



WHAT WORKS IN INNOVATION IN EDUCATION

SCOTLAND: DEVELOPING A COHERENT SYSTEM OF ASSESSMENT

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NOT FOR CITATION

Background Information on Scottish Schools and Assessment

Schools and Quality Assurance

More than 90% of all young people attend public sector schools, the rest various types of independent school. All schools are subject to inspection (published reports) about every six years (secondary) or seven years (primary) by Her Majesty's Inspectors of Education (HMI). Inspections cover all aspects of school life, including the quality of courses at each stage; learning and teaching; formative and summative assessment; student guidance; ethos and relationships within the school and among the school, parents and community; all aspects of management, self-evaluation, staff development and development planning. Since the late 1980's, HMIs have also published advice for schools and Councils on self-evaluation and development planning, including the Quality Indicators which they use themselves in inspections. All Councils and most public sector schools have developed self-evaluation and planning strategies using this advice. Thus, there exists a three-level system of school evaluation and improvement action – school self-evaluation and planning; the Council's accountability requirements and support; and the HMI inspection programme.

Curriculum

Students follow the Scottish school curriculum in three stages: 5–14; Standard Grade (14–16); and National Qualifications (16+).

5–14 (seven years of primary school and two of secondary)

Implemented since the early 1990s, there are 5 curricular areas: English Language, Mathematics, Environmental Studies (including science, social studies and technology), Expressive Arts (including art and design, music, drama and physical education), and Religious and Moral Education. Progression through five levels of defined attainment targets, A to E, plus a more advanced level F, for high attainers.

- Level A: attainable in the course of P1 to by almost all students
- Level B: attainable by some students in P3 or even earlier and by most in P4
- Level C: attainable in the course of P4 to P6 by most students
- Level D: attainable by some students in P5/P6 or even earlier and by most in P7
- Level E: attainable by some students in P7/S1 and by most in S2
- Level F: more challenging attainment targets for those beyond Level E.

This approach takes into account the varying speed with which children progress and recognises that teachers usually have to meet the needs of children with a wide range of previous achievement. "Most" is taken to mean 75%. The published Programmes of Study for each curricular area include quite detailed guidance on well-planned courses. They also provide many ideas on effective learning and teaching. However, though almost all public sector schools plan the curriculum using the national guidelines, only a few pay close attention to the teaching guidance. Rather, they tend to acquire and work through commercial or Council resources as the basis of their work in each curricular area.

Standard Grade (ages 14–16, secondary years 3 and 4)

Implemented since the mid 1980s, Standard Grade includes two-year courses, typically in 7 or 8 subjects of students' choice, leading to certification (by the Scottish Qualifications Authority – SQA) at one of three levels: Foundation; General; or Credit. There is now some flexibility allowing schools to offer the new National Qualifications courses/modules or other kinds of provision (e.g., vocational experience), if they consider them to be more appropriate for their students.

National Qualifications (16+, secondary years 5 and 6, but overlapping with S Grade levels)

Implemented since 2000, there is one common framework for all qualifications: a structure of modules and courses (which consist of 3 modules) for all academic subjects and vocational areas at each of a progressive set of levels: Access, Intermediate 1, Intermediate 2, Higher and Advanced Higher. An important aim is to give equality of status to vocational and academic qualifications. Schools typically provide opportunities to take the modular courses in up to five subjects in S5 at Intermediate or Higher levels and in S6 to move to the level above that achieved in S5. There is also provision in many schools for students to take “crash” courses at Intermediate or Higher levels in subjects they did not take at Standard Grade. There are very significant differences in the way that attainment is assessed and certified under National Qualifications arrangements, compared with the old Higher examination.

1. Assessment in Scottish Education

A strength, at least potentially, of assessment arrangements is the advice given to teachers in all three of the 5–14, Standard Grade and National Qualifications developments. This advice was distributed to all schools, and there were various types of staff development events to promote good practice. The aim was to develop a sophisticated professional understanding of the significance of formative assessment and approaches to it and of ways of ensuring valid and reliable summative assessment which drew on classwork but did not dominate it.

The National Guidelines on Assessment 5–14 encouraged teachers to think systematically about assessment as an integrated part of the complex process of learning and teaching. A central feature was the promotion of the idea that most classroom assessment should be “assessment as part of teaching”. Summative judgements about attainment of the 5–14 levels should be only occasional and based on a large amount of classwork. In English Language and Mathematics, when it is clear that a student's classwork showed full command of the level, the teacher is to select a National Test (now called National Assessments, but in a similar test format), available from SQA, and use it to confirm her/his judgement. Teachers administer a test when they consider it appropriate: there is not to be a “test day” for all at the same time. It is recognised that the test can sample only a fraction of the learner's attainment: the main evidence is in classwork and teachers' assessment of it. National advice also includes “Taking a Closer Look” diagnostic procedures which are to fit naturally into day-to-day teaching. Based on the principle that a teacher can find out much more about processes of learning through discussion with a child than by using a test, no matter how well designed, these suggest “areas for exploration” in students' learning processes, types of questioning to carry out the exploration and “next steps” on which the learner and the teacher might agree. There was a national launch of the packages, and representatives of all Councils attended staff development events. However, because of concerns about teachers being overloaded with too many documents, the materials were not delivered to every school, as the National Guidelines had been. Instead they were made available free to any school which asked for them through a quarterly publication of the national curriculum support organisation. The result was that few teachers actually knew about or saw the materials. They have been used by even fewer.

An important strength of Standard Grade assessment is that it is, in essence, criterion referenced. The SQA examiners do still use elements of norm-referencing in deciding the final grades in several Standard Grade subjects, but they also take into account defined criteria of success for each of the Foundation, General and Credit levels and for the two grades within each of these levels. Teachers of all subjects have access to these descriptors, and many make at least some use of them as learning targets for students, specifications of what they are aiming at to achieve the level above the one they are currently achieving. Standard Grade assessment contains teachers' internal summative assessment, moderated by SQA, of aspects of some subjects which do not lend themselves to external examination, for example, Talking in English. In some subjects students also produce portfolios of course work, which are submitted for external summative assessment. These internal assessment and portfolio elements also contributed to developing teachers' awareness, experience and skill in judging students' performance against defined criteria. All schools and Councils received, as part of the Standard Grade support materials, a paper on Assessment as Part of Teaching, which advocated similar approaches to those later built in to the 5–14 system. Staff development activities for school managers on the effective management of the Standard Grade assessment arrangements promoted the principles of formative assessment as crucial to learning and teaching.

The new National Qualifications have, in the last three years, brought into schools some new assessment requirements. Principally, these involve internal summative assessment of three modules of work in each subject, on an "Achieved/Not Achieved" basis. This internal assessment is an essential part of the certification process: students cannot achieve a grade for the whole course through the external examination without passing the internal modules. Teaching and assessment support materials distributed to schools in the course of the development of the new 16+ system, as before, include advice on assessment as part of teaching, as well as on summative assessments and means of standardising them. A key factor, which has generally increased the time spent in school by S5/S6 on summative assessment tasks, is teachers' new responsibility for pass/fail decisions on module tasks contributing directly to the certification of students' attainments, often alongside continued use of practice external examinations.

In addition to guidance related to national curricular and assessment developments, Scottish teachers receive a good deal of advice on learning, teaching and assessment. Learning and Teaching Scotland, university staff and private consultants offer a wide range of staff development activities. Individual Councils may promote particular learning/teaching approaches in their areas. Four key Quality Indicators used by HMI and widely used also in school self-evaluation focus on:

- The teacher's action, to ensure good planning, identification and communication of learning aims, clear explanations, effective direct teaching and interaction with learners through questioning and discussion which promote learning;
- The learners' action – the extent to which they are motivated by the work, involved actively in independent thought, engaged with others in collaborative learning;
- Meeting learners' needs – the appropriateness of the tasks set for facilitating real progress in knowledge and skills, the appropriateness of the challenge presented to learners at different stages of progress, the appropriateness of the support/scaffolding provided to help learners to meet the challenges;
- Assessment as part of teaching – the use of informal and formal assessments to guide future learning and teaching.

2. *Current Debates Relating to Assessment*

How Widespread is Good Formative Assessment?

There has always been a range of quality of provision. Teachers who implemented effective formative assessment were sources of the guidance offered over the last 20 years and such teachers are scattered round the schools system today – sometimes in quite large clusters, in particular primary schools or secondary departments.

HMIs record their evaluations for each indicator on a four-point scale: Very Good, Good (more strengths than weaknesses); Fair (some strengths, but more weaknesses); and Unsatisfactory. The most recent secondary Standards and Quality Report (2002) indicated that about 80 per cent of HMI evaluations relating to these four indicators were in the Good (by far the largest number) or Very Good categories and about 20 per cent in the Fair. This is overall a positive picture, but it does indicate considerable room for improvement from Fair to Good and from Good to Very Good. “Fair” is more frequent for the learner’s experience and meeting the learner’s needs than for the teacher’s direct action. The indicator on assessment covers both formative and summative arrangements and often emerges as Good, because the latter are effective. However, HMI often comment on inadequate or unhelpful feedback on students’ work or on failure to convey a high enough expectation of standards through the response to it. They also highlight inadequate challenge in the tasks set and too low expectations of the amount and quality of students’ independent and/or collaborative work. In the recent “Improving Writing 5–14” report, HMIs argued that the best feedback practice they had seen involved teachers (and sometimes other students) in influencing students’ work as they were doing it, in situations where regular interaction and “conferencing” had been established. They contrasted this with the traditional marking of completed work and giving comments, which students often ignored, even if constructive, when they came to do the next piece of work.

Does the National System of Target Setting Impede Formative Assessment?

Many headteachers and classroom teachers hold the view that the national system of “target setting” for all primary and secondary schools encourages them to focus on summative assessment. This system seeks to ensure that in self-evaluation, schools address directly the issues of student attainment and teaching and learning action to improve it, rather than just the less intractable issues, such as the social ethos of the school, its relationship with parents or the improvement of resources. In principle, improvements in attainment should be achieved by improving the quality of learning, teaching and formative assessment in the school’s general work. Some of this does happen. There are also, however, disadvantages of target setting and concentration on test/examination performance. Some, perhaps many, teachers and school managers seem to regard action to develop really effective learning and teaching as separate from, or even inimical to, their need to improve results.

The focus on results appears also in many cases to have led to a tendency for headteachers to pressure their staff to set 5–14 National Tests before they have gathered the necessary classwork evidence that students have fully achieved the relevant level. It is possible for students to succeed in a test, which samples only part of the range of skills required for a level, without actually having acquired all of them. This may well be one of the reasons why the range of both formative and (teachers’) summative assessment practices recommended in the 5–14 Assessment Guidelines is seldom found. Other reasons may include belief that much formal, recorded evidence is necessary to assure monitors of their work that there is appropriate accountability; and inadequate staff development to ensure the necessary understanding and skills base for effective formative assessment. Formative Assessment within the “Assessment Development Programme”

The Assessment Development Programme follows a review of the 5–14 assessment system and a national consultation on its findings. There was widespread support for the principles of the 5–14 National Guidelines on Assessment. Concerns mainly had to do with ways of making assessment manageable, ensuring effective staff development and improving the rigour of the National Tests, without giving them a more significant role than the 5–14 Guidelines originally envisaged. Teachers, Council staff, parents' representatives and other stakeholders who took part in the consultation appear to have a quite sophisticated awareness of the nature of good formative and summative assessment. There may be practical problems in making very effective assessment happen, but there does seem to be a generally positive attitude towards it.

The primary aim of the Assessment Development Programme is to integrate the existing approaches and policies into a more streamlined and coherent system. The programme, which is running in three phases to December 2003, consists of 10 projects, all of which, it is intended, will eventually coalesce in one system.

- Support for Professional Practice in Formative Assessment
- Personal Learning Plans
- Support for Management of Personal Learning Plans
- Gathering and Interpreting Assessment Evidence
- Local Moderation
- New National Assessment (an on-line “bank” of assessment materials, based on Assessment of Achievement Programme tests and tasks, to replace the current National Tests)
- Assessment of Achievement Programme (to continue and update SEED's existing AAP monitoring programme)
- ICT Support for Assessment
- Reporting to Parents and Other Teachers (to link reporting to the Personal Learning Plan framework and propose a common format for reports)
- Meeting the Needs of Students with Special Educational Needs (to ensure that all the projects in the programme are inclusive of students with the whole range of educational and social needs)

The ultimately critical element in this plan is the ambitious concept of the Personal Learning Plan. This is meant to be a living document and communication tool about a student's attainment and improvement, rather than a mere record. It aims to improve communication among students, their parents and all their teachers. Breaking with the tradition of individual report cards, a PLP introduces a long-term and transcurricular perspective and perceives attainment as a holistic process. The assessment of cross-cutting, transcurricular skills is to be a crucial component. Teachers in different subjects will be able to look at a student's skills from their respective subject perspective. Subject-specific skills and knowledge will also be part of the assessment communication. PLPs transfer a crucial amount of responsibility for pursuit of agreed learning aims to the individual learner, with support from teachers, including a “personal guide”, and parents.

Support for Professional Practice in Formative Assessment

All 32 Scottish Councils have committed a small number of their primary or secondary schools to the pilot initiative to develop effective formative assessment, *Assessment is for Learning*. A development officer from Learning and Teaching Scotland and members of a steering group have provided central support, including access to up-to-date advice emerging from the research by Dylan Wiliam and Paul Black. The programme devolves responsibility to the schools for selecting/developing their own assessment practices, including ways of giving feedback and of helping to think about their own learning and that of fellow learners. A key principle is the idea that teachers need to reflect, individually and collaboratively, on their actual teaching to implement effective formative assessment. The previous history of assessment developments in Scotland appears to show that it is not possible to achieve significant and widespread change in teaching and assessment approaches by means simply of providing even very good staff development and materials about formative assessment.

From time to time, conferences enable the teachers involved in Assessment is for Learning to share experiences and ideas and hear about similar developments in schools in England. There is evidence from recent conferences that they are strongly convinced of the efficacy of various types of formative assessment and have built them in to their teaching practices, at least with particular classes for the purposes of the project, but often also more generally. Teachers' evaluations of their individual school projects have yielded many indications of improved learning experiences for students. They refer frequently to improved motivation and confidence, more independent work/learning, more collaboration and mutual support among students, and often improved classroom behaviour. Teachers are also reporting that they have learned much about themselves. A commonly occurring point is that they thought they were "doing formative assessment" until they really began to understand the aims of the project and reflect on their actual teaching in relation to these aims. Teachers also refer often to "finding creative solutions" in trying to develop formative assessment for their particular students and circumstances and to the importance of being able to work in a supportive team. Involvement in the project was a very significant experience which has changed their classroom practice and has made them feel that they will continue to grow in pedagogical expertise.

Dissemination and Transfer of Innovative Approaches

In the next stage, each school will share its approach and results in a 90-minute workshop (using reports, power point presentations, videos and sample work) with another school in the national assessment programme, but one which is involved, not in the Assessment is for Learning project, but in one of the nine others. Case study evaluations are to be evaluated mutually in these exchanges and will then serve as a basis for further dissemination by means of printed and audio-visual resources and workshops. It is intended that dissemination within each of the participating schools and to other schools in a Council will be undertaken by the teachers themselves, serving as trainers of teachers in other schools. It is hoped that, eventually, these "expert teachers of formative assessment" emerging from the programme will effect the wider dissemination of good practice in initial teacher training and in-service training.

The 32 Councils have played a crucial role in setting up the programme and disseminating its results. Their assessment co-ordinators, who selected the participating schools, administer a portion of the programme funds devolved to them by the Scottish Executive. Councils can choose a dissemination strategy that they find most suitable to their region's specific needs. They are free to decide how to spend the funds for dissemination, whether to hire extra staff or to buy teachers' time to work with others. Their decision does, however, have to be communicated to the Executive, so that the effectiveness of different dissemination schemes can be evaluated.

The Assessment is for Learning project will be formally evaluated by a team from the London Institute of Education. The Scottish Executive has appointed a development officer to lead the process of disseminating its approaches throughout the Scottish education system. Those responsible for the project recognise that previous approaches, such as “cascade” staff development or provision of printed or video materials to schools, were largely ineffective for achieving widespread improvements in practice. They are firmly committed to the view that it is essential to find “bottom-up” methods of influencing teaching and learning, through networking and discussion within schools, in local areas and perhaps also on a larger scale. The Assessment is for Learning project is currently nearing the point when this major challenge will be addressed.

The following two case studies present the development work done in two of the schools currently involved in “Assessment is for Learning”. Forres Academy is part of Moray Council in the rural Northeast of Scotland, John Ogilvy High School, is part of South Lanarkshire Council in the urban belt surrounding Glasgow in West Central Scotland.

Case Study I: Forres Academy, Forres (Moray Council)

Forres Academy is a secondary school in a small town in Northeastern Scotland. In Forres Academy, two teachers are actively implementing “Assessment is for Learning” strategies in science Secondary (S)1/S2, and in mathematics S1 (age 12 -13) and S5 (age 16 – 17). The school has been very heavily involved for almost 10 years in implementation of co-operative learning techniques derived from Canadian practice. This innovative teaching approach was started on the initiative of the previous headteacher who had observed co-operative learning during a visit to Ontario and had convinced the staff of the school to try its implementation at Forres Academy.

Co-operative Learning and School Development

The school brought in professional trainers from Canada, encouraged every teacher to take part in a range of training opportunities and linked the new teaching strategy in a fairly formal way to development planning. No teacher was formally obliged to join in the training activities and try out co-operative learning in the classroom, but the new approach created a lot of new enthusiasm about teaching and learning. This “feel-good factor” as the depute headteacher describes it, created a pull. Teachers who were not involved in the project initially, decided to join the training the second or even third time around so that over a three-year period a vast majority of the teachers in Forres Academy became involved in implementing the new teaching practice. Most of the teachers perceived co-operative learning as a promising strategy to get a greater number of students actively involved in learning and to develop their social skills at the same time.

Co-operative Learning is a teaching strategy using highly structured small group learning activities. Based on research developed by Spencer Kagan, Donald Johnson and Roger Johnson, Elizabeth Cohen, Carol Rolheiser and Barrie Bennett et al ¹ co-operative learning is based on five key elements that address the shortcomings of traditional group work.

¹ Slavin, R., Cooperative Learning, New York 1983; Sharan, Shlomo, Handbook of Cooperative Learning Methods; Johnson, D. W. und Johnson, R. T., Cooperation and Competition – Theory and Research, Edina/Minnesota, 1989; Johnson, D. W., Johnson, R. T. und Holubec, E.J., Circles of Learning: Cooperation in the Classroom, Edina 1986; Kagan, S., Cooperative Learning, San Clemente/Calif. 1997; Cohen, Elisabeth: Designing Groupwork: Strategies for the Heterogenous Classroom; Bennett, B., Rolheiser, C. und Stevahn, L., Cooperative Learning: Where Heart meets Mind, Toronto 1991.

First, *positive interdependence* connects individuals in such a way that their individual success depends on a joint effort – group members need each other to complete the group's task.

Second, interaction patterns are structured so that members have to interact with one another to complete the task (*positive interdependence*).

Third, each learner in a group is *individually accountable* and group members have to support each other to meet accepted criteria.

Fourth, *interpersonal and group skills* needed for the work are deliberately modeled and developed through the teacher and collaborative behaviour is assessed.

And Fifth, pupils are given time and procedures to analyze and assess group functioning and then to modify their group interaction accordingly (*group processing*).

Practitioners and researchers in education have developed a whole range of different co-operative learning methods. They range from simple ones like the *Placemat activity*, in which a group of four pupils writes down ideas individually in separate sections of a large sheet of paper during a first stage and then read out aloud their individual ideas and then come up with a group proposal written down in the middle of a sheet of paper, to more complex methods like the Jigsaw Technique, during which pupil research different aspects of one broader topic and then teach each other about the different aspects to learn about the entire topic.

The headmaster and the teachers are convinced that formative assessment can be incorporated into a variety of teaching strategies and is part of a vaster set of teacher repertoires. The following examples from classroom observations at Forres Academy show that the use of co-operative learning strategies has the potential to create room for improved formative assessment in the classroom: Even if co-operative learning activities in and of themselves do not guarantee that teachers will use formative assessment methods, the use of co-operative learning methods does free up the teacher to provide individual students and groups of students with feedback and learning support.

Co-operative Learning Creates Room for Formative Assessment

A deliberate use of co-operative learning strategies within classroom management frees the teacher to spend more time with and provide scaffolding for individual students and groups of students with special learning needs. Scaffolding is considered formative assessment because it provides individual students with advice on how to proceed with their own learning on the basis of an individualised assessment of their strengths and weaknesses.

In an S5 psychology class on anorexia nervosa, for example, pupils are given a newspaper article, a case study and a sheet with scientific information on theories explaining abnormal behaviour. The teacher starts by asking simple questions aimed at fostering a profound understanding of the case study, progressing to more abstract questions that link the anorexia case to several different psychological theories on abnormal behaviour. Part of the assignment she gives to her pupils is a very clear time frame on what is to be achieved in the given time as a group. The class seems to be quite advanced and familiar with co-operative learning: there is no need to model social skills in terms of how they should work together. . The groups work in a focused and highly effective manner. Every group member seems to contribute to the work.

While students (about 20 in the class) are working on the assignment in groups of four, the teacher walks around the classroom and checks students' understanding of the text and the task: "What do you think of this theory? Does it make sense to you?" She listens with great attention to each question,

encourages students to think beyond the text and responds in detail by adding expert knowledge to enhance the student's personal understanding of the subject. Students visibly enjoy the class. The atmosphere in the classroom is professional, even academic. Student groups discuss with great interest and commitment. The teacher is respected as an expert in her field and as somebody treating the adolescents who are developing expertise themselves, on the basis of their own interests. Ten minutes before the end of the period, students present the results of their group work to each other. They listen attentively, ask questions and further discuss individual issues.

Evaluating their learning experience after the class, students point out how much they appreciate and value the teacher's professionalism. Combining the use of various different sources such as newspaper articles, theoretical writing and case studies together with a very deliberate and professional classroom management including direct instruction, co-operative learning and personalised feedback motivates the students to work hard in and for the class. The way in which the teacher manages to integrate a range of different methods and materials smoothly is considered exemplary by the students

Learning through having students teach others: The Jigsaw Puzzle

The sixteen pupils of Forres SC 2 Science class are seated in rows. At the beginning of the lesson the teacher asks the class to recall the recent Elgin floods. She thus links global warming to the pupils' own experience of local floods and tells them they will be considering the factors affecting floods such as various aspects of global warming and climate change. She explains that they will be doing a jigsaw puzzle, a co-operative learning method, working in four groups to research from material provided different aspects of climate change and global warming and then in a second phase will explain to others what they've established. She counts off students in order to create four mixed-sex groups and advises the groups to write down their responses in sentences, to be sure they understand what they are talking about – and that they need to agree about their answers. The task involves reading three to four paragraphs, and agreeing/writing answers to questions on them. Differently coloured texts are designed for different reading abilities. The groups then work on the tasks.

When the time reserved to this first part of the Jigsaw puzzle is over the teacher uses „Numbered Heads Together“, a co-operative learning strategy. She allocates the numbers 1 to 4 to the pupils in each group and then re-groups – all 1's, 2's, 3's, 4's together. The teacher assigns different roles to each pupil in a group: reader, checker/encourager, recorder, resource manager.. To understand the roles better the pupils are given printed description of these roles. The new groups' task sheet requires them to answer a range of questions about global warming, using the specialist expertise each one of the group members got from their previous group studies. The recorders are told to record the groups finding, the checkers to check the findings and the encouragers to ensure that all members of the group contribute. The “checker” role – which could be a very significant part of assessment for learning – may need more demonstration and reinforcement by the teacher than was the case in the class observed. The checker would have to go back to the reading and check the accuracy of pupils' answers from the reading.

The Jigsaw method (jigsaw: students are putting small facts together to create a whole picture) seems to be a very good basis for both independent thinking and co-operative learning. It creates positive interdependence and makes each pupil accountable for his or her own learning, particularly since, in the second set of groups, individuals are required to contribute to the new group what they have learnt in the first. The Jigsaw method can also be used on varying levels of complexity, with more experienced pupils used to doing independent research the tasks could become more extended research with more extensive reading material, more time and expectation of a presentation by each member of the groups during the second stage (rather than just contributing to answering questions).

Peer Scaffolding and Teacher Feedback

A similar strategy is used for students of higher mathematics. They sit together in groups of four. The use of co-operative learning methods is not as deliberate as in the psychology and the science class. It is more informal but produces similar effects: While solving mathematical problems students can exchange ideas and discuss various ways of tackling a particular problem and are indeed encouraged to do so by the teacher: “We argue in our group about the right way to do things. We use different methods, we compare the way we did it. If someone gets it wrong and the others get it right, then they explain it to that person in the group” Only if students in the group don’t know how to get ahead or if there is great controversy about the solution of a problem they refer to their teacher: “He offers assistance if we ask for it. If you have problems he will point you in the right direction. He will ask you an additional question to show you how you might be able to do it.” In other words, the teacher uses scaffolding techniques to respond to different learning needs. He tries to understand conceptual misunderstandings of individual students and explains the mathematics based on the conceptual misunderstanding, so that pupils can form a new understanding starting from their own misconceptions. The teachers deliberately asks the students to explain their methods of arriving at answers/solutions, even if they arrived at a wrong answer and then uses the example to explain mathematical concepts.

Feedback Needs to be Immediate and Personalised

Student responses about the kind of feedback they value most show a clear-cut pattern: Individual and immediate feedback is seen as most useful. Feedback given to an individual pupil in front of an entire class is often experienced as humiliating. Delayed feedback on a test or essay returned weeks later is of little interest to students because they find it difficult to relate it to their own work at the time.

The most productive kind of feedback from the student perspective is getting comments while doing a particular task rather than later. “When a teacher gives you little hints it triggers something. That is useful”. Comments on original exercise books are seen as useful, as long as they are provided soon after the student completed the work. From the student perspective, self-assessment works only if it is part of a broader framework of teacher feedback and peer assessment. One female adolescent describes self-evaluation as a chore, and most of the other pupils interviewed agree with her: “Teachers need to tell me what my strengths are. I find it difficult to do that myself.” Most students found self-assessment challenging but do appreciate peer assessment.

Creating Synergies between Learning an Academic Task and a Social Skill

All of the pupils interviewed agree that group work can be done extremely badly but also very well. That depends on the teacher’s skill to moderate processes of group work. Good use of co-operative learning tries to use deliberate synergies between academic learning on the one hand and the development of social skills on the other hand. In an S2 English Class the teacher starts her lesson by explaining that pupils will be working on an academic task and a social task. The class has recently been reading “Robin Hood – Prince of Thieves” and that day they will be reflecting on the qualities and characteristics of “a hero”.

After explaining the academic learning goal to her class the teacher spends an equal amount of time explaining the social task for the day, namely the use of “quiet voices” in doing group work. The four pupils in each one of the groups count off their group. Each pupil then has a number. The teacher refers to those numbers in assigning and explaining certain roles the pupils will be taking on during the co-operative learning to manage their own group process better. Each of the four pupils now either acts as a leader, a noise monitor, a materials manager or a writer.

The teacher spends a good deal of time explaining the different roles and making sure that each pupil has understood his or her responsibilities. After that she refers to the importance of “social skills” for working in teams and spends time discussing with students the meaning of “using a quiet voice” in teamwork. Pupils brainstorm what the use of a quiet voice in teams “looks like” and “sounds like” and the teacher notes the ideas on the blackboard.

The academic task the groups are given is to brainstorm on the different qualities of a hero under four different subheadings provided by the teacher. While the groups are working on the assignment the teacher walks around the class, questioning groups, approving and encouraging. She spends more time with those groups who seem to have greater problems in identifying qualities of a hero for each one of the categories. By means of prompting she encourages them to think further. When a pupil suggests a hero would be “manly”, for example, she asks him to define the adjective. When he suggests “brave and active” as further descriptions for “manly” she suggests that those adjectives could also be added to the description of hero.

After the presentation of group work the lesson ends with group processing activity in relation to the social skill “use of quiet voices”. In each group the pupil who acted as the group’s noise monitor is asked to mark the group’s use of quiet voices on a scale from 1 to 5. At the same time the group’s three other members are to discuss and decide on a grade for their group. Then both grades are compared. Wherever the group work was graded with a grade 3, 4 or 5, the group needs to agree on strategies on how to improve their group work skills.

Dissemination of Innovation within the School

Subject departments play a crucial role in disseminating good practice within Forres Academy. Weekly department meetings are partly used for sharing and discussing good practice. Two in-service days per year, mostly designed by staff of the school themselves, serve to disseminate good practice across departments. In the past, joint training events on co-operative learning also brought together Forres staff with teachers from the primary school that feeds into the school, in a deliberate attempt to align teaching strategies across the entire pupil biography. Even though enthusiasm for co-operative learning has somewhat lessened over the past years, there is an infrastructure for continuous development in place within the school. It is not the case that teachers have developed scepticism about its effectiveness but some of the initial excitement has faded. Four teachers acting as internal coaches for co-operative learning are available to work with and provide advice and coaching to colleagues in different departments who want to integrate co-operative learning strategies into their own classroom management strategies. It seems that some of the enthusiasm with regard to the innovative approaches in co-operative learning and formative assessment could be regained if teachers conducted action research about their own teaching and opened their classrooms up to each other to observe and share good practice in the classroom.

Moray Council’s School Development Strategy

In recent years, Moray Council has encouraged schools to develop according to their own needs and has consequently devolved quite a large amount of its budget to the schools themselves. A part of those funds is now being used to free the four coaches in Forres Academy from part of their teaching obligations to allow them to provide material and coaching support for other teachers in Forres and in neighbouring schools wanting to learn about co-operative learning methods on request. Sometimes the authority runs workshops where staff members from the same departments of different schools share good practice. This teacher network is seen as very useful for developing one’s own practice. In past years, Moray Council has invited the co-operative learning trainers from Canada to provide training for teachers from the various schools in the region. Now the training is provided by the Forres teachers freed from teaching to do staff development throughout the region as part of their work.

Dissemination within Moray Council

Dissemination of good practice in Moray Council happens through rather scattered communication across the comparatively small network of educators. In spite of a fairly general intention to disseminate results, a coherent strategy for the deliberate dissemination of innovative practice in both co-operative learning as well as formative assessment seems to be lacking. The administrator in charge of the Assessment is for Learning in the Council trusts that worthwhile innovations will spread through the subject conference where departments from several schools meet in regular intervals.

Case Study II: John Ogilvie High School (South Lanarkshire Council)

In John Ogilvie Highschool, a Catholic school in the industrial town of Hamilton on the outskirts of Glasgow, a team of social subjects teachers (History, Modern Studies and Geography) are the prime movers in the “Assessment is for Learning” developments, principally in all S1/S2 classes.

The school’s assistant headteacher, in charge of assessment in the school, took up the government initiative and asked the school’s social subjects department to become involved in the programme because he was aware of the interest in formative assessment of at least one of the school’s senior teachers. The school’s most senior history teacher had already developed a strong pedagogical interest in innovative teaching methods in connection with formative assessment and had been using a range of innovative teaching and assessment strategies in his classroom before the Assessment is for Learning Programme started. The headteacher encouraged joint development work and sharing of good practice by asking further S1 teachers in social subjects, in Mathematics and English Language to co-operate in further developing formative assessment practice in the school under the leadership of the senior history teacher.

Towards the Consistent Use of Formative Assessment

Social subjects are taught to S1/S2 in rotation, so each class experiences “Assessment is for Learning” with a new teacher in a different social subject each term. One teacher from each of the English Language and Mathematics departments is also using the formative assessment approaches with the same S1 class, so students are experiencing “Assessment is for Learning” in five subjects over the year. The school thus tries to make the assessment practices as coherent as possible for all of its pupils in grades S1/S2.

The fact that the initiative is primarily teacher-driven and focuses on improved learning appealed to that group of teachers in Ogilvie School. During a national conference in Edinburgh, the school was provided with background information, such as videotapes on formative assessment in English schools that had been produced on the basis of research by Dylan Wiliam and Paul Black. (Wiliam/Black, Inside the Black Box,)

Self and Peer Evaluation on Essay Writing and Group Presentations

The S1 History teachers decided to focus the innovation process on specific aspects of the S1 syllabus, namely on extended essay writing and on oral group presentation, based on short team research assignments and their subsequent class evaluation. Pupils were to research controversial historical questions like “Did the Romans create a civilised society in Britain?” or “Did William Wallace deserve to be executed?” in teams. Subsequently each pupil was asked to write an extended essay based on different historical sources provided by the teacher and additional team research. Pupils were asked to research, prepare and present a balanced essay containing:

- An introduction and sufficient background information

- Evidence to support the case for the argument
- Evidence to support the case against the argument
- A conclusion

This same concept of a well-balanced argument based on evidence was used to structure the oral group presentations in the classroom. Initially, the teachers had required teams of students to present a case related to a given historical theme in direct competition to a contrary presentation from a rival team. This competitive approach to presenting the historical evidence was later abandoned in favour of a more balanced approach where a team of students needed to present the entire case, introduction, evidence in favour, evidence against and conclusion.

Consistency and Transparency in the Use of Criteria for Good Work

Teachers thus deliberately aligned the criteria for extended essay writing in the social subjects and in English with the criteria used in structuring oral group presentations. “The group work should instil and reinforce the qualities looked for in extended writing.” Groups of up to eight pupils researched the topic using course texts and other relevant materials, prepared and rehearsed their speeches and then presented their findings in the form of a group presentation, to which each pupil in the group contributed a particular part.

The same basic structure used in the oral presentations also underlies the extended essays. Over the duration of the course, each pupil is expected to write three extended essays in history which allow teachers to compare the essays and account for progress being made. Teachers write fairly detailed comments to emphasise particular skills or objectives on which the pupil should concentrate. Pupils are then required to read the teachers’ comments on their work carefully and to respond to those comments by writing down their own learning strategies for the future, taking into account the teacher’s observation. The teachers involved in the John Ogilvy’s Assessment is for Learning project thus encourage pupils to apply methods of formative assessment: to compare work, to identify and discuss areas of improvement and to analyse their own development over time.

The senior history teacher had already before the introduction of Assessment is for learning been experimenting with new ways of assessing oral presentations using detailed evaluative comments rather than marks. Participation in the “Assessment is for Learning” Programme provided the teachers with additional materials on formative assessment such as articles and videotapes. At an early stage in the project the participating teachers agreed on a need for close co-operation through regular meetings to carry the initiative forward. During those meetings the teachers share methods of formative assessment and talk about challenging situations using those in the classroom. As the material, most of which came from England, was not entirely suited to the Scottish 5–14 requirements and was not seen as sufficiently user-friendly, the teachers worked together to discuss, select and simplify statements suitable for the S1 presentation project which met the formative assessment purposes the team had agreed on. To create coherence suitable evaluative statements were used for both teacher and peer to peer feedback within the classroom.

Early in the school year the criteria, established by the teachers, and the respective evaluative statements were being introduced to the S1 students. All pupils were familiarised with the criteria on which presentations and extended writing would be judged, and the criteria for judging the presentations were explained to them in detail before the first group made an actual presentation to the class. At that early stage the teachers found the presentations relatively poor, but the peer assessment of those presentations using the criteria and the statements that had been explained to the pupils went very well.

Teachers then decided to further develop their formative assessment process by providing pupils with stick-on labels with the different evaluative statements for judging a presentation printed on them and by using a digital video camera to report classroom processes for evaluation and documentation. Students use the stick-on labels to select assessment statements for judging different aspects of the work presented. This helps students who are not used to a “language of assessment” to choose suitable evaluative statements out of a range of different statements. To enhance skills for independent research small groups of pupils were allowed to spend time in the library doing the necessary research while the rest of the class continued normal classroom work. The more flexible use of learning and teaching time seemed legitimate because teachers agreed that within the framework of these new developments the process of learning was as valuable as the content to be covered. Pupils rotated the time they spent in the classroom or in the library so all of them were able to get more or less equal subject coverage.

Before the group presentations start the class spends extensive time discussing what a good quality group presentation would look like, both in terms of content and style for example. Group presentations follow a certain pattern: Each of the group presentation is followed by peer assessment of the presentation. Each pupil in the class judges team performance individually before a small group of pupils decides on a group mark on a scale of one to three for each of the essential elements of the presentation together. The ready-made evaluative judgements printed on stick-on labels have turned out to be of great help to those pupils, who had little experience in peer assessment and found it difficult to put their evaluation into words. The stick-on labels can be used for example to evaluate whether a presentation had an clear-cut introduction and conclusion, whether there were sufficient and convincing arguments to back up the case, whether the presentation was delivered in a fluent way with a loud enough voice.

Each group of pupils then reports its team view of the presentation to the whole class. The teachers asks for the strong and weak points of the presentations and asks that pupils provide evidence for their evaluation. He restates what each pupil says with regards to a presentation and encourages the class to discuss whether a particular evaluative statement is right. The small groups then discuss and decide on the grades they assign to each aspect of the presentation. The class view of the presentation is collated by the teacher, noting the individual team evaluation in a chart on the blackboard and summing up the marks. The entire class session is videotaped and tapes are used by the teacher team to observe and discuss classroom management and pupil progress stimulated by the new way of teaching and learning. The tapes are used for formative assessment: When watching the videotape pupils get a chance to view themselves in action and discuss their own strength and developmental needs with their peer group in the class.

More Time for Discussion and Support in a Divided Class

The mathematics class 1c at John Ogilvy School works on areas in geometry. The class is divided in half. About 14 pupils stay in the classroom to work with the teacher, the other half go to the computer room to work with a programme called Successmaker. The teacher divides up the class frequently so that she can get pupils to discuss a mathematical problem in a comparatively small group and gets more time to spend with those pupils who need extra support and prompting. While dividing the class she always pays attention to having a mix of abilities in both groups. This also allows her to put pupils causing havoc when they are together into separate groups. So the class division contributes to two aims: It regulates student behaviour and makes sure that pupils who are strong in a subject area work with those who are not as strong.

Thinking Time instead of Hands-Up

The previous lesson had focussed on how to calculate the area of a rectangle. In revising, the teacher introduces the new topic: calculating the area of a triangle. She provides the class with a task to think about: “How can one derive the area of a triangle from the area of a rectangle?” She now explains again

that in this class pupils do not put their hands up, and that there is sufficient “thinking time” for each pupil before the answer is discussed in the class. She makes it very clear that every pupil gets a chance to respond to the question, not just those who put their hands up first. When the thinking time of about two minutes is over she asks a few pupils for an answer. Based on their answers she gets the class to discuss the question how the area of a triangle might be derived from the area of a rectangle. On the board she gives the class a few examples to derive the area of a triangle from the base and the height of a rectangle. Again, the pupils are given time to themselves. Based on the discussion of the result the class identifies the formula for calculating areas of triangles: $A=1/2 \times b \times h$.

Then the pupils work in their exercise books to apply the formula just derived to a number of different examples. The teacher walks around the class and spends time with those pupils who need extra help and support. By asking questions and prompting she helps them to find solutions to the problem on their own. After about 15 minutes of work on their own the other half of the class comes back from the computer room and the groups take turns. The group that has been working in the class setting goes to the computer room. The teacher starts the same lesson again for the other half of the class which follows pretty much the same format. The group is mixed in similar fashion as the first one: A few pupils have strong mathematical skills and two pupils need extra help. Dividing the class by half creates room for much more individualised attention than would have been possible in working with the whole class.

The Dissemination Challenge: Is There a Contradiction Between Curriculum Coverage and Developing a Culture of Formative Assessment?

Among those teachers involved in “Assessment is for Learning”, an emphasis on pupil learning, the development of skills and the capacity to self-evaluate on the basis of transparent criteria has clearly replaced a previous orientation towards covering as much of the curriculum as possible. The teachers still express some doubts whether they actually manage to combine both a broad curriculum coverage with spending the time needed to really focus on student learning.

There is, however, a growing confidence among this group of innovative teachers that their work really improves the learning and self-monitoring skills of the pupils involved and is thus much more sustainable than traditionally knowledge-focussed methods of teaching. Meta-cognitive skills developed through the consistent application of criteria in commenting on pupils’ work, having pupils evaluate their own work and the work of their peers and setting learning aims for themselves will most likely make them more confident and self-directed learners than the mere transmission of knowledge. The school has not yet gained empirical evidence on their successes but the teachers involved in Assessment is for Learning do point out impressive anecdotal evidence showing the progress a individual pupils. The comparison of essays written in the beginning of the project and essays written after several months of work based on regular formative assessment show notable improvements both with pupils who started on a comparatively low level as well as with stronger pupils.

Observing and noting the progress and the motivation for learning of individual pupils gives the teachers the confidence to carry on and expand their work despite the existing pressures to cover a broad curriculum. Working as a close-knit team provides the teachers with opportunities for sharing experiences and learning from each other, creates the courage to deal with failure and shortcomings that come with any innovation and to share and celebrate successes.

Interviews with teachers not involved in the project do, however, show that the innovative practice among the small group of teachers is still quite isolated in the school. The schools large staff room is hardly used, most of the communication takes place within the school’s small subject department rooms. Thus little information gets communicated across department boundaries. Teachers not involved in the Assessment Project at this stage know little about it. Most of them are convinced that a more coherent and

careful use of formative assessment geared at the growth of individual pupils would not be consistent with current curricula perceived as very broad, full and demanding and would put teachers under additional pressures.

Although a potential trade-off between the consistent use of formative assessment and covering the whole curricula is seen to a certain extent by the innovative teachers their practice clearly shows that deliberate experimentation and continuous improvement based on an analysis of shortcomings is a precondition for progressing through professional development. A range of different teaching qualities, such as combining direct instruction, independent learning and cooperative learning/group work in a consistent manner, as well as modelling and scaffolding are needed to overcome the alleged contradiction between curriculum coverage and the use of innovative pupil-centred assessment.

The teachers in JOHS, who have started on their journey and have come quite a long way, are now beginning to see the alleged contradiction between curriculum coverage and formative assessment collapse and the synergies evolve. The greatest challenge for the school will be to convince the teachers not involved in the “Assessment is for Learning” project to set out on that same journey, overcome initial difficulties and begin to see that those willing to develop their knowledge and use of different learning and teaching strategies professionally can have both: a sound coverage of the curriculum combined with a culture of formative assessment.

South Lanarkshire Council’s Role in Developing Formative Assessment

South Lanarkshire Council has been taking an interest in formative assessment for about four years, following the dissemination of findings of the research in staff development events commissioned by the Council. The Council subsequently set up a working group to produce guidelines for schools on formative assessment. A draft was produced, based on the original 5–14 assessment principles. This is now on hold, pending the more concrete outcomes of the national pilot programme.

The 5–14 co-ordinators for primary and secondary schools in the Council meet twice a year and have been briefed about the “Assessment is for Learning” project. The secondary 5–14 co-ordinators (typically assistant headteachers) have an additional meeting of their own. In October 2002 Paul Black was invited to this meeting and worked with them for a day on formative assessment approaches.

According to the Council’s assessment co-ordinator, the main concern of teachers not involved in Assessment is for Learning so far will be the problem of “getting through the curriculum” while devoting time to formative assessment. Most of those teachers do not think that the techniques of formative assessment are not worthwhile – they rather feel too much pressure to cover the curriculum. Greater curricular flexibility for schools, especially for 5–14, is currently being discussed and will probably be helpful in further developing a culture of formative assessment. Greater curricular flexibility might be achieved by making a Council level judgement on what things should take priority and what things could be dropped from the curriculum.

According to a draft education policy yet to be ratified by senior managers an Assessment Development Officer, supported by an Assessment Advisory Group, should co-ordinate further developments. The Assessment Advisory Group would be in charge of drawing up a training and support plan 2003/2004 and of purchasing and distributing support materials. It has not yet been decided what kinds of people will be on the assessment advisory group.

Starting in August 2003, at least one class teacher in all primary and special schools in the Lanarkshire region would initiate a “school pilot” on formative assessment, using the additional money which the National Programme will make available. Three or four different classes in various subjects in

all secondary schools would initiate a similar pilot. With support from the Assessment Development Officer, those involved would be enabled to network and share good practice on a secondary school/associated primary schools cluster basis. The most successful way forward would probably be to try to “grow” good practice through networking, discussion and small-scale projects in order to spread it in a school, convincing staff that teaching incorporating formative assessment is actually the most effective way of teaching the curriculum. In the project’s early stages school managers are to be provided with advice about quality assurance focusing on formative assessment.

Eventually, an element of Education Authority pressure might be necessary, in the form of a requirement for schools to include the issue in development planning. From 2004/2005 onwards, schools could be requested to include targets relating to formative assessment in their development plans and to include two further classes or whole departments to build on the pilot work of their colleagues. By then, schools should have received guidance about the links between Personal Learning Plans and effective formative assessment and staff deployment to facilitate effective implementation of Personal Learning Plans.

Summary

Best practice from those Scottish schools involved in the Assessment is for Learning Programme shows that there is already a range of methods and more complex strategies to improve the practice of assessment as enhancing learning.

Co-operative learning, i.e. the formal and informal use of small-group co-operative settings for learning, provides teachers with additional “quality time” to spend with those individuals or groups of learners who benefit greatly from scaffolding, prompting and personalized formative feedback. In addition, small group learning gives pupils multiple opportunities for self and peer evaluation.

Both Forres Academy and John Ogilvy High School show that by using a range of different teaching and learning strategies and combining them in deliberate ways within the framework of a multi-dimensional classroom management multiple new opportunities for formative assessment can be introduced into the classroom. Combining both a diverse classroom teaching strategy with personalised attention to all pupils, especially those who need scaffolding most for their own learning, is possible but requires a high level of professionalism.

The comprehensive and ambitious Scottish initiative “Assessment is for Learning” has primarily sought to address those teachers who had already shown a strong interest in new ways of formative assessment in the classroom. For those teachers the programme provides great opportunities to further develop their practice, to reflect upon their classroom teaching within a much broader framework and to share good practice with other colleagues and academics.

The government has set up an ambitious programme to review the assessment practice in Scottish schools from a range of different perspectives. The Personal Learning Plans seem to be a promising vision for integrating all those perspectives into a common framework that improves learning and assessment and makes sense for pupils, for teachers and parents. There is a high level of innovation and commitment among those involved in the Programme both within schools as well as in the Ministry of Education and the regional councils. No doubt that this ambitious initiative will get very far in terms of creating good practice on the basis of sound research.

The question that remains to be answered is: Will those involved in the programme on the school, regional and national level manage to carry the promise and spark of “Assessment is for Learning” to those teachers not yet seeing the point of developing their own assessment practice and those afraid of having to

juggle curriculum coverage with all those assessment innovation ranging from pupil self- and peer evaluation to the Government's ambitious Personal Learning Plans. The enthusiasm of those teachers involved in the programme clearly shows that professional development and team learning can be a very rewarding experience, even after decades of teaching in a school. It remains to be seen how those in charge of "Assessment is for Learning" will convince those not yet involved of this message.