

ASSESSMENT AND CURRICULUM FOR EXCELLENCE¹

(0) Introduction

My intention today is to ask some questions about the role of assessment in Curriculum for Excellence.

I'll be dealing with the actual proposals made for the National Qualifications, but I'll also deal with the role of assessment more generally.

So before I start on that, it is useful to have a summary of what Curriculum for Excellence is about.

A few months ago, I attempted such a summary into six propositions;

and although many people strongly disagreed with the comments I made about these, no-one, so far as I know, has disagreed with them as summing up what the reform is meant to be about.

Indeed, Ian Smith was kind enough to say in the TESS that these six 'accurately identif[y] the beliefs that underpin Curriculum for Excellence'.

So here they are:

(1) The first point is that effective learning requires that the student believes that he or she can learn:

if you set out expecting failure, according to this view, then you will fail,

and indeed you will lack even the motive to try.

Psychologists call this 'self-efficacy'.

(2) The second point is another psychological term: 'task value'.

The learner is motivated by perceiving the task to have value beyond itself:

eg a vocational purpose,

¹ Lecture given by Lindsay Paterson (lindsay.paterson@ed.a.uk) to SQA Masterclass series, Glasgow, 22 September 2009. This is not a full academic paper, and sources are cited only for the main points.

or being useful in getting into university.

- (3) That second point is actually about the importance of extrinsic interest.

But sustaining interest in that way depends partly on students' finding the learning itself to be intrinsically satisfying;

So a syllabus must consist mainly of things which the students are known already to enjoy.

- (4) The fourth point is that learning how to learn is a crucial source of effective learning;

the psychologists call this 'metacognition':

we need to monitor our own learning,

and work out our own strategies for learning effectively.

- (5) The fifth point is about inter-disciplinarity.

Real-world problems don't come in neat disciplinary bundles.

This is absolutely central to Curriculum for Excellence:

there is far more discussion in the documents of inter-disciplinarity than of how to develop the distinct subjects;

and instances that are given suggest a radical questioning of the very existence of subject boundaries.

- (6) And the final point is the one that is most directly relevant to our discussions today, although I'll be referring to all six of them:

this is that obsession with performance reduces the quality of learning,

leading to what is sometimes called 'strategic learning' rather than 'deep learning',

learning how to pass exams rather than learning to achieve understanding.

So assesment ought to be an aid for learning, which is where the fashionable slogan on this comes from.

So these are the six principles that define Curriculum for Excellence:

self-belief, extrinsic motivation, enjoyment, learning how to learn, inter-disciplinarity, and assessment being for learning.

The question now is whether these six principles are consistent with valid assessment that not only provides worthwhile information about what has been learnt,

but also actually encourages students to learn.

I'm going to deal with three broad themes in relation to assessment:

assessment and self-belief;

assessment and motivation;

assessment and the structure of disciplinary knowledge.

(1) Self belief²

Let me start with the first of these principles: students' self-belief.

I'd make two points about the implications of this for assessment.

(1a) Comparison as motivating

One has to do with the effect of comparing our performance with others' who are engaged in the same task.

The key point from research seems to be that such tests cannot only be about competence:

in order to be truly encouraging, they must also include an element of norm-referencing,

² General sources for research in this and the next sections are the summaries and bibliographies in: Blakemore, S-J. and Frith, U. (2005), *The Learning Brain*, London: Blackwell; Bransford, J., Brown, A. and Cocking, R. (eds) (2000), *How People Learn*, Washington: National Academy Press; ESRC/TLRP (2007), *Neuroscience and Education*, Swindon: ESRC.

and encouragement to students to compare themselves with others.

Research suggests that comparing our performance to others' is indeed deeply encouraging of achievement:

it encourages people to do better,

it encourages them to adopt wise strategies for improving their learning, such as monitoring their own progress;

and it allows them to measure their understanding of their own performance against the judgement of people who appreciate why this performance matters,

not just teachers but also fellow-students.

And I would emphasise that the research on this relates not only to *essentially* competitive domains, such as most aspects of sport, but also to other fields of learning.

That does, of course, entail for most of us learning how to lose, in the sense of learning how to respond to someone else showing greater understanding or competence than we are currently doing.

(1b) Reality checks

The second point about self-belief is that it depends on the student's passing frequent reality checks.

These checks have to be set at an appropriate level of difficulty:

they have to stretch the most accomplished to pull them onto the next level,

and those learners who have not reached the level to which they are aiming need to be challenged in ways that show them why they fall short and how they may try again.

This requires teachers who have expert understanding of the structure of knowledge,

by which I mean the disciplines that have been built up and refined over the centuries,

and that represent the embodiment of the best that the best minds and the best practitioners have thought, said and done.

Teachers with this disciplinary expertise are able, through understanding successive zones of proximal development, to guide students, not merely encourage students to set their own goals.

This role for the expert teacher is, in the end, far more supportive of students' belief in themselves than any amount of false encouragement that ignores failure:

teachers' challenging students to understand what they have not achieved as well as what they have is far more effective than this.

In summary of this first point, then, we can say that building student's self-belief requires authentic challenges,

that can be posed only by teachers with expertise in the disciplines that constitute the structure of knowledge,

and that encourage students to compare their performance with others who have done better than they have and who accept the value of the task.

To the extent that our assessment philosophies have moved away from norm-referencing in the last two or three decades, we have lost this crucial comparative role for assessment in encouraging worthwhile learning,

and we have stopped teaching our students how to benefit from comparing their performance with others'.

We have come to assume that *all* comparison is invidious.

What's more, insofar as the philosophy now being proposed is closer to that of the Intermediate assessments than of Standard Grade – which, through the grade-related criteria still had some connection to the older tradition of norm-referencing – we are losing one important feature of the existing system of assessment that does allow some learning through comparison of this kind.

And to the extent that Curriculum for Excellence says almost nothing about the importance of disciplinary expertise, and says nothing about how that may be developed, as opposed to integrated into multi-disciplinary enquiry, we might here be in danger of beginning to lose that teacher expertise which is the basis of all valid assessment.

I'll come back to the importance of the disciplines.

(2) Motivation

So that was an outline of the implications for assessment of the importance of student's self-belief.

As important in the Curriculum for Excellence philosophy as self-belief is motivation, and so I turn now to the implications which that theme has for assessment.

There's both a negative and a positive point to be made here to start with.

(2a) Problem solving³

The positive one is that successfully solving puzzles is motivating in its own right,

as is – at a higher level – successfully acquiring a framework of understanding of any complex domain of knowledge.

Human beings do genuinely seem to be innately problem-solving animals.

It is that which sustains people through a task once they have decided to embark on that task.

Motivation, if it is to be sustained, has to come from a pleasure in the minutiae of the learning.

³ Main sources for this sub-section are: Bransford et al (2000), op. cit.; Ericsson, K., Krampe, R. and Tesch-Römer (1993), 'The role of deliberate practice in the acquisition of expert performance', *Psychological Review*, 100, pp. 363-406; Ericsson, K. (2004), 'Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains', *Academic Medicine*, 79, pp. S70-S81.

And the point here is that this is about the satisfaction of achieving, which depends on assessment:

it depends on being judged by an expert, or by a test devised by experts, that we have reached a certain level of accomplishment.

We might call this formative assessment if we say also that the pleasure of success encourages us to the next task.

But it's not really formative: it is fundamentally summative, and is formative only to the extent that it is summative, that it tells us that we have achieved something worthwhile.

So formal, expert, summative assessment is highly motivating,

giving us the satisfaction, if we are successful, of knowing that we have reached a level that is recognised by authorities whom our very learning tells us are to be admired,

and, if we are not successful, giving us the reassurance that we have failed a worthwhile task and that the values by which we have been judged are our own insofar as we have accepted the informing values of the course of study on which we are engaged.

Failing in that sense is bound to be a spur to further effort, precisely because we have accepted those values.

(2b) Extrinsic motivation⁴

But there is also a negative aspect of this point about motivation.

This is that the motivation that dominates in the Curriculum for Excellence philosophy is extrinsic:

whether that be through perceiving the practical use of some piece of learning,

⁴ Main sources for this sub-section are: Schunk, D., Pintrich, P. and Meece, J. (2007), *Motivation in Education: Theory, Research and Applications*, New York: Prentice Hall; Pintrich, P. (1999), 'The role of motivation in promoting and sustaining self-regulated learning', *International Journal of Educational Research*, 31, pp. 459-70; Wolters, C. and Pintrich, P. (1998), 'Contextual differences in student motivation and self-regulated learning in mathematics, English, and social studies classrooms', *Instructional Science*, 26, pp. 27-47.

or through seeing that a course of study has vocational value,
or for the purely instrumental reason that passing examinations takes
you to the next level, to university or college.

The problem, however, is that extrinsic motivation is not nearly enough.

What research on this shows is that perceiving the extrinsic value of a
task is indeed persuasive in getting people to undertake the task in
the first place;

but that motive is simply not strong enough to sustain their attention
through any but the most trivial of tasks.

(2c) Authentic Assessment

The implications for assessment of both these points about motivation, as
for self-belief, are that assessment works as an aid to learning when
it is authentic and challenging:

it is only then that we might say that assessment truly is for learning.

It has to point students towards the importance of getting to grips with
those details that form of the essence of every subject of study, of
every acquired body of expertise.

Assessment based on anything more nebulous than these important
technical details will not truly develop sound learning:

(i) applied projects without the technical underpinnings of the theory
and of the practical context will be amateurish;

for example, under the topic 'inheritance' in 'Biological
Systems' at level 4, one outcome is:

'Through investigation, I can compare and contrast how
different organisms grow and develop.'

Comparing and contrasting are not techniques in themselves:

what matters is valid comparison, and the gathering of
valid evidence, and it is these specific technical skills
that need to be assessed, not merely investigating and
comparing, terms which could be as readily used of
the Victorian gentleman amateur as of the modern
professional scientist.

(ii) ethical debates without clear criteria of objectivity and evidence will be impossible to assess reliably;

for example, at level 4 of 'People, Society and Business', one outcome is

'I can critically analyse the relative importance of the contribution of individuals or groups in bringing about change in a significant political event',

to which the response is 'why only bringing about change'? Why not resisting change? What do we mean by 'critically analyse'? What does 'significant' mean?

(iii) aims that, with the best of intentions, seek to get beyond the merely routine will skate over the surface unless the contributing expertise has been properly grounded;

for example, in Drama we are told that learners will 'have rich opportunities to be creative and to experience inspiration and enjoyment'.

How do we assess learners' experiences in any objective way? If someone tells us that they have been inspired and have enjoyed themselves, isn't that just the end of the story, regardless of what anyone else might judge?

Isn't what is lacking here some objective criteria of performance and of aesthetic quality?

By forcing students to pay attention to these details when they are studying, assessment can encourage their motivation in the only way that matters for learning;

and if we don't force attention to technical details, then how can assessment provide any assurance that anything worthwhile or lasting has happened at all?

But there are then two very large concerns about whether the proposed new systems of assessment can achieve this neat link from assessment through motivation to learning.

(2d) Literacy and Numeracy Tests

The first has to do with the proposals to have assessment of numeracy and literacy

In one important sense these are welcome.

They do recognise the importance of those detailed, technical, craft-like skills which underpin valid knowledge and the valid use of knowledge.

And – despite much criticism – these proposals seem to understand that a well-designed assessment can encourage students to learn:

adapting a trite cliché of this debate, if we know that our pig is to be weighed then we will do all we can to fatten it up.

In that sense, these proposals on literacy and numeracy are in principle admirable,

although will be admirable in practice only if the assessments do manage to encourage students to grasp the necessary technical skills.

So my main concern about the tests of literacy and numeracy is not that they are being proposed but that they are separated from the disciplines in which they might characteristically be applied, and in which they have their fullest expression,

notably English and mathematics.

These new tests therefore potentially encourage the notion that the disciplines don't require attention to hard, technical skills.

The tests, being only two in number, tend also to discourage an understanding that all disciplines require distinctive technical skills:

the skills of the laboratory or other kinds of data-gathering;

the skills of deploying the body and the voice in drama;

the physical skills of sport;

the practical skills of art or engineering or cookery.

Most worthwhile learning has something analogous to the skills of literacy and numeracy,

and although these two might be the most fundamental, these others need attention through assessment as well.

These tests are welcome for motivation because they do direct attention to technical details.

But they are not enough.

(2e) Levels of Assessment

An even larger concern than this – and still relating assessment to the question of motivation – is the matter of the level at which students are presented for assessment.

For assessment truly to be an aid to learning, the tasks of assessment have to be designed carefully so that they match the level which the student is at and so that they stretch the student into the feasible zone of proximal development into which she is ready to enter.

That requires not only that the tests match the syllabus but also that they match the student.

The problem in practice then is that the neat matching of tests to student ability that the designers of assessment might seek to achieve may well disintegrate in context if schools do not follow these centrally defined rules.

And the reason to fear that that will happen is the well-entrenched aspect of Scottish educational culture which has been called the tendency to over-presentation – to present students at the highest level at which they have even a small chance of succeeding,

rather than at the level that the designers of the assessment have attuned to their current understanding.

That has been going on for a century, and so is not going to stop now.

Consider the weight of evidence going back:

We find it in the current system. According to Tinklin, Raffe and Howieson⁵,

Of those students in local authority schools whose average Standard Grade attainment was General, 36% took Highers in S5, which

⁵ Table 6 in Tinklin, T., Raffe, D. and Howieson, C. (2002), *Analyses of SQA Data on Higher Still for 1999-2002*, CES, Edinburgh University: Working Paper 13 of the project The Introduction of a Unified System.

is one level beyond the level that is supposed to follow from General.

Of those whose average Standard Grade attainment was Foundation, 41% took Intermediate 2 courses or Highers, one or two levels beyond what is meant to be.

The same continued into S6:

of those whose modal level of study in S5 was Intermediate 1, 27% took Higher or Advanced Higher in S6, again at least one level beyond where they were meant to be.⁶

The same phenomenon was evident in Standard Grade:

whereas the Dunning committee of 1977 that devised Standard Grade estimated that the proportion who would gain Credit awards would be about 10-20%⁷, we may calculate from the research on Higher Still by Tinklin, Raffe and Howieson⁸ that in 2002 about 36% of students had average Standard Grade attainment at Credit, which is almost a doubling of the intention.

Over-presentation at O Grade was the reason why the Dunning committee was set up and why we have Standard Grade now:

the Dunning committee reported that, by 1976, over three quarters of S4 students were taking at least one O grade, and 60% were achieving at least one, whereas the original intention was that the O grade would be suitable for the top 30% of the age group.⁹

Even further back, we find in the archives a continual battle being fought between schools and parents who wanted children to have

⁶ Table 15 in Tinklin, T., Raffe, D. and Howieson, C. (2002), *Analyses of SQA Data on Higher Still for 1999-2002*, CES, Edinburgh University: Working Paper 13 of the project The Introduction of a Unified System.

⁷ p. 76 in Scottish Education Department (1977), *Assessment for All: Report of the Committee to Review Assessment in the Third and Fourth Years of Secondary Education in Scotland*, Edinburgh: HMSO.

⁸ Table 6 in Tinklin, T., Raffe, D. and Howieson, C. (2002), *Analyses of SQA Data on Higher Still for 1999-2002*, CES, Edinburgh University: Working Paper 13 of the project The Introduction of a Unified System.

⁹ p. 15 in Scottish Education Department (1977), *Assessment for All: Report of the Committee to Review Assessment in the Third and Fourth Years of Secondary Education in Scotland*, Edinburgh: HMSO.

opportunities, even the opportunity to fail, and official policy that wanted neater match of courses to ability.

Much of this history may be traced through the admirable archival research by Henry Philip that the SQA sponsored.

This history of schools' presenting students at the highest feasible level is, more fundamentally, a consequence of schools' role in social selection, having to grade people in as finely distinguished a manner as possible in order to aid their recruitment into subsequent educational courses or into jobs:

indeed, in a system of comprehensive secondary schooling, the main sifting role is performed by terminal examinations.

It is no help to anyone – able students included – to have a clustering of attainment at the top end of any scale of measurement.

We may infer three things about assessment and motivation from this long-standing Scottish predilection for presenting students at a level that will stretch them, even if that risks failure:

(1)

One is that it is highly unlikely to go away now, and so it is as safe as any prediction can ever be in social science to expect that there will be no neat matching of National levels to prior attainment or onward to courses in S5:

many students who ought to be taking National 4 courses in S4 will do National 5 courses, and many who have only National 4 attainment in S4 will do a Higher in S5.

The situation may even be worse in this respect than in the current system insofar as the merging of Intermediates with Standard Grades removes one element of flexibility in S5:

whereas at present a student who just scrapes a Credit in Standard Grade might take an Intermediate 2 in S5 rather

than go straight to a Higher, in the new system there will nowhere to go after a National 5 course in S4 other than Higher.

Tinklin, Raffe and Howieson found that among students with average Credit attainment at Standard Grade, 11% of the courses they took in S5 were not further up the ladder in the sense that they were at Intermediate 2 or lower rather than Higher.

Such students would be forced in the new system to do Higher.

This too is over-presentation, but concealed within the less finely differentiated structure that is being proposed.

If over-presentation does persist in these various ways, then any hope we have of using assessment to encourage motivation in carefully targeted ways would be futile.

(2)

The second inference concerning presentation at levels above the designed one is about Advanced Higher, although this is a less certain.

It is likely that we will begin to see the pushing of students of more modest ability into risking an Advanced Higher, especially if these were to start to be recognised more explicitly by universities,

and so the recent up-grading of the AH in the UCAS tariff to a score above that of A level may be highly significant.

The Baccalaureate may, if it proves attractive, have a similar effect.

And we would know too, again from the research by Raffe and colleagues, that there would be scope for this happening in a broad range of schools:

there has not been any tendency for schools to be segregated into ‘Advanced Higher’ as against ‘Intermediate’ schools.¹⁰

(3)

The third inference is the obverse of the risk-taking that is entailed by presenting students at the highest feasible level: the insistence on not by-passing any safety net that is on offer:

so, as certain as that there will be presentation at ambitious levels is that there will be almost no by-passing of National 5 courses by able students en route to a Higher in S5,

and so over-presentation paradoxically entails simultaneously under-presentation.

Moreover, the tendency for a safety net will be towards National 5, not National 4, creating further complications.

The reason for this is the fact that the National 4 courses are to be ungraded and internally assessed, and hence will have lower status than the National 5 courses.

The last time we had an experiment of this sort was with the National Certificate modules in the late 1980s, which were ungraded and internally assessed.

By the late 1980s, 87% of S5 students and 68% of S6 students were registered for modules.¹¹

But, in the words of David Raffe, they were ‘largely complementary or interstitial in relation to Highers’, and were regarded as low status and undemanding.

¹⁰ pp. 13 and 29 in Raffe, D., Howieson, C. and Tinklin, T. (2005), *The Impact of a Unified Curriculum and Qualifications System: The Higher Still Reform of Post-16 Education in Scotland*, CES, Edinburgh University: Working Paper 14 of the project The Introduction of a Unified System.

p. 6 in Raffe, D., Howieson, C. and Tinklin, T. (2004), *The Normalisation of Higher Still: Findings from Surveys of Schools and Colleges in 2000-01 and 2002-03*, CES, Edinburgh University: Working Paper 11 of the project The Introduction of a Unified System.

¹¹ p. 4 in Raffe, D. and Howieson, C. (1999), ‘The Scottish Experience of Reform: From “Action Plan” to “Higher Still”’, in Hodgson, A. and Spours, K. (eds) *Dearing and Beyond: 14-19 Qualifications, Frameworks and Systems*, London: Kogan Page, pp. 177-93.

The distrust of wholly internally assessed courses will not have been alleviated¹² by the repeated findings in successive years of the Scottish Survey of Achievement that teachers are not accurate in their judgements of students' attainment, although this evidence relates only to early secondary and to primary:

eg in 2007, at S2, teachers judged that about 60% of students were operating at levels E or F, whereas the tests conducted as part of the survey showed that only about 17% were doing so.

The tendency in this situation will be therefore to encourage presentation at the higher-status National 5 level even of very borderline candidates.

Moreover, despite this, the new structures will remove the safety nets of overlapping levels that have been at the heart of Standard Grade:

for students who are borderline National 5, the dilemma will be that to present them at National 4 as well (analogously to presenting Credit candidates at General as well as Credit) will be to run counter to all the overly neat principles that have contributed to the design of the new structures.

And so, oddly enough, a tendency that arises in order to secure a safety net associated with over-presentation might end up providing a less secure net than the General level of Standard Grade currently provides.

The ungraded nature of the National 4 assessment might not have such an effect on courses taken in further-education colleges, where the impact of Higher Still has been less than in schools and where there is a much older and more firmly established practice of using ungraded, internally assessed modules.

This is what David Raffe means by the dominance of 'institutional logic':

¹² I owe this observation to my colleague Fiona O'Hanlon.

the reaction to the new structure of assessment will be shaped not only by the intentions of its designers, trying to match assessment to students' understanding, far less by the wishes of politicians, but much more by the social roles of the institutions responsible for teaching the courses.

In short, again, this predilection for safety nets will lead to far too many students' sitting assessments that are below their level, thus harming their motivation by boring them,

and, for students who do need the safety net, its rather more threadbare structure in the new system than we currently have will harm their motivation by inducing that unhelpful anxiety which comes when the zone of proximal development is misjudged as extending further than the student is actually capable of.

So, interfering with the neat designs, and hence with the capacity to use assessment to encourage learning, we will have over-presentation, because students will sit the highest feasible level at which their school judges them to have even a small chance of success.

We will have under-presentation,

because students will simultaneously sit lower levels than they are capable of, in search of a safety net.

And we will have over-presentation within the under-presentation,

because National 4 assessment will have lower status than National 5 assessment, or than the General level of Standard Grade.

In summary of these several points about motivation, we may say both that, in order to be motivating in an educationally worthwhile way, assessment has to be carefully tailored to the details of the syllabus and to the prior achievement of the student, and that the practical realities of schools, students and the structure of opportunity makes these ideal conditions almost certain not to be fulfilled.

(3) Disciplines¹³

My last set of comments is about the role of assessment in Curriculum for Excellence concerns the matter of the subject disciplines.

Much controversy has been generated by this, and when it has been claimed that Curriculum for Excellence does not respect the integrity and importance of the disciplines – of the inherited map of knowledge – this has been strenuously denied by those in charge of the reform and by the advocates of the reform.

I don't intend to return to this controversy today, but I would ask questions about the relationship between assessment and the disciplines, and about the implications for the current system of disciplines of the proposed reforms to assessment.

(3a) Assessment and the structure of disciplinary knowledge

The first point I would make is that meaningful assessment presupposes some structure of disciplinary knowledge:

unless tests are to be merely of self-contained small bits of knowledge, they are bound to relate to a wider structure of thought.

Take some examples:

(i) Why do we test students on their knowledge of quadratic equations?

It's not because these are like a sort of Sudoku puzzle, sufficient in itself and pointing to nothing beyond itself.

It's because quadratics relate in several ways to more general principles: to the properties of all the higher-order polynomials, to the properties of graphs, to the workings of calculus.

And these in turn lead to the highest reaches of the mathematical discipline, to measure spaces and topology and functional analysis.

¹³ For this section, see chapters 2 and 7 of Bransford et al (2000), op. cit; also Schwartz, D. and Bransford, J. (1998), 'A time for telling', *Cognition and Instruction*, 16, pp. 475-522; and Ryan, A., Pintrich, P. and Midgley, C. (2001), 'Avoiding seeking help in the classroom: who and why?', *Educational Psychology Review*, 13, pp. 93-114.

In other words, quadratic equations are propaedeutic, a way of starting on important paths that have no intrinsic limit even if most students will choose not to go very far along them.

Worthwhile assessment of a student's knowledge of quadratics will therefore have to make sure that these principles are laid down.

- (ii) Why do we ask students to prepare a folio of reading and writing about their reading?

It's not as an exercise in taking part in a book-reading group, however enjoyable these might be.

It's because the reading we do in our teenage years lays down the beginnings of an understanding of the techniques that imaginative writers deploy, of the genres in which they deploy them, and of the range of human dilemmas on which they exercise their powers.

These forms of understanding make full sense only in the context of a canon of defining works that display the language with its most expressive powers, and that provide the insights into the human condition of some of the finest minds that have thought about it.

Few students will follow these first glimpses right to the end, but the glimpses are not mere random flashes: to be certificated as being literate requires that a student shows some understanding of what the language at its best is capable of.

- (iii) Why do we ask students to develop some understanding of the facts of the natural world and of the theories that link these facts together?

It's not like a sort of pub quiz of animals, plants, elements or forces.

It's because science is not only one of the supreme and beautiful intellectual accomplishments but also because it is uniquely powerful in explaining and manipulating the universe in which we live.

Understanding what electricity is does not merely offer opportunities for fun: the tests we make of whether students have understood the fun, as opposed to merely

appreciating it as entertainment, must point to what electricity is an instance of:

the movement of electrons;

the properties of those classes of substance that we call conductors;

the power that such understanding gives us for good and bad acts.

These are the senses in which assessment presupposes a structure of disciplinary knowledge.

They are why a syllabus is required for any meaningful assessment that is able to lead onto anything further:

the map of knowledge shows not only the main routes across the countryside – the subjects – but also, in the syllabus, the places and vistas that we encounter along the way.

The syllabus is the detailed implications of the logic of the discipline,

and we might know that an assessment is a valid test of a student's knowledge of the discipline if the test selects bits from each major components of the syllabus.

Yet you will find nothing whatsoever about syllabuses in Curriculum for Excellence.

Holding to the structure of disciplinary knowledge is, especially through the syllabus, also the only meaningful way in which assessment might truly be for learning:

if learning requires metacognition – thinking about how and what one is learning –

then assessment should test that too,

but metacognition requires that the learner understands the characteristic norms, values, methods and forms of knowledge in the discipline in question:

thinking about our knowledge in mathematics will not get us very far when thinking about the quite different knowledge we get in literary studies,

and mathematical metacognition will not allow us to understand the empirical content of science.

So if assessment is to help students to learn, then it has to help them to develop their understanding of the meaning of a discipline.

I see no recognition of that in any of the voluminous documentation surrounding Curriculum for Excellence, nor, it should be said, in the rather sparse documentation that has emerged so far concerning the new National Qualifications, although most public debate about these has simply presupposed that they will relate to broadly the same subjects (or disciplines) as the current National Qualifications assess, and hence has presupposed a fundamental point about the relationship between the curriculum and assessment without really debating it properly.

(3b) Loss of Extension of Access

Now this potential serious atrophy of the place of the disciplines in assessment is all rather tragic, because one of the signal successes of the three decades of reform to Scottish examinations between the 1960s and the 1980s was the gradual extension to a majority of the population of some inkling of the map of knowledge.

Standard Grade extended access to the core subjects of the curriculum for almost all pupils for the first time ever, a change that had particularly beneficial effects on students from families of low socio-economic status:

Thus, as a direct result of reform, according to Adam Gamoran's research¹⁴,

two thirds of students from the lowest-status families were taking English, up from one half;

and two thirds of such students were taking mathematics, up from one fifth;

¹⁴ Gamoran, A. (1996), *Improving Opportunities for Disadvantaged Students: Changes in S4 Examination Results, 1984-1990*, CES, Edinburgh University: Briefing Number 6.

in each of these subjects, students from the highest-status families were almost certain to take English and mathematics, and so inequality moved from two-fold or five-fold to just about 1.5 to 1.

In science, measured as the average number of awards in any science subject, inequality halved from about 7 to 1 to about 3.5 to 1.

That was Standard Grade. At much the same time, as Linda Croxford has shown, the curricular framework of 5-14 was even more impressively extending access to a broad curriculum to most students, with particularly beneficial effects not only on students from families of low socio-economic status but also on girls¹⁵:

between the late-1970s and the early 1990s, the proportion of pupils who studied any science moved from around two thirds to nearly 100%, but within that girls had moved up from 50%;

the proportion who studied any social subject moved from three quarters to 100%;

and the proportion studying any technology rose from two thirds to three quarters, in this case similarly for boys and girls.

Both the effects of Standard Grade and the effects of 5-14 show the importance of compulsion:

because taking a non-English language was never really compulsory, the equalising of access was not nearly so pronounced, so that in 5-14 the proportion barely changed during the 1980s (at about 40%) and the gender gap – this time in favour of girls – remained 15-20%.

More modestly, as has been shown by Teresa Tinklin, David Raffe and Cathy Howieson, one effect of the Higher Still reforms has been to make the divide between mainly academic and mainly vocational curricula beyond S4 slightly less pronounced:

students whose average S4 attainment was at Standard Grade Credit level studied more vocational subjects than previously, whereas

¹⁵ p. 381 in Croxford, L. (1994) 'Equal opportunities in the secondary school curriculum in Scotland', *British Educational Research Journal*, 20, pp. 371-91.

students whose average attainment was at Foundation level came to study more academic subjects.¹⁶

Indeed, the most important success of the Higher Still reforms has been that they have extended the success of Standard Grade and 5-14 in providing opportunities for students of middling ability to take well-designed course in S5 and S6.

In particular, the Intermediate courses provide stepping stones beyond Standard Grade to a Higher in S6, a vast improvement on the highly unsatisfactory two-year Higher that had been the only thing that schools could provide to the students whom Standard Grade had brought to this level for the first time.

This experience was contained in some of the statistics I mentioned earlier, but we may state it more explicitly by noting, again from the research by Tinklin, Raffe and Howieson that, during the first few years of the implementation of Higher Still, there was a steady increase in the number of courses taken in S5 and S6, but that this was greater among students with average Standard Grade attainment at General level, and even greater among those whose average was Foundation.¹⁷

That is, the framework of Higher Still has allowed most students to move up from their previous attainment:

97% of students at Foundation level moved to SCQF levels 4 or greater;

86% of students at General level moved to levels 5 or greater;

and this reform was not at the expense of the most able, because 89% of Credit students move to level 6 or greater, as they had always done.

As the authors commented:

‘The availability of new levels ... made it easier for middle- and low-attainers to take courses at an “appropriate” level, and the main effect was an increase in the total volume of SQA-

¹⁶ p. 25 in Tinklin, T., Raffe, D. and Howieson, C. (2002), *Analyses of SQA Data on Higher Still for 1999-2002*, CES, Edinburgh University: Working Paper 13 of the project The Introduction of a Unified System.

¹⁷ Table 6 in Tinklin, T., Raffe, D. and Howieson, C. (2002), *Analyses of SQA Data on Higher Still for 1999-2002*, CES, Edinburgh University: Working Paper 13 of the project The Introduction of a Unified System..

certificated study rather than a substantial shift away from Highers.’¹⁸

This in turn built upon another feature of previous reforms, the Action Plan of 1984 that led to the Scotvec National Certificate modules, which began the process of providing meaningful courses in S5 to students of middling ability:

as we noted earlier, the proportion of S5 students taking modules reached 87% as early as 1989.

4. Conclusions

The importance of all these achievements – Standard Grade, 5-14, Action Plan and the Intermediates – were that they almost realised a century-old hope, that everyone might be entitled to understand something of the map of knowledge,

to gain some appreciation of the best that has been thought and said.

In the words of the Munn report of 1977 that provided a sound philosophical base for the curricular reforms of the 1980s:

the curriculum should be designed ‘in the light both of epistemological theory and of practical experience’, and hence should be based on ‘certain modes of activity which constitute ... distinctive ways of knowing and interpreting experience’,¹⁹ and to this end they doubted that ‘socially relevant issues can really be explored without making use of the insights provided by the various traditions of intellectual enquiry’,²⁰ in other words the various disciplines.

This now seems to be on the verge of being abandoned:

¹⁸ p. 14 in Raffe, D., Howieson, C. and Tinklin, T. (2005), *The Impact of a Unified Curriculum and Qualifications System: The Higher Still Reform of Post-16 Education in Scotland*, CES, Edinburgh University: Working Paper 14 of the project The Introduction of a Unified System.

¹⁹ p. 23 in Scottish Education Department (1977), *The Structure of the Curriculum in the Third and Fourth Years of the Scottish Secondary School*, Edinburgh: HMSO.

²⁰ p. 17 in Scottish Education Department (1977), *The Structure of the Curriculum in the Third and Fourth Years of the Scottish Secondary School*, Edinburgh: HMSO.

It is being abandoned in the sense that the curriculum is now being defined, not in terms of this map of knowledge, but in terms of applications, of uses, or even of student interests.

It is being abandoned also in the more mundane sense that there will, it seems, no longer be a prescribed breadth – in terms of subjects – to the curriculum up to age 16.

And it is being abandoned because there will not be time in the new S4, or between it and S5, for the pursuit of both breadth and depth in the way that has been achieved by Standard Grade followed by Higher, augmented now for many by the scaffolding of the Intermediates.

These changes might not matter so much if they were the price to be paid for a better matching of assessment to learning,

an assessment that motivated students more effectively and in a manner that was more educationally worthwhile,

or an assessment that promoted their self-belief in the only way that matters educationally,

as the belief that comes from the sense that you have accomplished something truly worth doing,

but for the reasons I have also outlined earlier today, I am sceptical that that will be achieved either.

I cannot see how the assessment that would be required by the principles of Curriculum for Excellence can be realised in the context we are in or by the proposals for the National Qualifications that have been made.

And without valid assessment, can Curriculum for Excellence really be said to be feasible at all?