a long time to compare with criteria, get your matrix, work it all out and then somehow put them in rank order whereas before it goes into the spreadsheet, everything is weighted. Bang! It takes a millisecond and it is all calculated. They are certainly spending more time than they used to do to get a result which I do not think is as valid as what it would be under a marks based system. I am not sure whether I have entirely answered your question though, I am sorry.

**Mr LATTER:** That goes some way to answering my question, but perhaps if I could take a bit of a different approach to it. There certainly seems to be a number of people, student and teacher, who support the current model who do not have any particular issue with the way that assessment

is delivered. But in saying that, they have identified that with competing interests, with time requirements and with particular regard to a question I raised earlier and was answered by saying that schools have the flexibility to determine how they roll out their syllabi, how their assessments are achieved, the issue still seems to me to be that when you have a student who is taking on maths, chem, physics—I note biology was not mentioned but again biology is a pretty big one in that space as well—and a student is having to deliver extensive assessment items in all of those subjects, it then becomes a problem for them to be able to demonstrate their ability or knowledge in that space. Now, in saying that, they still have to be able to demonstrate those outcomes. Is a marks based system as opposed to an extended assessment system, much like the one we have now, going to clearly demonstrate their knowledge and understanding of the subject and are they going to be able to demonstrate their workings under a marks based system?

**Prof. Ridd:** Undoubtedly they can. That is the system that the whole world uses, and you can do it, albeit with some problems. And they will be able to prioritise. I think the comment that was made by one of the previous people was about if they are doing all these subjects they may have a lot of these things all due at the same time. The reality is that all QSA syllabi now have huge amounts of external assignment stuff. So students cannot duck it. They are inevitably going to have these sorts of large written never-ending type assessment pieces so it is inevitably going to be there and I think it is in every school. All students are suffering under this, in fact.

**Mrs SCOTT:** I represent Woodridge. It is a very, very multicultural student body and particularly at Woodridge High where we have probably 300-plus new refugees learning the English language and so on. They have a huge, huge thirst for learning and knowledge. A few years ago the dux of school was from Afghanistan who came to Australia five years before that. I guess maths is probably like a universal language, but I would hate to think that because we have long assessment essays required and so on that that would affect some of these young people who could go on to really very important careers in science and maths.

**Prof. Ridd:** It will undoubtedly. People from overseas, especially from those backgrounds, will often strive much harder than the average Aussie, there is no doubt about that, so they tend to do better than you might expect. But the one place where they have a natural advantage is in these technical subjects—in maths, in physics and chemistry and there are a couple of others—because their lack of English is not going to hold them up. But if you are from Afghanistan or if you have an Indigenous background where your English might not be very strong, what chance have you got under this present system?

**Mrs SCOTT:** I might add that in our news items often when we see medical breakthroughs or something in science it is often from someone from an overseas country. So they are very important players in this field.

**Prof. Ridd:** It is, yes. They are massively overrepresented in maths and physics. This has been around for quite a long time. Even when I was doing my PhD in the 1980s it struck me then that all the scientific journals I was reading were authored by people with Chinese or Vietnamese names working in America. This is something that they shine in. We have to take these people who may be from backgrounds where they really want to strive, they really have a thirst for knowledge, and we do not want to hold them up just because they cannot write an essay which really is a fairly pointless exercise anyway.

**CHAIR:** Your Plato website has certainly generated a great deal of interest. What are your comments on the percentage of teachers who may have come to your website in agreement or disagreement with some of the claims that are there? I am rather interested in your comments on what you glean from teachers.

**Prof. Ridd:** I change my mind daily as to the relative proportion who might be termed on my side or on the other side or disagree. I think it is probably relatively evenly mixed. I would speculate that the more experienced teachers—you could say the old guys and ladies—are probably more on our side than on the other side. That worries me because I think I am becoming a dinosaur myself, that maybe I am not moving with the times. It is something that really worries me. But on the other hand, when I talk to some of these teachers—and the sheer depth of experience there, and these are not people who want to go back to the dark ages—they have real concerns. They are saying, 'Look, I like the EEIs, but this is a problem. That is a real problem. This is a good thing.' It is the more experienced ones who tend to probably agree with us, in my opinion, but I am really not sure. It is very difficult to tell.

**CHAIR:** You also mentioned teachers, parents and students who have no knowledge of any other system. When it comes to dinosaurs who may be over 60, which was mentioned by one of the previous people in here, we probably do have some knowledge of the other methods of examinations and assessment. But certainly experience in teachers is definitely something that should be acknowledged and respected.

**Prof. Ridd:** That's right. If you have got somebody who has gone through an education faculty at a university, where a lot of indoctrination takes place on what may be the best system, I usually disagree with these people. This is why I think we do need more input from the disciplines—the engineers, the mathematicians and the rest of them. But if you have got somebody who is young, they have gone through the system, they have never seen anything else and you ask them, 'Do you think you are spending too much time marking?' They say, 'Well, this is just the way life is.' They have never known any other way. They have never seen anything else but writing long assignments. So they may not actually have a great deal to compare with. So that is why I do think some of the older people probably do have more than an average amount of credibility on this.

**Mrs SCOTT:** It just occurred to me, do you believe that, should we go back to a numerical assessment, students would then better understand where they rate in the overall scheme of things in their maths and physics and maybe more of them might be encouraged to enter those faculties?

**Prof. Ridd:** I think it probably would occur. I don't think it is a huge thing. I think the most important thing that scares people away from maths and physics is that they probably had a bad experience with it in early school, they didn't have a great maths teacher and they didn't do very well. Maths is one of those things that if you fall off the horse you probably can't get back onto it. That is the crucial thing that is holding us up. But the assessment will certainly have some effect. Maybe not the numerical thing, though parents never really know where their students are with the present report cards so you cannot tell whether little Johnny really does need a tutor to help them or you need to help them. So the marks probably has an effect on the margins, but the long written thing I am certain is having an effect on those students who are talented at maths and the quantitative sciences.

**Mr LATTER:** Given that you are advocating for a return to numerical marking, that type of system, it is a system that we have had previously, and I respect the previous knowledge and experience of those who may be older than me here today, can you perhaps give me a bit of insight as to why we moved away from the numerical based assessment system in the first place, just for my own benefit if you can.

**Prof. Ridd:** A lot of this has been dreamt up by various educational theorists. There are some people in America who have adopted it and then the states have got rid of it. It has come from the education faculties. Here at the University of Queensland there have been some people who have been pushing this. Essentially what it boils down to is that there are obvious problems with marks and that they wanted to be able to say what a student could do. It is a bit like the way you do an apprenticeship. An electrical apprentice needs to be able to wire up a plug, put in a fuse box and various things and there needs to be a tick off that they can do all these things. So we have these criteria. It is about comparing with criteria. That was the sort of idea. There is a certain amount to be said for it. But the problem is that in the end unfortunately assessment is ultimately about ranking the students. You can do this for an apprentice. They have just got to be able to do these things full stop. You cannot have an electrician who cannot wire up a plug. That is just an instant fail. But the reality is that at university we are going to accept people who cannot solve a differential equation, but they can do other things and provided they can do half of those things we are going to be happy with that. We will try to work on their weaknesses. I think that is where the system has come about: is this different viewpoint as to what an assessment system should be.

I also think that as people have come through maybe the humanities they do not value a marks based system, they do not value numbers as much. It is one of the reasons why the mathematicians have bucked up, because telling a mathematician they are not allowed to use numbers is a bit of a red rag to a bull. I have to say that in these holistic judgments that we are making the teachers probably mostly get it right. In fact, most teachers can probably look at a student after about a month and say, 'That child will get roughly this amount', and they will pretty well get it right. So we are probably not getting too far from the right result, it is just that how we get there is anyone's guess—it is actually just a guess. But I would not like to be in the position of a student at a Gregory Terrace or Churchie or somewhere where you have got some highly motivated parent who wants little Johnny to do awfully well and to have this check sheet and explain how this B plus came about would be a very, very difficult thing to do.

I digress there. It has come out of the universities. It is a bit of an experiment because we are not the only place that does this, but we are one of the only places that does it and they have not demonstrated, to me at least, that this is actually working any better than the marks based system.

**CHAIR:** Do we have any more questions from the committee? Professor, our time is drawing to a close. As a committee we certainly thank you very much for your assistance. You have given a great deal of information today that certainly will help the committee define its scope and exactly where our scoping will be. We appreciate the time that you have taken to help inform us about the concerns with the assessment in senior maths, chemistry and physics and we will be considering, as a committee, the evidence received through these briefings and will shortly be inviting submissions to the inquiry. I am sure that you and those who share your concerns will make submissions within the scope of the terms of reference of this committee when submissions are invited, which will be in the very near future, and we really look forward to that. I certainly urge all those people who have an interest in the work of the Education and Innovation Committee to subscribe to the committee's email subscription list via the Queensland parliament's website. I now declare these proceedings closed.

**Committee adjourned at 12.01 pm.**