

Of all the many views of assessment, the paper-heavy processes of setting, marking and evaluating test scores are rarely referred to as a category of engineering. But that's exactly how Dr Mike Cresswell regards it.

Cresswell, who trained in electronics, has spent all of his working life in educational assessment and sees a direct correlation between the two.

"If assessment is anything, it's a branch of engineering, it's about fitness for purpose, about being ingenious to do the best you can with the resources you've got, about design," he says.

As director-general of the Assessment and Qualifications Alliance (AQA), the largest awarding body in the country, he oversees the administration of around half of all A-levels and GCSEs taken in schools and colleges. There are 1,000 staff and tens of thousands of examiners to manage, plus 30 million scripts a year to process. It's assessment on an industrial scale carried out under extreme time pressure and with no margin for error.

Cresswell claims a success rate of 99.5 per cent. Had he stuck to his original career plan and entered the world of engineering, such a standard of reliability on the production line would have made his bosses ecstatic.

"It's true, that's the sort of success rate we do every year and there aren't actually many industries or organisations that can do that," he says with some pride.

In assessment, though, it's the 0.5 per cent of system failures that get noticed and AQA was in the headlines this year when a set of source material booklets, including some compulsory exam questions, failed to turn up at schools in time for a GCSE humanities exam. It affected more than 150 establishments and around 11,000 pupils.

AQA admitted its mistake, but Cresswell believes it did not damage candidates' chances in the way the headlines claimed.

"All of us recognise that anything unexpected that happens in an examination is not going to help the students to give their best. In the exam concerned the students had been studying the source booklet for months beforehand and certainly were very familiar with it," he says.

The senior examiners involved in sorting



Dr Mike Cresswell, director-general of AQA, describes himself as a 'lifer' in the assessment business. He explains how he will draw on 30 years of experience as rows about coursework join missing papers and plagiarism in his in-tray

Testing times

Interview **Julie Nightingale** Photographs **Jonathan Banks**

"If assessment is anything, it's a branch of engineering, it's about fitness for purpose, about being ingenious to do the best you can"

out the mess decreed it perfectly possible to expect valid answers and to mark them on the basis that students didn't have immediate access to the source materials, he adds, and it could have been a far worse problem in some other examinations. Any student or school unhappy with the outcome this time will be able to resit the exam without charge in November.

"I think the important thing is that we've retrieved it in a way that means all our examiners are comfortable with the results we would be issuing to the students."

As for the bad publicity generated, he is philosophical: "I feel irritated that we find it difficult to get the right messages understood. I understand why the errors make headlines because if something does go wrong it does matter a great deal to some people, so obviously that's going to be newsworthy."

"But, yes, I feel frustrated that sometimes we don't get the other side of the coin but I think that's probably life."

Pass rate

Between 1982 and 2005 A-level results have been on a steady upward trajectory. Last year, the pass rate rose by 0.2 percentage points to 96.2 per cent and the percentage of A-level students awarded an A grade rose by 0.4 points to 22.8 per cent.

The belief that crucial exams are getting easier and that students who would "in the old days" have scored Cs are now opening their envelopes to reveal a clean sweep of A*s has taken root in public minds. Employers have also entered the fray with some requiring jobseekers to sit internal exams because they give little credence to A-levels as benchmarks of ability.

At the phrase "grade inflation" Cresswell gives a wry smile and assumes the air of someone who is keeping his head while all around are losing theirs. The scientist in him refers you to the evidence. He has no doubt that standards are being maintained.

"I think the only reason anyone questions that is because they see big changes in the headline achievement rates so that big question arises: How could things possibly be improving this fast?"

"However, if you look at the increase in A-level pass rates over the past 10 years, about half of people who are passing now who didn't pass then are accounted for by the fact that there simply are more 18-year-olds today."

Of the other half, who might be called "genuine" improvement, it averages out at something between one and two extra students passing each subject in the average school and college compared with a decade ago, he says.

"How many schools and colleges do you know where it is implausible that they've got a couple more people getting an A-level in each of the A-level subjects they offer now than 10 years ago?"

Besides, everyone knows schools and colleges where the improvements have outstripped the average of one or two

students doing better, he adds. "It always strikes me as ironic that here we have a lot of government policy, money and effort involved and the measures say things are improving but then, for some reason, we turn round and say this must be wrong."

This is probably a good place to reveal that Cresswell scored Bs in two separate maths, a C in physics and a pass in chemistry – which his teacher regarded as a miracle – in his own A-levels in 1968. Respectable then, but those grades would be unlikely to secure him a top university place today. If he did suspect grade inflation, he would have as good a personal reason as any other disgruntled, middle-aged adult for pointing it out.

Cresswell rejects the arguments for consolidation among the examining bodies. He believes that competition is a good thing and that evidence suggests price is not a major issue for schools and colleges.

"What competition does here is the same as everywhere else: it makes us think harder, be more innovative, work to provide good levels of service and specification."

Cresswell, 56, is, in his own words, a "lifer" in the assessment business. After studying electronics in the late 1960s – "I should now obviously be earning a fortune in the industry but I chose to go into education instead" – he did a maths PGCE before landing a research job at the National Foundation for Educational Research where he spent the next decade, on and off, abandoning his putative teaching career before it had begun.

He joined one of AQA's predecessor boards in 1980, was initially a director of AQA after it was created from the merger of the Associated Examining Board (AEB) and the Northern Examinations and Assessment Board (NEAB) in April 2000 and became director-general in 2004.

Electronic marking

One of his biggest challenges is electronic marking. Like every exam board, AQA is busy developing the technology for marking applications on-screen rather than by fax and paper.

It's a contentious topic among examiners and schools, one common fear being that the technology of e-assessment will alter the way exam papers are written and produce scripts to suit the method of delivery rather than the purpose of testing children's knowledge and ability.

Cresswell argues that the process should not be hidebound by tradition, although he agrees it is a proper concern.

"But we have to also be sure that we don't do things simply because that's what the system requires, simply because it's easier if you are using the computer to do it like this. If we have any reason to believe that's damaging the validity or reliability of the assessment, well, I'm on record as saying it won't do that."

Technology also offers the capacity to give examiners individual questions to mark rather than entire papers. It will enable the



Inside AQA

- **Assessment and Qualifications Alliance (AQA) is the largest of the unitary awarding bodies in the UK. It was formed from the merger of the Associated Examining Board and the Northern Examinations and Assessment Board in April 2000.**

- **Its two main competitors are Edexcel and OCR.**

- **AQA offers qualifications including GCSE, GCE A-level, GNVQ, and VCE. Its exams are taken by more than 750,000 students in the UK.**

- **It administers about half of all the A-levels and half the GCSEs taken in the country and offers more than 100 syllabuses.**

- **AQA is also a member of the Joint Council for Qualifications, which works to harmonise and co-ordinate working practices across several awarding bodies in the UK.**

exam boards to monitor the standard of examiners' marking more accurately, says Cresswell. Boards will also be able to slip in quality control questions that have already been marked by a senior examiner and see, in real time, whether markers are being too lenient, too severe, or keeping to standard.

Examiners contend that "slicing-and-dicing" exam papers in this way means their assessment that may not capture the truth of how the student performed.

Cresswell says 40 years' of research has proved that working through a series of separate questions, rather than marking a whole paper, yields better measurements

of performance because every question is marked consistently.

"But it does change the experience for the examiner," he concedes. "It makes it potentially a less humanly satisfying activity. The acid test is that all the groups of examiners who have done this for us are comfortable with carrying on doing it."

Technology brings new dimensions to old problems, too, particularly plagiarism and the ease with which students can now download sample essays and projects from the internet and pass them off as their own. A report by AQA last year concluded that GCSE students were unashamedly using downloaded texts and handing them in as original English coursework.

It's not a big volume issue now but the potential is there for it to become one, says Cresswell. There are technological solutions but he thinks the real answer lies in changing the approach to how coursework is deployed.

"We have, down the years, gone from a place where exam coursework was the work you did while you were studying the course to a place where it's special bits of work you do, very tightly specified by the awarding body with less engagement by the teacher than the work you do in the course of learning."

Putting coursework in a monitoring straitjacket in fact created the conditions where plagiarism and internet teaching are more likely to be a success, he says.

"We should be looking at redefining coursework as the work that students do in the course, leaving the teachers to mark it. It then becomes work that will be more consistent with the learning these kids are doing and educationally more valuable to

them. And because it would all need to be individual, it would be much more difficult to buy [essays] off the peg."

Matter of coursework

What he wouldn't like to see is a withdrawal from coursework and a switch back to more end-of course exams, a move recently backed for some GCSEs by Ken Boston, chief executive of the Qualifications and Curriculum Authority.

"Coursework involves kids doing proper research, it involves them in drawing together a coherent argument from a range of different sources – the sorts of things we want people to be able to do when they leave school," says Cresswell.

"We would lose a great deal in the breadth of achievements that we can measure in our exams now if we don't have coursework in them."

The long-term challenge for AQA and all awarding bodies is the changes to 14-19 education, in particular the new diploma system (see *Countdown to reform, opposite*). In principle it is a welcome move though there are several aspects still to be ironed out from AQA's perspective.

"It's potentially an enormous change for us. It positions an awful lot of our existing assessment instruments and qualifications as components of something else – the diploma. So there are all sorts of issues to be resolved. Are individual awarding bodies going to award diplomas or is it a national award? And, particularly, is the diploma to have a grade attached? Do you get a level 3 diploma or a level 3 pass, merit or distinction, grade A, B or C?"

Cresswell is against grading on the basis that the detailed rules and conditions it would require to cover everything would inevitably make the process less transparent and damage the qualification's credibility.

Then, perhaps fearing he's given the impression of shying away from a challenge, he adds: "I don't mind the complexity – I'm as ingenious as the next guy and I'm sure I could come up with a set of rules. But I don't think anybody could come up with a single set of rules that will be able to deal with all of the potential challenges."

"I think it would be far wiser to rely on the results of the individual units of qualification within the diploma, which would be reported anyway to tell people how well the student has done."

Poring over the fine points of policy, designing the systems to execute them, and adjusting the mechanisms and calibrating the cogs of assessment clearly still appeals to the engineer in him.

"It's absolutely fascinating, though it sounds surprising to say that after all this time, doesn't it? It's a field where what you're doing is hugely important to the individuals it affects, that's the thing. You make a huge difference and if you do it well, you can make a real contribution to the education of all the young people in the country."

AQA: www.aqa.org.uk

Countdown to radical reforms

The government's Implementation Plan sets out a timetable for the major changes to 14-19 education. It includes:

- **The introduction of vocational diplomas, shifting the emphasis in school education from academic to practical subjects for a great many children.**
- **A-levels will be retained but, in order to test the most able students, exams will feature extended essays and harder, additional questions.**
- **Functional skills tests in maths, English and ICT to ensure students leave school with the basics.**

Its overarching intention is to ensure that post-16 participation in education rises from the current 75 per cent – one of the worst among developed countries – to 90 per cent by 2015.

Key milestones include:

This year

- **Coursework reviews for each subject**
- **School achievement tables to include English and maths**
- **Teaching starts on new Key Stage 4 science GCSEs**
- **Trials of functional skills in English, maths and ICT**

In 2008

- **First five of 14 specialised diplomas are introduced**
- **Extended projects and revised A-levels with additional elements to stretch more able students**

In 2009

- **Five more specialised diplomas are introduced**
- **First teaching of GCSEs in English and ICT revised to include functional skills**

In 2010

- **First teaching of GCSE in maths revised to include functional skills**
- **Final four specialised diplomas are introduced**

By 2013

All aspects of 14-19 reform will be in place. All schools and colleges will provide access to a full national entitlement under which every pupil in the country can choose to pursue one of 14 specialised diplomas.