Assessment:

A review of practice

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1 Introduction

This review begins with an overview of the literature pertaining to issues of assessment. Subsequently, we consider issues of assessment at school level in Scotland in the context of the Assessment is for Learning (AifL) initiative. By contrast, we then look at the context of work-based learning, reviewing not only vocational qualifications in Scotland and the rest of the UK, but also alternative procedures for assessment within the Assessment of Prior (Experiential) Learning (AP[E]L) camp. Further education and higher education issues are dealt with in the context of two contrasting disciplines, English and Biology, and in these sections we also deal with school-related assessment issues pertinent to these disciplines. Thus, we aim to provide an integrated cross-sectoral perspective to assessment in these areas. Issues pertinent to each of the disciplines are highlighted.

2 General overview of assessment

The purposes of assessment in education are to gather data upon which to make informed decisions and to support learning. Each time assessment data is collected, judgements are made concerning what might constitute relevant data, the methods of data collection, the methods of interpretation, and the best way to communicate the results (Harlen, 2005). There are multiple users of assessment data, multiple levels at which to collect the data, and multiple methods of data collection (Harlen, 2005; National Research Council [NRC], 1996). Assessments are often used for the purpose of accountability. In other words, the goal of the assessment is to gauge learning progress and to hold responsible various educational participants including pupils, teachers, schools, systems, and even nations. Assessments used in this way are generally known as summative assessments, as they tend to summarise the achievement of pupils over a particular period of time. Summative assessment has several purposes including informing pupils and parents of levels of achievement, calculating grades, determining access to special or advanced education, making comparisons among pupils, schools, universities, or systems, monitoring the effects of policies, evaluating curricula, and allocating resources (Black and Wiliam, 2005; Bryce, 2003; NRC, 1996).

In contrast, formative assessment may be defined as those activities undertaken by teachers and pupils that provide feedback to immediately modify teaching and learning activities (Black and Wiliam, 1998). Formative assessment is closely linked to learning activities and the data collected may take on a variety of forms. Teachers make use of formative assessment data to inform their next steps in teaching, while pupils can gauge their own progress in achieving the learning outcomes. Activities such as teacher questioning, observations, checklists, peer assessment, homework, and short writing assignments, can provide valuable information to guide teaching and learning (Black and Harrison, 2004). Formative assessment initiatives have played a major role in Scottish education in recent years (Hutchinson and Hayward, 2004) and will be returned to in further sections of this report.

Two other key concepts in understanding assessment are validity and reliability. Validity is the degree to which an assessment actually measures the qualities, competences, or performances it purports to measure. There are several components to validity. The four traditional components include:

- face validity — a general correspondence between the assessment and the body of knowledge it is designed to assess
- content validity — the degree to which the assessment adequately samples all the learning outcomes of the course
- construct validity — the match between the quality actually being measured (eg mechanical skills) and the opportunity to demonstrate those qualities in the assessment (mechanical tasks versus an essay)
- predictive validity — the degree to which the assessment accurately predicts how well a candidate will perform the competences in future careers or education (Tummons, 2005)

In addition to the four traditional components of validity, assessment scholars have added two newer components which have received attention, especially in the United States. The first of these is consequence validity, or the degree of fit between the technical quality of assessment data and the actions which occur on the basis of the interpretations of the data. For example, a high-stakes exam, such as one that determines secondary school graduation or the award of professional licence must have extremely high technical quality, including the validity components above, to warrant the decision making on which test scores are based. The second of these is fairness validity, or the degree to which the assessment is free of bias due to race, ethnicity, gender, disability, or limited language proficiency (Linn, Baker and Dunbar, 1991; Messick, 1995; NRC, 1996). A final concept related to validity is that of authenticity. Authenticity has two distinct meanings in relation to assessment. One is the question of verification that a students' assessment performance is indeed their own. The other meaning of authenticity is the degree to which the assessments match the kinds of performances that will be required of candidates in real-life situations (Tummons, 1995).

The concept of reliability relates to the consistency of the assessment scores across time, place, conditions and markers. Checking the reliability of an assessment is essential to ensure that candidates are being scored without bias.

Thus, the components of reliability include:

- consistently applied conditions (time for taking an exam, quiet, availability of resources)
- the work of the candidate is authenticated
- the assessments are marked against a set of clearly stated and well-defined criteria
- consistency between two or more markers of the same assessment (Scottish Qualifications Authority (SQA), 2001; Tummons, 2005)

Scotland has paid rigorous attention to consistency amongst markers, and implements a sophisticated system of internal and external moderation to assure candidates of unbiased marking. Internal moderation (or verification) refers to a system of test design, application and rounds of marking against stated criteria, involving several professionals at one institution. External moderation (or verification) refers to having professionals outside the institution read a sample of the assessment work to ensure that high and accurate standards are being maintained (SQA, 2001).

Two contradictory international trends in educational assessment

Assessment policy and research over the last two decades has encompassed debate about the most effective forms of educational assessment. One trend has been for many industrialised countries to increase the use of external standardised examinations to provide accountability data to parents, the public and various stakeholders. Within this trend, the involvement of teachers in creating, marking, or judging assessments has been diminished. In the United States, for example, because of increasing national pressure on local school authorities to meet requirements needed to get federal funds, accountability beyond the local community has become increasingly important. The most recent federal legislation, the 'No Child Left Behind' Act, requires schools to demonstrate 'adequate yearly progress' of all students to continue receiving federal funding. This pressure has resulted in schools developing elaborate systems for mediating both the curriculum and assessment practices of teachers. Rigid curriculum pacing, as well as increasingly frequent formal testing to predict student outcomes on summative tests, have resulted in teachers having little freedom, time and energy to devote to assessment in the service of learning. Similar trends for reducing teachers' roles in summative assessment and increasing the frequency and impact of national exams are apparent in England, Germany and, to a lesser degree, France (Black and Wiliam, 2005).

Over the same time period, scholars of assessment have questioned both the validity of standardised paper-and-pencil tests and the impact such tests have on teachers and pupils (Black and Wiliam, 1998a; Gulikers, Bastiaens, Kirschner and Kester, 2006; Harlen, 2005; Harlen and Deakin Crick, 2004; Linn, 2000; Wiggins, 1992). Thus, the second trend has been a movement away from standardised tests towards more relevant and meaningful forms of assessment. With the advent of constructivist theories of learning, the need for pupils to engage in concept application, problem solving and critical thinking was emphasised (Tobin and Tippins, 1993). Sophisticated new concepts of validity as 'an overall judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions based on test scores' (Messick, 1995, p5) influenced designers of tests concerned with higher level thinking skills and practical abilities (Wiggins, 1992). The implication was that traditional paper-and-pencil tests were not valid forms of assessment where constructs such as creativity, problem solving and practical skills were of importance to the curriculum. The 'appropriateness of

interpretations and actions based on test scores' in a multicultural society was brought into question.

What became known as the 'alternative assessment' reform movement was largely initiated and researched in the United States (Black and Wiliam, 1998a). The goals of alternative assessment reform were to better align assessments, especially summative assessments, with pedagogic practices that required higher level cognitive skills and to transform assessment practices into learning opportunities. The foundational idea was that most paper-and-pencil test items represent lower level thinking skills and decontextualised bits of knowledge, rather than the learner's ability to use knowledge for problem solving and divergent thinking. In addition, paper-and-pencil tests do not adequately test for practical skills such as laboratory work in the sciences, vocational abilities, artistic creation, or oral communication.

Three alternative methods of assessment data collection received the most research attention including: portfolio assessment, performance-based assessment, and writing assessments that attempted to situate knowledge in more authentic contexts (Wiggins, 1992). Portfolios are collections of a variety of products that provide evidence of learning, while performance-based assessments usually combine cognitive and practical abilities, such as laboratory or vocational skills, dramatic interpretation, or oral presentations. Problems with the validity, reliability and viability of performance-based and portfolio assessment have hindered their adoption, along with increasing political pressure for national exam accountability. In the case of performance-based testing in Science, mismatches between the objectives being tested and the performances they elicited, surface level interpretation of complex concepts, and mismatches between measured performance and the cognitive activity involved, have proved sufficiently problematic as to prevent widespread performance of practical work in the United States (Baxter and Glaser, 1998). Similar difficulties with implementing performances which can be scored reliably, but are also valid tests of the performance, have been encountered in other countries, such as Ireland (Matthews and McKenna, 2005).

Recent international research and innovations

Most recently, leading scholars in the field of assessment have been gathering research-based evidence to regenerate arguments against the pervasiveness of standardised tests as the basis of summative assessment. Harlen (2005) summarised reviews of research on the negative effects of testing on teaching and the curriculum. Universally, researchers found that pressure from high-stakes testing impacts teaching. Teachers will take time to focus on drill and practice for the content of the tests, practice specific kinds of test questions, and will adopt transmission styles of teaching at the expense of student engagement and formative assessment. The need for alternatives to standardised exams to improve learning and promote formative assessment is being recognised by forward thinking international researchers. Three themes that are currently being explored in the assessment literature include authenticity, affective impact of

assessment on students, and using teacher-based forms of summative assessment.

Issues of authenticity

One goal of assessment reform is to align more closely what students need to do in school with what will be expected from them in the world of work. Within this context, authenticity has become 'one of the crucial elements' of modern assessments (Gulikers et al, 2006, p382). Gulikers and colleagues argue that authenticity influences both construct validity and consequential validity. They assert that in order to accurately measure students' competences in the construct domain (the quality being assessed, eg knowledge of computer systems) and the consequential domain (the ability to perform work on computers in a future job), students must perform the authentic task (eg loading software) rather than simply write about how they would perform the task. Noting that well meaning efforts to create authentic assessments have sometimes actually hindered student learning in the past, the researchers have developed a five-dimensional model to assist assessment developers in evaluating the authenticity of any assessment instrument based on an extensive literature review. The five dimensions include: the task itself or what the students are being asked to do; the physical context for performing the task; the social context for performing the task; the form of the demonstration of competence; and the criteria used to judge the performance (Gulikers et al, 2006).

Further research by this team (Gulikers et al, 2006) indicated that students' perceptions of authenticity are positively correlated with their use of a deep-study approach rather than a surface-study approach, as well as with learning outcomes. However, negative correlations between a deep-study approach and perceptions of authentic criteria suggested that too much concreteness or specificity of stated criteria may actually deter learning.

Affective impact of assessment on students

Harlen (2005) reviewed the impact of frequent high-stakes testing on student motivation. Negative effects from these studies included testing becoming the rationale for all that is done in the classroom, students loss of self-esteem and interest in lessons, and student resentment at tests giving only a narrow view of what they can do. In England, repeated practice testing led to some students having a low opinion of their own capabilities. Research from Northern Ireland indicated that students who preferred exploration and problem solving modes of learning felt inadequate and demoralised as learners when required to learn through transmission forms of teaching. A study in Ireland found that the majority of children approached tests with fear and anxiety and this effect was greater for girls than for boys.

Cowie (2006) has investigated the relationship between teacher assessment and student identities as learners of Science. Although the study focused on formative rather than summative assessment, Cowie concluded that the students experienced assessment as an embedded, socially mediated process that

impacted on what it meant to be a learner. Students preferred one-to-one interaction with (and feedback from) teachers, rather than public feedback. The study also indicated that students find peer assessment to be especially helpful. The author concluded that student perceptions of assessment as a social and emotional phenomenon in the classroom should be taken into account in assessment design.

Using teacher-based summative assessments

In light of the negative impact of high-stakes standardised testing and the recognised need for more authentic assessment practices, innovative programmes such as that described in Cumming and Maxwell (2004) for Australia are gaining attention. Australia is comprised of six states, each maintaining its own guidelines for curriculum and assessment. However, debates about the formation of a national curriculum in Australia have resulted in a great deal of collaboration and commonality amongst the states' curricula. Funding is largely federal and a broad sweeping federal Act sets the basic national goals for all students. From pre-school to Year 10, assessments are suggested by the curriculum guidelines and implemented at the school level.

The most significant innovation in Australian education is a unique form of assessment at the end of secondary schooling when stakes are increased for placements in jobs and higher education. High-stakes assessment and reporting at the end of secondary school in all states and territories is based on a combination of internal school-based assessment and external examinations. Certificates for school-leaving are based on classroom assessment from Years 11 and 12 in combination with external exam results. This system has been developed over the last 30 years in response to schools' desire to regain curriculum control from test developers, to better meet the needs of students, and to respond to needs for more practical and contextualised learning. Australia's assessment programme necessarily incorporates criteria-referenced forms of assessment and teacher professionalism in judging student achievement. These norms in turn require explicit, transparent and public performance goals and criteria. Finally, the system is supported by a detailed and comprehensive system of external moderation. Student samples are judged against stated criteria by external moderators to assure reliability. Thus, the Australian programme appears to have solved some of the noted issues involved in using teacher-based assessment for high-stakes decisions including problems with objectivity, reliability and transparency (Van den Bergh, Mortelmans, Spooren, Van Petegem, Gijbels and Vanthournout, 2006).

Assessment that relies heavily on classroom-based performances has led to curricular changes focused on descriptions of student performances in a learning area, rather than bits of content to be attained. These curriculum changes have allowed values such as 'peer communication', 'valuing diversity' and 'acting democratically' to be included in assessment practices. Cumming and Maxwell (2006) assert that Australia's programme of combining internal with external assessment has led to the teaching and learning of values that go beyond the content focus of the past. According to their article, the current focus in Australia

is on improving assessment practices in the middle grades and eventually the primary grades.

Harlen (2005, 2007) has also argued for the advantages of using teacher-based assessment for summative purposes. Her analysis (2007) suggests that summative assessments given by teachers are more valid, and lead to more positive impacts on teaching and learning. Harlen (2005) describes 'progressive assessment' (after Maxwell) as that which involves feedback to the student about the quality of their performance. The example cited was a portfolio project in Queensland, Australia which provides evidence of learning over an extended period of time and serves as a 'Senior Certificate'. In this project, students consult with their tutors as an ongoing process to provide elements of their best work across their secondary career. Rather than a standardised test, the portfolio represents a personalised statement of a student's summative achievement.

Alignment and higher education

The importance of aligning teaching methods and assessment tasks is stressed in many publications pertaining to curriculum development, particularly in higher education. In essence, the notion of constructive alignment derives from constructivist theory, which suggests that learners actively construct their own knowledge and understanding. Within the constructivist paradigm, considerable stress is given to meaning, reflection and context, and teaching is about the provision of a context that allows the facilitation of desirable learning outcomes.

For Biggs (1995, 1996), in a constructively aligned teaching environment, all stages of the process of teaching are closely linked. Thereby, as Dart and Boulton-Lewis (1998) suggest, 'course objectives, the teaching context and the assessment tasks should all address the same student learning-related cognitive activities'.

A summary of much of Biggs' thinking in relation to constructive alignment is readily available through online sources, with one paper 'Aligning the Curriculum to Promote Good Learning' (Biggs, 2002) a notable example. Here he speaks of there being four major steps in curriculum design and the delivery of programmes: 'defining the intended outcomes (the objectives); choosing teaching/learning activities likely to lead to attaining the objectives; assessing students' learning outcomes to see how well they match what was intended; and arriving at a final grade'. Figure 1 below illustrates his model.

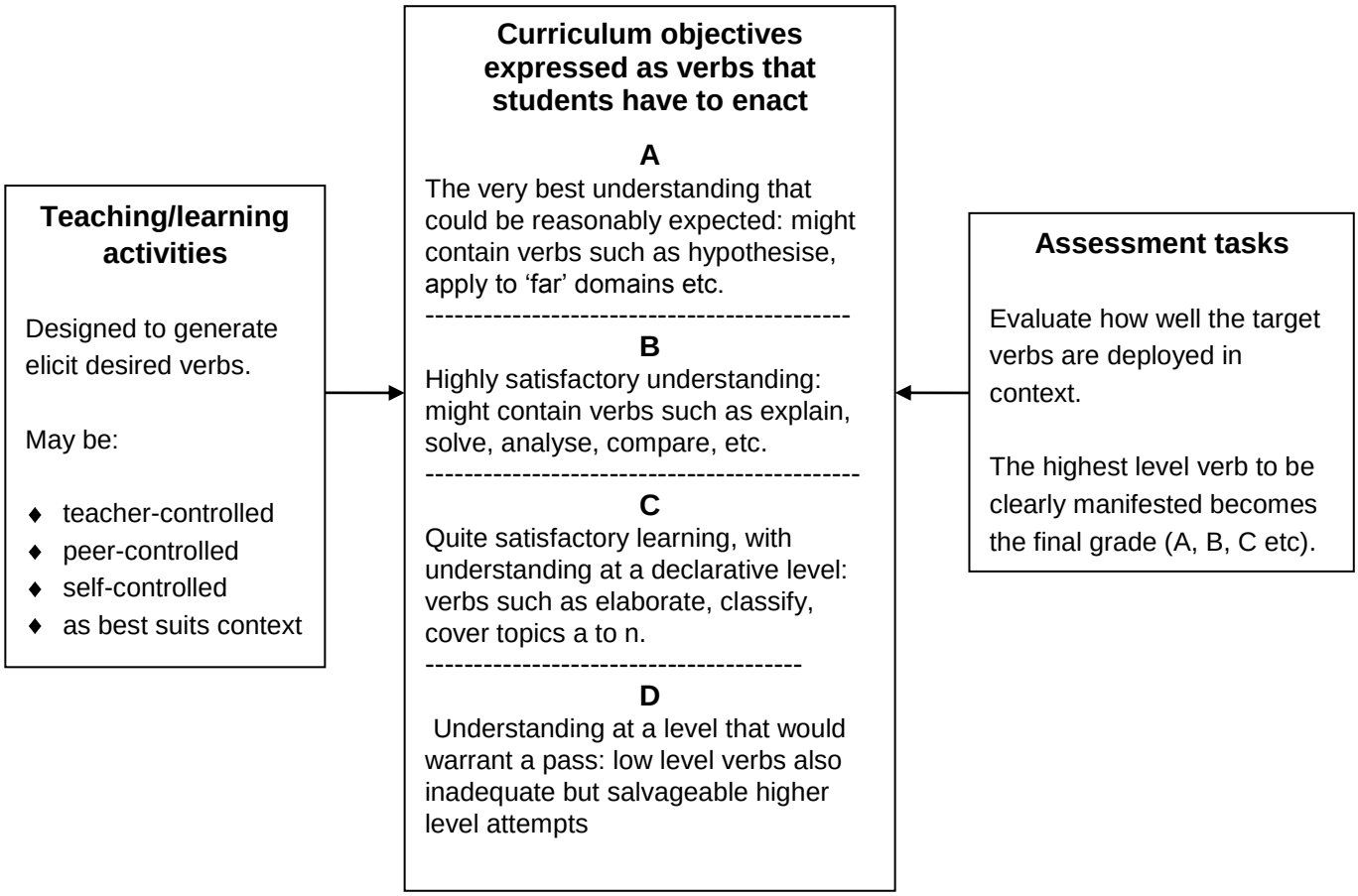

Fig. 1: Aligning teaching/learning activities and assessment tasks to the curriculum (Biggs, 2002)

Within his structure, great importance is given to a choice of verbs that become 'markers' in the system, and which guide teaching/learning activities and assessment. A hierarchy of verbs on four levels that represent increasingly deeper levels of understanding aligns teaching/learning activities and assessment to objectives (Biggs, 2003). For those familiar with Bloom's (1965) taxonomy of educational objectives, Biggs SOLO taxonomy will not be a surprise. Thus, at the lowest unistructural level, we find verbs such as 'identify'. We move through multistructural (eg 'enumerate') to relational (eg 'explain') to extended abstract (eg 'theorise'), and in the aligned system, the teaching and learning activities 'help activate the required verbs'.

The concern with issues of assessment in higher education is manifested in a range of initiatives in the UK widely, and specifically in Scotland. Assessment, including the topic of constructive alignment, was a theme of the Quality Assurance Agency (Scotland)'s Quality Enhancement activities in 2004. In England, where over £300m has been invested in the Centres for Excellence in Teaching and Learning (CETLs), three of the centres have assessment as one of their core interests (see appendix for references to these centres).

One final aspect of assessment that is of interest across all sectors, is whether or not there are gender differences in performance in relation to the form of assessment (coursework and continuous assessment or examinations), and also to the type of response (multiple choice, short essay, long essay, etc). At present, the research seems contradictory. Some research, for example Cox et al (2004), suggested that boys perform relatively better than females in examinations — no matter the form. Other research, however, questions the assumption that females have a preference for coursework and that this helps to explain their current undergraduate success (Woodfield et al, 2005). A detailed historical overview of the debate on gender and assessment is provided by Elwood (2005).

Summary

Two international assessment trends have been observed over the past two decades; one promoting increased use of externally-based high-stakes standardised exams and one promoting the use of alternative assessments in place of standardised exams. The arguments for increased use of standardised exams include greater accountability. The arguments for alternative assessments include the assessment of a wider base of thinking skills, practical abilities and values, more authentic assessments, more positive impacts on teaching and learning, and a greater validity associated with teacher-based assessments. The Australian model provides information on the successful combination of internally- and externally-based assessments for awarding certificates at school leaving.

The affective impact of assessment on students is also becoming increasingly recognised as an important element in assessment design. In higher education, the theme of alignment of objectives, teaching and learning approaches, assessment and grading has received considerable attention. Less attention has been given to alignment across sectors, an issue that will be taken up later. Differences in performance by gender according to forms of assessment used pertain across sectors.

3 Assessment is for Learning initiative in Scotland

The ambitious Assessment is for Learning programme (AifL) was developed in response to a 1999 Scottish Executive review of assessment in pre-school, primary and the early secondary years. The review identified two key assessment purposes: feedback to support learning (formative) and feedback to more formally identify the appropriate points for progression (more summative in nature). A SEED consultation exercise in 2000 identified a series of similar issues regarding assessment in which concern was expressed that accountability was dominating practice. Respondents were keen to see the development of a common national format for record-keeping and reporting, and greater coherence within and across sectors (Condie, Livingston and Seagraves, 2005), and it was felt that the most appropriate areas for this development were literacy and

numeracy. The design of the programme was largely based on the influential work of Black and Wiliam (1998a), whose seminal and detailed review of formative assessment practices in promoting achievement stimulated a number of formative assessment projects in the UK (Hutchinson and Hayward, 2005; Black, Harrison, Lee, Marshall and William, 2003).

The review of the AifL programme over the two years 2003–04, submitted by the Quality in Education Centre (QIE), University of Strathclyde, outlines a bit more of the background to the scheme:

> Assessment, particularly testing, was a significant element in the 5–14 Programme in Scotland and the National Curriculum developments in the rest of the United Kingdom. The publication of *Inside the Black Box* (Black and Wiliam, 1998b) indicated that the concerns raised in Scotland regarding assessment were held elsewhere. In particular, the authors argued that if the government, its agencies and the teaching profession were seriously concerned to raise standards, there were a number of aspects of current practice that needed to be rethought, particularly the role of assessment and, more specifically, formative assessment ie 'when the evidence is actually used to adapt the teaching work to meet the needs [of pupils]' (Condie, Livingston and Seagraves, 2005, p2).

Thus, the Assessment is for Learning programme was established with the key aims of:

- developing one unified system of recording and reporting within schools
- bringing together current arrangements for assessment
- providing extensive staff development and support through its project-based approach

It was anticipated that, if this were accomplished, the benefits would include:

- better feedback for pupils leading to improved achievement
- simplified systems and support for teachers, therefore reduction in workload
- clearer information for parents

(Condie, Livingston and Seagraves, 2005)

The AifL programme was designed to rationalise national testing and, more importantly, to provide a comprehensible and practical fit between the formative assessment practices that take place in class and more rigorous testing of students. The programme evaluation suggests that teachers still experience a tension or even confusion between formative and summative assessment. Combining and trying to articulate the two forms in AifL creates a greater diversity of practice, but, 'this very diversity means that, overall, the picture can appear somewhat fragmented and haphazard and this, in turn, makes it difficult to generalise either within or across projects' (Condie, Livingston and Seagraves, 2005). Other issues to emerge from the evaluation included the difficulty of

getting to grips with AifL developments in the context of other, competing initiatives (initiative overload), and a higher level of resistance to the classroom-based elements of the programme at secondary level, possibly due to secondary schools having 'traditionally looked to external assessment and certification as the cornerstone of practice' (Condie, Livingston and Seagraves, 2005).

Research on the efficacy of AifL in its initial stages indicated that the most powerful results came from schools with head teachers who were committed to the programme, had less rigid ideas of pupil achievement, and had a substantial number of teachers volunteering to participate in the project. Positive results included greater pupil and teacher engagement, confidence and enthusiasm for learning. Researchers claim that the AifL initiative is a permanent change in approaches to teaching and learning, rather than a short-lived trend in education (Hayward, Priestley and Young, 2004). One Scottish study of children's views of themselves as learners in relationship to formative assessment indicated the following main results:

- formative assessment techniques were associated with increases in self-esteem and confidence
- both girls and boys showed significant gains in self-esteem
- the greatest impact was for pupils who started the study with the most negative view of their abilities
- children with an inflated view of their abilities adopted a more realistic view (Miller and Lavin, 2005)

4 Workplace assessment and accreditation in Scotland

The principal manifestations of workplace assessment in Scotland is most clearly found within the Scottish Vocational Qualifications (SVQ) structure, either as stand-alone qualifications available through a workplace or training provider, or as part of a Modern Apprenticeship. For the purposes of this review, we will not cover the intricacies of assessment procedures in detail. Rather, the approaches to assessment and verification will be used to illustrate the fundamental differences between this area of assessment and that within other domains that we have considered. The system represents a particular challenge in relation to validity, reliability and practicability, and a plethora of detail on procedures and ways to address practical issues are found on SQA's website.

The system relating to SVQs appears to be more intricate than any other with a number of different levels of quality assurance. Firstly, Assessors monitor candidates against national occupational standards (NOS) at five levels in a range of occupational areas through observation within the workplace, or in certain cases within a simulated work environment. Candidates more often than not supplement this demonstration of evidence of competence though offering a portfolio of other materials, which might include written reports, attestations from

managers (an example of witness testimony), videos of practice and so on. Candidates might be questioned by Assessors as part of establishing the authenticity of the evidence provided. At the next stage, Internal Moderators carry out quality checks on the work of SVQ Assessors. The final quality assurance check is via External Verifiers, who visit accredited SVQ centres to ensure the assessment process is being undertaken in an appropriate manner.

It is interesting to note that Assessors, Moderators and Verifiers are required to have specific qualifications.

There would therefore appear to be a systematic set of checks and balances in the system of assessment. Nonetheless, SVQs and their English NVQ equivalents have been subject to a barrage of criticisms. These include criticisms of excessive bureaucracy, overly complex terminology and a lack of credibility of the competence concept (McAdam and Crowe, 2004). They have also been criticised for centralised and prescribed criteria and processes that have stifled innovation (Purcell, 2001). Critics such as Hyland (1994) have argued that the qualifications are 'seriously flawed and ill-equipped to deal with education and training beyond the level of basic skills', and other notable critics have included Barnett (1994). VQs have variously been described as 'reductionist', 'atomistic' and 'crudely behaviourist'. In short, these qualifications are considered by some to be static and not to have a developmental function. In contrast, it should be noted, however, that traditional academic qualifications have been criticised for their failure to address competences required to function within the workplace (Higham, 1999). A useful summary of the history of the development of VQs and arguments made by critics is provided by West (2004).

In terms of our focus in this review, it has also been argued that VQs focus on what candidates can do and ignore assessment of the underpinning knowledge required for the transfer of skill to another context. In purely practical terms, it has been suggested that they are 'based on a never-ending specification' are 'too detailed and burdensome' and are 'based on assessment regimes too complex and costly' (see Armstrong, 1995). Recent research for the DfES reveals that, for both candidates and employers, VQ assessment is seen 'as being concerned primarily with the 'signing off' of portfolio evidence for accreditation purposes rather than as an opportunity to further the candidates' learning'.

Yet there are potentially positive attributes of competence-based systems when validity and reliability of assessment is considered. Such claims emanate from many disparate disciplines including, to name but two, aviation (Orphins et al 2004) and probation officer training (Knight and Ward 2001). One hope, at the outset of the development of VQs, was that specifying outcomes would have the benefit that 'assessment is being brought into the real world and de-mystified. What is assessed and the standards of performance required are open to both the assessor and the candidate alike' (Jessup, 1991, p135). This is certainly a worthwhile objective in as much as it creates a transparency that is absent for much assessment in other domains.

Furthermore, a recent review of stakeholders (largely) in seven sectors for the national occupational standards Board indicates that despite the widespread criticism of the system:

> There is a 'general view held across all parties… that the introduction of assessment strategies in 1999 had helped make the system more professional and had stopped a lot of inconsistencies in assessment practice' and that 'the introduction of assessment strategies had resulted in employers valuing NVQs and SVQs more highly' (Hart and Hudson, 2005, p21).

Accreditation of Prior (Experiential) Learning (APEL)

APEL represents a form of assessment that is associated with workplace learning and may, for example, form a component of an SVQ. The main precepts of APEL are that learning which occurs outside of formal institutions is potentially measurable and accreditable against formal qualifications, that it is the demonstration of learning that is more important than the process by which that learning took place, and that individuals should not have to spend their time and money in following traditional courses if they can demonstrate competence already. The emphasis on competence is ample illustration of the link between VQs and APEL, though it should be noted that competence is subject to a number of interpretations. Fuetrie (1998), for example, presents four interpretations of competence, pointing out, for example, that the individualism of VQ approaches ignores the complexity of many workplaces where individual performance is indistinguishable from that of the group, and this has led to discussions in the French system of *collective savoir-faire* (collective competence). Staff and students in many formal institutions will know only too well the difficulties of negotiating collective assessment since measures of performance are inexorably individual. The French system of APEL (*La Validation des Acquis de l'Experience* (VAE)) illustrates the possibilities for a collective approach in the workplace (see Pouget and Osborne 2004).

For some commentators APEL represents a radical challenge to current educational practices. For example, Feutrie (2001) sees the French system of VAE as one which represents a challenge to the nature and locus of knowledge; and a challenge to institutions to recognise the diversity of people's opportunities for learning. As a consequence, VAE becomes part of the armoury of widening participation in that it is one means of combating the discriminatory effects of social and economic division. Ultimately, it is argued, VAE presents fundamental challenges to the structure of traditional higher education qualifications such the French *diplôme* (Davies, 1999).

Elsewhere, Murphy et al (2002) have described how systems of APEL can be conceptualised as lying within the panoply of access initiatives to higher education. Not only are such systems about the accumulation of credit to achieve an award, but they also represent a particular form of flexibility by which entry to institutions might be achieved. For example, by constructing a portfolio of evidence of learning equivalent to that which would secure entry to an

undergraduate degree through traditional qualifications gained at school, an adult might be able to gain entry to higher education. And there is good evidence of demand in some societies. For example, in Canada according to a 2004 national survey of over 9000 adults within the Work and Lifelong Learning (WALL)[1] project demonstrated that over half would consider enrolling in learning programmes if prior learning assessment were available. Livingstone and Myers (2007) argue that in Canada alone this translates, when scaled-up, to an unmet demand from 12 million people who might like their informal learning achievements to be assessed and potentially accredited towards qualifications.

However effective and efficient procedures might be, optimism in the openness of systems to radical practices does not always bear fruit. Rhetoric can outshine practice. In France, Feutrie and Gallacher (2003) report that schemes of VAE have largely failed in their assault on traditional educational structures, and there have been many disappointments in the success of work-based schemes with a notable lack of commitment from companies.

The common mantras are that the process is burdensome to institutions, costs too much, is simply about credentialism and is not a process of learning. This may be as much about defending boundaries as it is a legitimate criticism of APEL procedures. Whilst schemes of APEL do tend to emphasise outcome over process, there is good evidence, for example from work in both Canada and France, that the process in itself may for some individuals be empowering and, as Livingstone and Myers (2007) suggest, one with significant spin-offs in not only participation in formal learning, but also in 'labour market participation, workplace productivity, career advancement, voluntary engagement and community development'.

[1] Voices of some of these learners can be found in DVD clips at http://www.wallnetwork.ca and http://www.placentre.ns.ca.

5 Sectoral and subject-specific literature in the subject of English

The range of assessment in English

For English, as for all subjects, assessment needs to form an organic part of the learning process. It can be formative and diagnostic as well as being summative and evaluative. English as a scholastic discipline covers literature and language, cultural, and media studies (particularly at school and college, this is less true at HE level where subsidiary subjects can be studied separately). The QAA's benchmark standards illustrate the complexity of English as a subject:

> English is a versatile academic discipline characterised by the rigorous and critical study of literature and language. It is concerned with the production, reception and interpretation of written texts, both literary and non-literary; and with the nature, history and potential of the English language. The study of English develops a flexible and responsive openness of mind, conceptual sophistication in argument, and the ability to engage in dialogue with past and present cultures and values. The subject also has a special role in sustaining in the general community a constantly renewed knowledge and critical appreciation of the literature of the past and of other cultural forms.
>
> Methods of critical reading and writing taught on English courses take account of the form, structure and rhetoric of texts, their social provenance, the cultures of which they are a part and in which they intervene, and their treatment of ideas and material shared with other subject areas. Students study the interrelationships between literary texts, and they may also consider the relationships between literature, other media and other forms of artistic and cultural production. Some students may attain appropriate elements of this understanding (together with practice-specific skills) through creative writing. The study of the English language embraces diverse modes of communication, oral, written and mixed, and their distinctive levels of phonology, grammar, lexis, semantics and pragmatics. All English graduates are expected to be aware of the shaping influence upon meaning of historical, social, political, stylistic, ethnic, gender, geographical and other contexts (QAA, 2007).

There are a range of English assessments used across the schools, FE and HE sectors generally. They include:

- working to a professional brief supplied by a real client, for example a publisher or advertising agency
- synopses
- critical book reviews
- biographical research
- selected and annotated bibliographies

- assessed engagement with software packages
- self-assessment and peer-assessment (and meta-marking, marking the mark that a student accords to their peer)
- personal learning statements and personal learning portfolios
- creative writing — prose, poetry, drama — across a range of genres and exploring a variety of forms to include imitation and parody as well as original work
- scrapbooks
- video and audio recordings
- web pages
- oral assessment in seminars including individual and group presentations of research topics/projects
- project briefs
- creative 'pitches'
- reflective journals (including reflection upon potential audiences, whether of oral or written work)
- diaries
- reflection on, and evaluation of, syndicate style meetings and/or debates
- textual analysis (formative and summative) exploring inter-textuality including translation and filmic or dramatic adaptation
- the traditional course essay designed to assess particular understanding in detail in combination with the unseen examination used to assess the breadth of material covered on a course

It is entirely appropriate that teachers of English should, while balancing what is practically achievable in terms of time and availability of resources, try to incorporate a wide range of assessment practices into their classes in order to find the type of assessment that produces the best work from different pupils. A 2003 Ofsted report on good assessment practice in English observes:

> Another element in the best practice is the balance that is achieved between the different attainment targets and the variety of activities included in the English curriculum. This offers pupils the greatest possible opportunity to demonstrate their learning, so that those who are more visual can produce texts using the media or ICT, those who best show their insight through role play and drama have a chance to do so, while those for whom a critical essay or a poem are the best medium to express their ideas can regularly produce these (Ofsted 2003, p4).

Although this report is directed at the teaching of English in England, many of its recommendations, and indeed identifications of points of good practice, can be generalised to Scotland where teachers of English have placed considerable emphasis on formative assessment strategies in recent years as we shall see.

Higher Education Academy case studies

The Higher Education Academy's English Subject Centre (http://www.english.heacademy.ac.uk/index.php), based in England but supporting HE English across the UK, offers a useful summary of assessment strategies currently employed by a cross-section of HE institutions as well as four case studies in which:

- assessment enhances the process of student learning
- the purpose of assessment is clearly understood by students
- effective feedback is an essential part of the assessment and learning process
- assessment methods arise out of the specific learning objectives of the discipline
- thinking about assessment contributes to good teaching practice
- a well-balanced programme of assessment comprises a combination of the traditional and the innovative, the formative and the summative
- assessment processes are equitable and transparent, and encourage active involvement on the part of learners

  (http://www.english.heacademy.ac.uk/explore/resources/assess/expandtxt/mission.php)

The first case study, from the University of Northumbria, focuses on a review of writing, reading dossiers and oral assessment (Johnson and O'Neill, 2000). The second, from Sheffield Hallam University, is concerned with self-assessment (Baker and Bannister, 2000). The third, from Staffordshire University, is a useful guide to developing formative assessments in English for a virtual learning environment (VLE) (Holland and Arrowsmith, 2000). Finally, practitioners at the University of East Anglia (Bell and Jackson, 2000), focus on a student-led publishing project, an assessment form that has the potential to be particularly motivating because of intense student engagement including feelings of ownership.

English 21

Relevant to how traditional approaches to assessing English could be invigorated, or even reconceptualised, is the England-based QCA's *Taking English Forward* — its response to the English 21 debate, a conversation about the future of English as a subject (http://www.qcda.gov.uk/9706.aspx). The QCA call for a greater emphasis on creativity, as well as a growing emphasis on speaking and listening, is reminiscent of the Scottish Curriculum for Excellence's current priorities for languages. They identify four themes that will inform future priorities in English:

- Competence — the ability to communicate effectively and adapt to different situations.
- Creativity — the ability to exploit language, experience and imagination to create new meaning.

- Cultural understanding — the appreciation of the best achievements of our literature and language, and new ways that culture develops.
- Critical skills — being able to analyse and evaluate all forms of media and communication.

The National Association for the Teaching of English (NATE) has published a response to QCA (see www.nate.org.uk), which includes concern about the parameters of literacy:

> The complex literacies of reading, writing, speaking and listening will continue to be basic and crucial, but will change in modality over the coming years. Already children have developed technological literacies (such as mobile telephony and instant messaging) which operate according to a very different dynamic from those established in conventional educational practices. We need then to consider literacy in the ways suggested by recent thinking: not as a set of skills which, once learned, can be applied to the practices of life, but as skills learned through the practices of life. Our curriculum must be responsive to the larger social, ethnic and technological world of our culture. We must remember the importance of local linguistic practices and be mindful of local as well as of global aspects of language.

NATE advocates curricular choice and diversity, with reference to global and local citizenship, and questions the notion of 'core functional communication skills' that have to be mastered before the student is able to exercise linguistic choice. It also embraces the greater inclusion of creative responses among the panoply of assessment instruments:

> Imagination and creativity can be nurtured through an open approach to communicative possibilities. The culture of 2015 will offer learners an unforeseen semiotic range to incorporate into their imaginative work. Enactive modes of learning such as drama will foster imaginative responses to the social, political and vocational environment. Engagement with texts of many kinds will lead to creative work in various modes and to reflective, critical literacy.

A factor in everything teachers do is how much space exists in the curriculum to encourage creativity and risk-taking. This is especially salient when it comes to the issue of potentially time-consuming assessment practices — do teachers have time to devise and mark stimulating and novel assessment tasks? And what is the most appropriate balance between formative and summative assessment? These are questions that can be posed in international, national, regional and an individual school context. In order to begin to review practice in the teaching of English in Scotland, it is necessary to outline current systems in place from students aged five through to those studying at university. What follows is thus intended to be a mapping of practice. The pros and cons of approaches to assessing English are then discussed in the following section.

5–14 National Assessments in Scotland

The online guidance offered to English teachers places emphasis upon positive aspects of assessment:

> Assessment should help to build the confidence necessary to cope with increasing challenge. Pupils should be encouraged to develop from where they are, building on their language skills, rather than having the gap exposed between their present attainments and some ideal level of performance. They should be encouraged to overtake the attainment targets they are capable of through following the programmes of study. At the same time teachers should be alert to the need to challenge some pupils by stretching their abilities towards further targets which are within their reach.

AifL advises that through introducing peer-assessment and self-assessment the pupil becomes an independent learner: 'Peer- and self-assessment techniques allow the teacher to share with pupils' expectations and criteria for success and assessment, in a friendly and supportive way.'

Listening, talking, reading and writing are all assessed, though the first two less formally. Examples of the assessment of listening and talking — in which both content and performance are evaluated — might be short written responses testing understanding of what has been heard or read; a brief oral account to the group of a personal experience; a task testing the spelling of specialist vocabulary; a structured written report of an experiment observed; or teacher/pupil discussion of a piece of writing using appropriate linguistic and/or literary terms.

The learning outcomes for the four aspects of English Language are as follows:

- Listening: Pupils will listen individually and in groups, in a variety of contexts and for a variety of purposes, so as to gain information, understand what they have heard and respond to speakers and texts; in so doing, they will achieve an awareness of genre and knowledge about language.
- Talking: Pupils, both individually and in groups, will talk to convey information in a variety of contexts, and will talk appropriately about experiences, opinions, feelings and texts, showing an awareness of audience and purpose; in so doing, they will acquire knowledge about language.
- Reading: Pupils will read to find and handle information for a range of purposes, and will, on occasion read aloud, to enjoy and respond to a variety of texts; in so doing, they will achieve an awareness of genre and knowledge about language.
- Writing: Pupils will write functionally, personally and imaginatively, to convey meaning in language appropriate to audience and purpose; in so doing, they will pay careful attention to punctuation and structure, spelling, handwriting and presentation, and acquire knowledge about language.

More formal National Assessments are provided separately for reading and writing. In reading, a National Assessment at any level comprises two assessment units, one narrative and one informative (Reading for Information). The purpose of the assessment is to confirm the teacher's judgement. Performance is aggregated over two or three assessments to confirm the level. In writing, a National Assessment is comprised of three pieces of writing — one piece of class-based writing from a particular genre, the other two pieces based on tasks randomly selected from the assessment bank. One has to relate to the writer's craft, the other has to be personal or imaginative.

14+ Standard Grade, Access, Intermediate and Higher English

Courses leading to National Qualifications are offered in English at Standard Grade, Intermediate 1, Intermediate 2, Higher, and Advanced Higher. A National Cluster at Access 3 is also available. At Access 2, a National Cluster in English and Communication is available.

The assessable elements of Standard Grade English (0860 01) are reading, writing and talking. Reading and writing are assessed externally by means of a folio and question papers. For each candidate, a folio of work containing five pieces must be submitted for external assessment. There should be two pieces of extended writing (one of a broadly transactional/discursive kind; and one of a broadly expressive/imaginative kind). There should also be three pieces which are extended responses to reading, two critical evaluations of different forms of literary texts, and one further critical evaluation of a literary text; or one critical evaluation of a media text or texts; or one imaginative response to a literary text or texts.

Reading questions require either a short answer (a few words), or a restricted response (a few sentences or a paragraph). Writing questions require an extended response. The talking element involves the candidate in group and individual discussion, and it is assessed internally by the teacher/lecturer. For both reading and writing, there is equal weighting for performance in the examination and in the folio. The overall award for the subject is the mean of the grades for all elements, each element having equal weighting.

Variants of the Standard Grade in English include Alternative Communication (0880 01 — designed for candidates who have been identified as having hearing impairment), and Spoken (0890 01 — designed for candidates with significant difficulties in reading and/or writing). Access 2 English and Communication (CO39 08) engages with the imaginative output of the media, and Access 3 English (C115 09) continues and deepens this engagement, with even more emphasis upon the internally and externally assessed elective 'personal study'. Intermediate 1 and 2 English (C115 10 and C115 11) are similar in that they combine language study, literature study and personal study.

Higher English (C115 12) provides a progression route from both Standard Grade and Intermediate 2 English. Again, the elements of language study,

literature study and personal study culminate in an assessment that is comprised of a close reading exercise and a critical essay. Advanced Higher English (C115 13), for students who wish to progress from Higher English, allows for a much greater degree of specialisation. As well as mandatory Units in literary and specialist study, the student can take an optional Unit from among the following: language study, textual analysis, reading the media, and creative writing. Thus the scope for assessed work is quite broad; the Course assessment includes a dissertation of 3,500–4,500 words for specialist study, and a question paper of one hour and 30 minutes duration for all other Units — apart from creative writing, which is assessed by means of a portfolio containing two pieces of creative writing of different genres.

Further education — Higher National Certificate/Higher National Diploma (HNC/D) in Communication and Media

As well as the named qualifications in which English features most prominently — the HNC/D Communication in Media — Communication is a Core Skill in Scottish further education colleges (one of a framework of five, which also includes numeracy, information technology, problem solving, and working with others). Certification is available in a range of forms at national level within provision that complements that described above. (Some of the above may also be found in FECs.) All candidates who gain an SQA qualification receive a Core Skills profile as part of their formal certification. The development of Core Skills, including Communication, underpins the acquisition of generic skills such as thinking skills, analysis, synthesis, and creativity (see HMIE, 2001, for a review of Core Skills in FE colleges).

There are many other Units offered across this sector that could be described as aspects of English as a subject. There is a Curriculum Mapping Project available online whose aim was to map JISC and other electronic resources to SQA Units across a range of curricular areas. The project ran from November 2001 to June 2002 and involved lecturing staff in 18 colleges in the RSC Scotland South and West's area. Each participating college focused on a particular curricular area and mapped four SQA Units of their choice to resources. Resources were mapped to the learning Outcome in each Unit. Core Skills resources mapped include: Communication: Presenting Complex Communication for Vocational Purposes; Communication 4; and Communication (Intermediate 2).

There are a number of other HN Communication Units in existence at the moment. SQA is currently working on a project to rationalise the provision.

The most popular Units are:

- Communication: Selecting and Presenting Complex Information
- Communication: Practical Skills for the Workplace
- Communication: Presenting Communication for Vocational Purposes
- Communication: Developing a Communication Strategy for Vocational Purposes

- Communication: Practical Skills Communication: Analysing and Presenting Complex Communication

These Units appear within various award frameworks and Qualification Design Teams are free to choose the Unit/s that is/are most suitable to their particular needs.

We focus here on the Higher National awards.

HNC in Communication and Media

The HNC in Communication and Media aims to:

- develop communication skills and presentation techniques
- develop the ability to be flexible and to work co-operatively with others
- develop investigative and research skills
- provide options in specialist areas — Advertising, Marketing, Public Relations, Journalism, Publishing, Radio Production, Video Production, Audio Visual Production, and Photography
- develop an understanding of the interdisciplinary connections between the various specialist areas mentioned above
- facilitate progression to the HND Communication with Media by covering six HND mandatory Units, five optional Units and one Graded Unit credit
- prepare for employment
- prepare for progression to further study in Communication or Media (SQA Arrangements document, p4)

For the HNC in Communication with Media (G7GW 15) the Group Awards have a credit value of 12 (96 SCQF credit points) and are made up of six mandatory Units — Complex Oral Presentation, Writing for the Media, Press and Broadcasting in the UK, Communication: Using Information Technology and Desktop Publishing, Research Skills, and Communication with Media (Graded Unit 1) — and six optional Units chosen from a very broad range of possible Units.

HND in Communication and Media

The HND in Communication and Media aims to:

- develop and extend core competences achieved in the HNC Group Award
- supplement these with a breadth of specialised competences
- increase awareness of professional issues such as legal and ethical considerations
- develop a high level of understanding of the interdisciplinary connections between the various specialist areas
- accelerate the level of entry into degree courses
- accelerate the level of entry into vocational areas (SQA Arrangements document, p4)

The HND (G7GX 16) has a total credit value of 30 (240 SCQF credit points) and is comprised of 12 mandatory Units — Complex Oral Presentation, Writing for the Media, Press and Broadcasting in the UK, Law and the Communication Industries, Communication: Using Information Technology and Desktop Publishing, Research Skills, Interpersonal and Group Skills, Interview Skills, Editing and Proofreading, and Communication with Media (Graded Units 1 and 2) — and 18 optional Units.

For both HNC and HND, the Core Skills are assessed in range of ways, chiefly:

- summaries of texts
- textual analysis
- written reports and responses to case studies
- journalistic articles
- portfolios of media texts
- single and group presentations
- planning, organising and taking part in formal interviews (as interviewer and interviewee)
- the selection and presentation of electronic data
- evaluation and presentation of statistical data
- internet-based research and, where appropriate, design
- questionnaire analysis and interpretation
- presentation of statistical information in graphical form
- presentation and analysis of data in a range of business formats
- strategy reports on problem-solving in organisations
- analytical observation of group working practices
- evaluation of performance in a formal business meeting (it is not made clear whether this is self-evaluation, peer-evaluation or tutor-evaluation, although it is identified as formative work)

As far as formal guidance about assessment strategies goes, the Arrangements document states that:

> The revalidated award encourages a more holistic approach to assessment, with an emphasis on integration of assessment opportunities. As conditions vary between centres in terms of resources, staff and candidate profiles, outline decisions have to be made early on as to what needs to be assessed, when and how, what knowledge is essential and crucial to test, and what knowledge and skills may be taught, developed and applied without formal assessment. Continuous assessment not only provides practice and an opportunity for feedback at points of a Course when alternatives are possible, it may prevent end of term/year overload (SQA Arrangements document, p25).

In other words, there is considerable flexibility of practice and, as a consequence, potentially considerable variation between colleges. The document advocates the inclusion of work experience, and more Units that reflect this are currently being developed. While, 'product evidence for practical activities, written reports and end of Unit tests are a traditional way of providing tangible evidence of achievement', the document makes clear that Evidence Requirements may also be met by 'other methods of assessment', and colleges have been recommended to consider the use of:

- oral reporting, evidenced by videotape, or observation checklists and notes/product evidence
- brief notes, e-mails
- witness testimony/mentoring
- group discussion/seminars evidenced by action minutes/observation
- oral questioning
- multiple choice
- portfolio production
- assessment pro-forma sheets, log and diary records
- peer- and self-assessment

(Arrangements document, p25)

To what extent are these assessment methods applied across the sector? Without a survey of current practice it is difficult to be sure, but one indicator is the section on assessment in Scottish HMI Subject Review reports undertaken on behalf of the Scottish Further Education Funding Council. The reports tend to be brief, not going into great detail about the variety of assessment instruments used, but focusing more upon any assessment issues that need to be addressed in the future — for example, internal moderation inconsistently applied (in one case Communication delivered by non-specialist staff was not moderated at all), lack of prompt and/or appropriate feedback, assessment overload, a lack of clarity about marking criteria (in another case marking schedules had not been developed for all Units), and a concomitant lack of clarity about arrangements for

receiving merits and for re-assessment. Conversely, positive comments focus on prompt and clear feedback, clear marking schedules, 'well-designed' valid, reliable and consistent assessment tasks. In one case, staff teaching on the HNC had 'encouraged particularly effective use of peer feedback on oral presentations for formative assessment.'

Higher education case studies

The QAA benchmarking group provides statements that encourage good discipline-specific practice in English at HE level. At higher education level English is a popular subject in both combined and modular programmes and overlaps with other complementary disciplines including Linguistics, Drama, Communication Studies and Philosophy. It is reassuring that they allow for the evolution of the subject in their subject benchmark statements:

> In its intellectual character and academic practice, HE English is a continually evolving discipline. It demonstrates a critical self-awareness that encourages a sophisticated interrogation of its own history, status and practices. It includes the study of the literatures from the anglophone world. In addition to the study of literature and language, the subject can also incorporate comparative literature and literature in translation, drama, creative writing, film, and the study of non-literary texts (QAA, 2007).

We thought it would be interesting to explore Creative Writing taught at this level in more detail. Creative Writing is an expanding area of English at both undergraduate and postgraduate levels, not only as a subsidiary component of a degree in English Literature and/or Language, but also increasingly as a named qualification in its own right. Scottish universities have been quick to develop programmes in Creative Writing for undergraduate and postgraduates at Masters level, with plans for PhDs underway, and we examine two comparable postgraduate courses offered by Scottish HE institutions in which Creative Writing features prominently. There are well-established courses at other institutions, for example the MLitt in Creative Writing at the University of St Andrews, but time and the scope of the report did not permit an exhaustive survey.

Case study one: Creative Writing at postgraduate level at the Universities of Glasgow and Edinburgh

Assessment of the Creative Writing MLitt at the University of Glasgow

There is one prescribed compulsory element with two aspects:

- Workshops over two terms, ten per term, with a rota and each student being work-shopped three times in each cycle and providing editorial feedback to fellow students every week.
- The dissertation ('portfolio') in one genre or a combination of genres to be agreed with the course convenor.

There are four elective units, Transmission 1 and 2, Editing the 20th and 21st Centuries 1 and 2, with the first of each available in the first term and the second in the second term. Students are permitted to elect courses from other MLitt programmes in lieu of these optional courses.

Several methods of summary assessment are employed, based on the written and/or project work of the students, namely:

- Compulsory Core Courses: creative dissertation ('portfolio') of up to 20,000 words prose or script or up to 800 lines of verse (60%) (overall 100 credits).
- Specialist Options: Transmission 1: course log; Transmission 2: portfolio of exercises including 'genesis document', project synopsis, blurb and biographical criticism; Editing the 20th and 21st Centuries 1: either a course log or a 3000 word case study; Editing the 20th and 21st Centuries 2: collaborative project.

Assessment is formative as well as summative, with seminars and coursework providing opportunities for constructive feedback. Dissertation tutorials provide advice on generic, formal and stylistic solutions, and, later, feedback on the dissertation as it develops.

The assessment criteria for all work entail:

- Demonstrating an understanding of terms, genre and the formal implications of specific generic choices and combinations.
- Coherence and consistency in the pursuit of creative, editorial and critical ends.
- Relevance and appropriateness of language and formal choices to genre developed or appraised.
- Evincing a clear understanding of narrative and other formal strategies adopted.
- Integrating material in as fully expressive and appropriate a structure as possible.
- Where provided, accurate information, avoidance of vague generalisations; in historical narrative, correctness of fact and idiom — for example, the avoidance of anachronisms in detail or language.
- Clarity, deliberate economy of expression and correct English or consistent dialect.
- Awareness of relevant examples, literature and terminology and relevant changes of meaning and emphasis over the past century.
- Originality (including original syntheses drawn from wide reading) entailing generic, formal and linguistic risk.

There are eight grade descriptors that correspond to the assessment criteria:

- A — Exemplary range and depth of attainment of intended learning outcomes, secured by discriminating command of a range of media, and by evidence of editorial judgement in the generic and formal choices made; originality.
- B — Conclusive attainment of virtually all intended learning outcomes, clearly grounded on a close familiarity with a wide understanding of terms and issues.
- C — Clear attainment of most of the intended learning outcomes, some more securely grasped than others, resting on a circumscribed sense of genre, form and style and displaying a variable depth of understanding and accomplishment; nevertheless clear competence and accuracy.
- D — Acceptable attainment of intended learning outcomes, displaying a qualified familiarity with a minimally sufficient range of relevant materials, and a grasp of the issues and concepts which is generally reasonable, albeit insecure; acceptable, but qualified attainment.
- E — Attainment deficient in respect of specific intended learning outcomes, with mixed evidence as to the depth of knowledge and weak creative performance.
- F — Attainment of intended learning outcomes appreciably deficient in creative respects, lacking secure basis in relevant terms, lack of an understanding of genre, form and style.
- G — Attainment of intended learning outcomes markedly deficient in respect of nearly all intended learning outcomes, with irrelevant use of materials and incomplete and flawed execution.
- N — No convincing evidence of attainment of intended learning outcomes, such treatment of the subject as is in evidence being directionless and fragmentary.

Assessment of the Creative Writing MSc at the University of Edinburgh

Creative Writing is assessed by submission, at the end of each semester, of a portfolio of work. Submission requirements are as follows:

- prose fiction — approximately 10,000 words
- poetry — approximately 20 pages

Contribution to a series of workshops is judged satisfactory where a student has presented work at least twice in a semester and has demonstrated in-depth critical response to work by other students. The final Creative Writing dissertation is submitted in September and, if prose, is not less than 25,000 words and not in excess of 30,000; where poetry, it must be sufficient to constitute a publishable volume, approximately 50 pages. In the academic year 2006–07, tutors have for the first time been encouraged to use the upper (80–100) range of marks in line with the rest of the University.

In a sense, the team's approach to assessment of Creative Writing at Edinburgh is to measure the degree to which there are problems and the written and verbal feedback reflect this, so that students know how to address the problems and improve their writing. The team at Edinburgh developed their criteria in order to get away from the pervasive but nebulous idea of 'originality' — the concept that a particular piece of work needs to demonstrate what no others have done before, which is something of a tall order (note that it does feature in criteria 9 at Glasgow but can include original synthesis). The course tutors believe there is a place for experimentation in phrase-making, the use of language, and some originality is possible in the formation and juxtaposition of ideas, though it should be noted that novelty is not always, or even often, what publishers are looking for in marketable work, especially prose, although there are always exceptions. The criteria are set out as follows:

- 80 — exceptional mark designating an exceptional achievement — what we might term 'finished work'.
- 75–79 — fine work, with some further development/finishing required.
- 72–74 — excellent, but with certain tendencies queried and some dev./fin. req. All the above are 'clear 1sts' and clear distinction level.
- 68–71 — excellent/very good work, but with some undermining tendencies/flaw(s). These are 'borderline' 1sts/distinction level.
- 65–67 — very good work with many virtues and qualities, but markedly hampered by flaw(s).
- 60–64 — good work with certain qualities, but not showing enough strengths to compensate elsewhere. All these are good passes which allow the student to progress with relative confidence to the dissertation.
- 56–59 — work with some merit but somehow seriously flawed.
- 50–55 — work which just satisfies the 'due product' criteria, but shows few real merits. These are passes, but designate cause for concern.
- Below 50 — work of unacceptably poor standard.

The difficulties of gauging originality are perhaps obviated by starting with the idea of a 'complete' work — Robert Alan Jamieson, one of the course leaders, jokes that this could be seen as a kind of Platonic form — and divining marks according to what extent it deviates from the ideal, a lower mark reflecting absence.

The fraught process of negotiating a numerical mark for creative work is helped by 'a number of different readers and plenty of discussion'. Robert Alan Jamieson feels that some students find numerical marks difficult and yet others welcome them as they help them to gauge their own progress — on this latter point he remarked that marks can function as 'a spur to either confidence or conscience'. However, he does feel that this could be equally well accomplished with words and that, whatever system of feedback is adopted, one must fully 'engage with the narrative that is that student'.

Emerging issues in English

A variety of assessment instruments

Perhaps a selection of the assessment forms mentioned above — synopses, critical book reviews, biographical research, selected and annotated bibliographies, assessed engagement with software packages, personal learning statements and personal learning portfolios, creative writing, web pages, creative 'pitches', diaries, and published collections and magazines, for example — could be adopted in parallel with more traditional instruments, bearing in mind that diversity, although providing a richer experience for the student, requires time and effort to introduce, examine and quality assure.

The introduction of a variety of assessment instruments is important in order to accommodate the different strengths and weaknesses, aptitudes and enthusiasms of students as the 2003 Ofsted report on best assessment practices in English makes clear. To reiterate: 'This offers pupils the greatest possible opportunity to demonstrate their learning, so that those who are more visual can produce texts using the media or ICT, those who best show their insight through role-play and drama have a chance to do so, while those for whom a critical essay or a poem are the best medium to express their ideas can regularly produce these' (2003, p4). However, given the QAA — and hence HE institutional — adherence to the essay as the prime instrument of assessment for English as a subject, it would be short-sighted to jettison it completely. Essay-writing is a valuable skill, aspects of which can be generalised to a variety of work-based contexts.

Studying a broad range of literary texts, as is current practice in Scotland, is good preparation for the student who is determined to go on to study a degree in English as they will find a similarly text-laden curriculum at university. Such wide reading also gives thorough grounding for the Creative Writing student who needs to be well-versed in good models. As far as the choice of texts is concerned, breadth in cultural, formal and stylistic terms is one part of the equation. The selection of texts above all needs to excite the student and interestingly Smith and Ellis (2005) refer to evidence that choosing emotive texts can be more effective in engaging and thus motivating children's writing (2005, p7).

Marking criteria

The HE case studies mentioned in this report illustrate that criteria used to assess Creative Writing remain contentious, and similar ambiguities are encountered when marking Arts and Humanities assignments in general because the notion of 'originality' still haunts the upper ranges. As we have seen, criteria can be generic or specific to the form in question (poetry, prose, visual, musical, technical, scientific, kinaesthetic, etc) and may attempt to address the technical skill required to produce the piece as well as the more thorny issue of 'artistry'. This latter component is sometimes couched in terms of breadth and depth of engagement with the conventions, but essentially rests on deviation from them: something that avoids mere mimesis and manages a fresh perspective or voice.

At Edinburgh University, the tutors start with a notion of a complete publishable piece of creative writing and arrive at a mark according to deviation from the ideal. This can be thought of as a heuristic they have developed to frame the all-important constructive feedback to students. By contrast, at Glasgow there are a number of quite explicitly stated criteria used to tease out the relationship between the technical and the artistic. The following are particularly helpful:

- demonstrating an understanding of terms, genre and the formal implications of specific generic choices and combinations
- coherence and consistency in the pursuit of creative, editorial and critical ends
- relevance and appropriateness of language and formal choices to genre developed or appraised
- a clear understanding of narrative and other formal strategies adopted
- appropriate choice of structure to reflect aims
- where provided, accurate information, avoidance of vague generalisations
- clarity, deliberate economy of expression and correct English or consistent dialect

These criteria, reframed for context, could be applied to the assessment of English more widely. The Creative Writing courses at both Edinburgh University and Glasgow University include the notion of linguistic risk and 'freshness' — or the deviation from the purely conventional — among their criteria.

Both courses are assessed by means of the internally and externally examined portfolio, combined with reflective writing about the aims of the piece/s. Could this practice be embedded to a greater extent within a schools' curriculum? While it is not appropriate to engage with Creative Writing per se under examination conditions, it might be possible to ask for reflective engagement under these conditions (either orally or in writing) if assurance is needed that the portfolio is the student's own work. An oral conversation about the portfolio, although extremely time-consuming and potentially intimidating for the student, would elicit more detail and provide an opportunity for 'talking' — one of the four key areas of English 5–14 — to feature more prominently. It should be noted that English teachers in Scotland already frequently engage in informal formative discussion about Creative Writing pieces for the pupils' folios in the interest of good practice.

Explicitness of criteria

Perhaps unsurprisingly, the 2003 Ofsted report on English departments, in which 'pupils make good or very good progress', makes a connection to the consistently high quality marking of pupils' written work. As well as errors, good expression is also noted and ways of improving the work clearly signalled. Comments are made in detail, even for the highest achievers, and this 'improved explicitness' is applied in the case of self-assessment and peer-assessment also, where 'practice is most effective where the assignment objectives are clearly displayed (for example on a cover sheet specific to the task) or pupils are used to working

as “response partners”, with a clear agenda of points to cover in looking at each others’ work’ (2003, p3). Furthermore:

> Where really astute comment is seen, it is often where self assessment is used relatively infrequently, and is tied to a wider review that looks back over previously set targets and over the teacher’s accumulated comment. The best departments use self- and peer assessment to increase awareness of the nature of progress rather than seeing it as part of assessment itself — the latter being the preserve of the skilled, specialist English teacher (Ofsted, 2003: p3).

A distinction needs to be made between target-setting and the sharing of clear marking criteria with students. Target-setting, banding and streaming decisions can have a negative impact on student expectation and esteem, whereas clear objectives and marking criteria lead to greater clarity about what students are trying to aim for and achieve. As far as English in particular is concerned, Smith and Ellis (2005), referring to the work of Marshall (2004), suggest that due to the complexity and non-linearity of the subject, aiming for ‘broad horizons’ rather than ‘atomistic targets’ might be more appropriate (2005, p5).

Initial Teacher Education in English naturally incorporates attention to learning outcomes and assessment criteria in advice to beginner teachers. A collaboration between Canterbury Christchurch University College, NATE and the United Kingdom Literacy Association funded by the TDA (http://www.ite.org.uk/index.php) makes the point that planning for assessment should include:

- using success criteria to inform planning
- using examination assessment objectives/criteria to inform planning
- using prior attainment to inform planning
- using evidence of achievement against success criteria to inform planning
- sharing the above with the pupils

Ambitious, Excellent Schools and English

Scotland is currently pursuing its Ambitious, Excellent Schools agenda and Curriculum for Excellence (from age three to eighteen) is central to this. In line with recommendations about the variety of assessment instruments above, it is stated that, ‘the curriculum should respond to individual needs and support particular aptitudes and talents. It should give each child increasing opportunities for exercising responsible personal choice as they move through their school career.’

Linking subject areas together can make learning and teaching more coherent, and the study of languages (of which English is a part) should entail close links between the Expressive Arts and Creative Writing, and between Modern Languages and Social Studies. An interdisciplinary curriculum is intended to better embed learning within a twenty-first century global context, and is

compatible with an emerging assessment methodology that offers structured choices of assessment that enable a child to pursue their interests and develop their strengths both individually and collaboratively. It is stated that interdisciplinary projects are likely to involve both research and a strong element of presentation, so appropriate assessment tasks such as research and project diaries, and peer and group assessment, will need to be developed to record and enrich experience of the projects. Smith and Ellis's (2005) review of research literature about language and literacy, commissioned to provide evidence to support the proposed Curriculum for Excellence, cites recent studies (Grainger, 2004; Heath and Wolf, 2004; and Bearne et al, 2004) in which 'Integration of language, literacy and the arts can raise both engagement and attainment' (Smith and Ellis, 2005, p5).

It is hoped that learning through the languages area of the curriculum will enable children to:

- develop their ability to communicate their thoughts and feelings and to respond to those of other people
- develop the high level of skills in listening, talking, reading and writing which are essential for learning, work and life
- use different media effectively for learning and communication
- develop a secure understanding of how language works and use language well to communicate ideas and information in English and other languages
- exercise their intellectual curiosity by questioning and developing their understanding, and use creative and critical thinking to synthesise ideas and arguments
- enhance their enjoyment and their understanding of their own and other cultures though literature and other forms of language
- develop competence in different languages so that they can understand and communicate including, for some, in work settings

The online information about the languages area of the curriculum emphasises language and literacy as well as the appropriate use of technologies and digital texts. The guidance will retain reading, writing and listening and talking as lines of development for English Language, Gàidhlig and Modern Languages, and this will include competence in spelling and grammar. Thus, much of the formative assessment strategy developed in AifL can be used in this context, as can criteria developed for assessing creative thinking and writing, and experimental projects where part of what is assessed is the multimedia and/or online product and part is the individual and/or collaborative process. Renewed attention to literacy practices in Curriculum for Excellence, already present in the emphasis on communication in Scottish schools and FE colleges, needs to acknowledge that literacy is socially determined and in a process of flux; rather than being a set of core skills to be mastered and then applied to life, literacy is acquired through life experience. Thoughtful approaches to assessment design in English, by reflecting student interest in and engagement with the world around them, can encourage the burgeoning of literacy in school and throughout life.

6 Sector and subject-specific literature in the subject of Biology

The range of assessment in Biology

Biology and Science assessment in Scotland have been shaped by national reviews, policies and debates throughout the 1990s (Bryce, 2003; Hutchison and Hayward, 2005). Three major themes dominate current assessment practices in Scotland:

- assessment of all children, rather than a sample of children and concomitant involvement of teachers in the assessment process
- a move from norm-referenced testing to criterion-referenced testing against a detailed and specific set of subject-related learning objectives
- an expanded system of levels of attainment and national qualifications

(Bryce, 2003)

Biology assessment in Scotland fits well into the general scheme of summative and formative distinctions. Summative evaluations beyond the 5–14 levels are prescriptive and, despite the emphasis on teachers' role in administering and scoring investigation assessments, are strongly directed by national guidelines. Formative assessment, on the other hand, has been largely influenced by teacher participation in its creation and implementation and is adaptable, informal and varies widely from classroom to classroom.

Formative assessment

The goal of formative assessment is to provide both pupils and teachers with information to develop the next steps in learning. In Scotland, AifL has been particularly active in Science and Biology (Her Majesty's Inspectorate of Education [HMIE], 2005). The Science version of the Black and William series of pamphlets, *Science Inside the Black Box*, (Black and Harrison, 2004) enjoys wide distribution throughout schools and within Initial Teacher Education programmes in universities. Four major strategies for formative assessment have been developed by the Black research group (Black et al, 2003) including questioning, giving feedback, self- and peer-assessment, and using summative tests formatively. The questioning strategies are designed to promote student thinking and problem solving, as well as, giving students and teachers checks for understanding. Black and Harrison (2004) promote rich questions that cause the learner to develop sub-questions and organise information, such as, 'If plants need sunlight to grow, why aren't the largest plants found in the desert?' In the area of feedback, teachers are encouraged to give very specific feedback on students' correct and incorrect thinking. They are also encouraged to first present feedback without any marks, so that learners will pay specific attention to the feedback rather than just the grade. Within the areas of self- and peer-assessment, learners are asked to evaluate their own understanding of learning outcomes and comment on the strengths and weaknesses of a peer's work,

respectively. Finally, teachers are encouraged to use summative assessments, such as tests, diagnostically to determine which outcomes need more attention.

Summative assessment

The range of summative assessment methods internationally in Biology is continuing to be explored and researched, including practical work assessment, performance assessment, concept mapping, peer assessment, and the use of science notebooks (Cowie, 2005; Hafner and Hafner, 2003; Matthews and McKenna, 2005; Mintzes, Wandersee and Novak, 2003; Ruiz-Primo, Li, Ayala and Shavelson, 2004; Shaw, 1997). In Scotland, two methods of summative assessment are dominant in the Biology classroom in the schools' sector, national examinations and assessment of scientific investigations. Most other forms of written work in Biology — including short writing assignments, essays, practical reports, and science notebooks — are considered to be forms of either learning activities or formative assessment in schools (SQA, 2000). In further education, there is a similar pattern of assessing scientific investigations skills through projects and practical assessment, as well as sampling other types of knowledge and skills through exams (SQA, 2005a). The range of Biology assessments in higher education will be described in a further section.

The most outstanding feature of summative assessment in Biology in schools is Scotland's commitment to assessing skills of scientific investigation. While some other countries have abandoned this approach due to cost, logistical and conceptual problems of validity and reliability (Baxter and Glaser, 1998), Scotland has continued to assess students in hands-on practical work and the concomitant scientific thinking skills through teacher involvement. In general, these practical assessments require pupils to analyse a scientific problem, design an experiment to solve the problem, carry out the experiment, collect and record relevant data, display data using charts or graphs, formulate conclusions, and communicate findings through a written laboratory report. While the nature of the investigations varies widely and appropriately at each level, many complex scientific problem solving skills are tested at each level. For example, the idea of a controlled experiment is developed in level S3 Standard Grade Biology, while in S5 Higher Biology, students carry out sophisticated laboratory procedures, such as creating a serial dilution or comparing results with a standard.

5–14 Science assessment

There are no National Assessments in Science at the 5–14 level. Classroom teachers are free to design assessments that they feel summarise student attainment. Relatively little is known or has been researched regarding assessment in Science at the 5–14 level. In a series of surveys from 1987–1996, the Assessment of Achievement Programme with voluntary schools tested pupils in three broad bands in Science, P1–3, P4–6 and P7–S2. In general, the findings indicated that by P4, pupils had attained the desired level B objectives, but that by S2, only level D, rather than the anticipated level E had been attained. Results from one cohort that participated longitudinally indicated that a clear progression in attainment had been achieved over time, but with evidence of a growing gap

between low and high achievers over time (Condie, Robertson and Napuk, 2003).

The HMIE summary report on achievement in Science for the period 2000–2005 noted that in most primary schools, assessment in Science exhibited important weaknesses. Many schools still did not have in place systematic approaches to assess pupils' learning against the 5–14 curriculum objectives. In general, schools made little use of assessment information to set challenging targets for students, resulting in delivery of content at either too high or too low a level. In secondary schools, while assessment in S3–S6 was usually rated good to very good, assessments at the S1–S2 level were not well developed. Primary schools which had adopted AifL programmes showed the most improvement in formative assessment, including informing students of learning outcomes, using a variety of approaches, and informing students of criteria for judging work (HMIE, 2005).

14+ Standard Grade Biology, Intermediate 1 and 2, Higher and Advanced Higher Biology, National Assessments

The assessments for Standard Grade Biology, Intermediate 1 and 2, and Higher Biology have been designed on the same basic template. Therefore, a description for Standard Grade Biology will be used as an example with additional information about the other Courses following. The curriculum objectives for Standard Grade Biology in secondary school consists of four main domains: knowledge and understanding, problem solving, practical abilities, and attitudes. In National Assessments, students are expected to demonstrate their accomplishment of the major aims in the first three of these four domains. Within the knowledge and understanding domain, the emphasis is on scientific facts, concepts, ideas, and societal applications of science. The aims of the problem solving domain include the ability to handle and process scientific information, evaluate procedures, draw conclusions and make predictions. The practical abilities domain requires students to demonstrate specific scientific techniques and investigative skills. The aims of the attitudes domain are for pupils to develop interest, motivation, open-mindedness, co-operation, and initiative (SQA, 2000). Of the four areas, knowledge and understanding, problem solving, and practical abilities are assessed through the national exams and investigation assessments, while attitudes are more informally assessed through teacher judgements.

In Standard Grade Biology, knowledge and understanding objectives are written to describe discrete content performances. For example in the 'ecosystem' Unit, one objective at the General level reads, 'Describe what is meant by a consumer and a producer.' There are many knowledge and understanding objectives in the two-year Standard Grade Biology Course, including several for each sub-topic, two to four sub-topics per topic, and seven main topics overall. Credit level candidates must demonstrate the mastery of additional objectives beyond the General level. In addition to the knowledge and understanding objectives, there are seven broadly based problem solving objectives to be demonstrated across the Course, such as drawing a reasonable conclusion from relevant information, calculating percentages, and graphing.

The National Qualifications exam (NQ) in Standard Grade Biology is designed to assess both the knowledge and understanding, and problem solving domains. Test items ask students a range of content-based questions such as identifying structural features of plant tissues, as well as, problem solving skills, such as plotting and drawing a line graph. The exams are administered in May of the school year and last 90 minutes.

Investigations assessments are designed to measure achievement in the practical abilities domain, including 10 specific biological techniques and 13 distinct 'investigation skills'. An example of a technique is 'preparing a microscope slide as a wet mount'. An example of an investigation skill is, 'articulate a testable hypothesis'. Each pupil must carry out and submit reports for two investigations they have not previously undertaken in class work, according to guidelines. Teachers must provide opportunities for candidates to demonstrate all 13 investigations skills within the two investigations. The Arrangements document for Standard Grade Biology gives specific direction as to what teachers may assist pupils in doing and what they must do independently. Thus, investigation assessments are nationally guided, and there is substantial teacher involvement in the choice of topic, implementation, and scoring of these assessments. The Arrangements document provides several sample topics that teachers might choose to assist students in developing investigations. Participating institutions must submit samples of evidence to the national authority on a regular basis to ensure that marking is done in a fair and rigorous manner for these internal assessments.

Intermediate 1 and 2 Biology, Higher Biology and Higher Human Biology Courses have assessments similar to Standard Grade Biology, including an examination to assess knowledge, understanding and problem solving domains and investigation assessments to assess practical abilities. In general, Intermediate 1 and 2 classes are intended for students who may not study Biology further and their contents are accordingly less abstract and rigorous. Higher Biology and Higher Human Biology are to be taken in years S5 or S6 and are intended for students who are highly interested in Biology and/or wish to pursue Biology-related careers. Their contents are correspondingly more rigorous. In Higher Biology and Higher Human Biology, teachers administer additional National Assessment Bank Unit tests (NABs) after each topic of study in addition to the final National Qualifications exam and internal investigation assessments. The NABs are similar in style and level to the exam and thereby require students to revise the material periodically throughout the Course. Finally, Advanced Higher Biology is designed for high achieving Biology students in S6. In addition, under teacher guidance they generate, design, carry out and report on an original piece of biological research which is marked against a sophisticated scheme of criteria for investigation skills (SQA, 2002a; 2002b; 2002c; 2005b).

Further education — Higher National Assessments

Colleges in Scotland offer three major types of qualification: National Units that provide general or transferable skills, knowledge and 'tasters' of employment experience that complement the national provision outlined above; Higher

National provision that complements the HE offer of universities described below; and some of the work-based provision described earlier. In this section we deal only with provision of the two major types of qualification to prepare students for the workplace or for articulation to higher education, the Higher National Certificate (HNC) and the Higher National Diploma (HND). There are a multitude of HNCs and HNDs offered at colleges that involve the study of one or more Biology Units. A partial list of these qualifications includes Environmental Science, Applied Science, Biotechnology, Food Science and Technology, Nursing, and Science Laboratory Work. Within each HND or HNC qualification programme, students would complete one or more Biology-related modules such as Microbiology: Theory and Practice, Cell Biology: Theory and Practice, Tissue Culture, or Human Biology. Each module represents about 40 hours of contact time spent in the classroom with appropriate reading, revision and assessment. For example, the Science Laboratory Work (Biological Sciences) HND requires passing 13 science content modules or some combination of content modules and work-based awards ([SVQs] SQA, 2005c).

SQA provides detailed and focused guidelines for the assessment of Biology Units. The guidelines are designed to ensure that the assessments used are valid, reliable and practicable. Every lecturer must verify and provide evidence that each candidate has met the specified criteria for passing the Unit. Criteria are clearly stated as learning outcomes for each Unit and relate to either knowledge and understanding or practical abilities. For example, the Cell Biology: Theory and Practice Unit has four learning outcome categories, each with three distinct learning outcomes.

Outcome 1

- identify the features that distinguish a prokaryotic cell from a eukaryotic cell
- describe the structural difference between plant and animal cells
- demonstrate an understanding of cell size in terms of surface area to volume ratio

Outcome 2

- describe the cell membrane in terms of the fluid mosaic model
- explain the mechanisms involved in the transport of small and large molecules
- describe the structure and function of eukaryotic organelles

Outcome 3 (practical skills)

- carry out the following safely and successfully: prepare samples, fix samples, stain samples
- demonstrate a practical ability to: focus, develop contrast, use oil immersion and determine the actual size of cells
- correctly interpret micrographs in terms of: cell type, identify specific structures, determine the actual size of cells

Outcome 4

- demonstrate an understanding of the cell surface molecules involved in cell recognition

- demonstrate an understanding of the different mechanisms involved in communication between adjacent cells and communication between distally located cells
- demonstrate knowledge of potential errors in communication and its consequences (SQA, 2005c)

SQA provides assessment exemplars for measuring attainment of the knowledge and understanding criteria. Individual lecturers may use the exemplars in whole or part to assess their students or they are free to develop their own assessment instruments. However, if a lecturer does develop his/her own assessment, 'she/he must ensure that the assessment generates the Evidence Requirements specified in the Unit specification' (SQA, 2005b, p 5). In such circumstances, it is suggested that the college go through internal moderation to gauge the appropriateness of the assessment. The assessment exemplars for each Unit have already undergone internal and external moderation, so they are deemed to be valid measures of a candidate's success. This suggests that many lecturers may use the exemplars as their actual assessment instruments, since these instruments have already been through the time-consuming moderation process.

As an example, the assessment instrument for knowledge and understanding in Cell Biology: Theory and Practice consists of an exam with 15 items requiring short answers or restricted responses. The exam is graded on a scale of 48 possible marks and 60% (29 marks) is required for a pass. Candidates are allowed up to 60 minutes to complete the exam. Items are designed specifically to correspond to the learning outcomes criteria outlined above. An informal survey of three additional Biology Unit assessment exemplars indicated a similar pattern of exams with a single word, short answer, or a few sentences of response required. Some of the exams were more lengthy and candidates had additional time (up to 2 hours) to complete them. In each case, assessment exemplar keys are provided to indicate acceptable responses (SQA, 2005b; 2006).

Practical abilities are also assessed in Biology Units in FE. Lecturers must provide evidence that each successful candidate has clearly demonstrated each practical ability, such as staining a microscope slide or calculating the actual size of a cell. Practical abilities may be assessed by the lecturer simply observing the skill and ticking a checklist, by a practical activity that requires students to answer questions in a written format, or by a practical activity in which students carry out an investigation and write a formal laboratory report. The written formats for questions and laboratory report may be scored against clear criteria for attainment provided in the exemplar.

Although some practical assessments require the students to carry out a full investigation, specific directions and methodologies are provided for students to follow. The criteria emphasised is not the creative or conceptual aspect of investigation itself, but rather success in carrying out the technical skills required and drawing scientific conclusions (SQA, 2006).

Recently, the Learning Effectiveness Group of the Scottish Further Education Unit (SFEU) produced an essay designed to engage the FE community in a discussion around formative assessment (*Making Students Work Harder: Re-assessing formative assessment*, 2007). The group asked several authors from HMIE, HEIs and the college sector to write 'think pieces' about formative assessment and metacognition. The authors summarised the most salient literature in these two areas of scholarship and posed questions about how to implement more practice of these ideas in FE. The document provides evidence that the FE sector is seeking to improve learning through an increase in formative assessment practices or assessment to promote learning.

Higher education assessment in Biology

As with the other sectors examined in this report, in recent years there has been an emphasis in relation to issues of quality assurance in terms of the suitability of the types and forms of assessment which are used in degree level study in the area of Biology.

However, before looking in detail at the assessment regimes in specific subject or discipline areas, it is instructive to note some general comments on assessment in UK higher education contained within the code of practice for the assurance of academic quality and standards in higher education (QAA, 2006) issued by the Quality Assurance Agency (QAA). In Section 6: Assessment of students, the guidance puts forward two general principles. These are reported in Table 1.

General principles	1. As bodies responsible for the academic standards of awards made in their name, institutions have effective procedures for:		
	(i) designing, approving, monitoring and reviewing the assessment strategies for programmes and awards	(ii) implementing rigorous assessment policies and practices that ensure the standard for each award and award element is set and maintained at the appropriate level, and that student performance is properly judged against this	(iii) evaluating how academic standards are maintained through assessment practice that also encourages effective learning
	2. Institutions publicise and implement principles and procedures for, and processes of, assessment that are explicit, valid and reliable.		

Table 1: General principles of student assessment (adapted from QAA 2006)

In addition, a number of related principles were also set out which include:

- contribution to student learning
- assessment and examination boards
- conduct of assessment
- amount and timing of assessment
- marking and grading; feedback to students on their performance
- staff development and training
- language and study of assessment
- professional, statutory and regulatory bodies' requirements
- assessment regulations
- student conduct in assessment
- recording, documenting and communicating assessment decisions

(QAA, 2006, pp7–33).

In the specific case of Biology, it should be recognised that the choice of a particular subject is in part illustrative and, as such, should be seen within a context of the expected knowledge and skills which require to be taught and assessed as part of a group of subjects or disciplines which draw upon a core body of scientific thought and practice. This is most clearly illustrated with reference to the relevant subject centre of the Higher Education Academy (HEA).

Biology is just one of a number of subjects which are contained within the Centre for Bioscience (http://www.bioscience.heacademy.ac.uk/):

> 'The Centre for Bioscience is the Subject Centre for the life, food, agricultural and biomedical sciences. The Centre provides support for discussion, dissemination and innovation in all aspects of learning, teaching and assessment.'

A review of undergraduate provision in the Biosciences was carried out by Houston and Wood (2005). This sought to explain the scope of the provision in terms of the range of programmes and subjects covered; the common strands that cut across these programmes; and the ways in which knowledge should be delivered and assessed.

> 'Bioscience encompasses a huge range of biological and biology-related subjects, from Agriculture to Zoology, and includes such topic areas as Ecology and Bioinformatics. All of these are experimental sciences where subject content is derived from observation, experiment and interpretation, and all have very wide implications in the agricultural and pharmaceutical industries as well as in medicine (including nutrition). Thus, the biosciences can be broadly defined as essentially practical and experimental subjects and as such opportunities should exist to participate in collecting data through experiments and investigation. In some areas this may be through the use of field work, in the laboratory, or as a combination of the two methods' (ibid, p6).

As with other subject or discipline areas, specific benchmarks are set and reviewed over time in relation to the levels of knowledge and skill a student is expected to obtain at either a threshold or good level. In addition, generic skills are outlined. Table 2 reports the expected level and focus of generic skill attainment although, as can be seen, only the first of these generic skills is directly related to subject matter. The rest of the generic skill-set could equally be applied to any course at the undergraduate level.

It is in relation to the distinction between threshold and good command of generic standards in the biosciences that a more detailed picture of what types of standard need to be measured or quantified through assessment practices. The two columns in Table 3 outline a number of generic standards that should be achieved at each of the two noted levels. In comparing the different levels, the main differences between 'threshold' and 'good' are concerned with the depth of understanding, the level of interpretation and the degree of critical awareness and cognitive development expected to be achieved.

Generic Skills
An appreciation of the complexity and diversity of life processes through the study of organisms, their molecular, cellular and physiological processes, their genetics and evolution, and the interrelationships between them and the environment.
The ability to read and use appropriate literature with a full and critical understanding, while addressing such questions of content, context, aims, objectives, quality of information, and its interpretation and application.
The capacity to give a clear and accurate account of a subject, marshal arguments in a mature way and engage in debate and dialogue both with specialists and non-specialists.
Critical and analytical skills: a recognition that statements should be tested and that evidence is subject to assessment and critical evaluation.
The ability to employ a variety of methods of study in investigating, recording and analysing material.
The ability to think independently, set tasks and solve problems.

Table 2: Generic skills in the biosciences (adapted from QAA, 2002, p4)

Threshold	Good
Be able to access bioscience information from a variety of sources and to communicate the principles in a manner appropriate to the programme of study.	Be able to access and evaluate bioscience information from a variety of sources and to communicate the principles both orally and in writing (eg essays, laboratory reports) in a way that is well organised, topical and recognises the limits of current hypotheses.
Have ability in a range of practical bioscience techniques including data collection, analysis and interpretation of those data, and testing of hypotheses.	Demonstrate ability in a range of appropriate practical techniques and skills relevant to research in the biosciences. This will include the ability to place the work in context and to suggest lines of further investigation.
Have an understanding of the explanation of biological phenomena at a variety of levels (from molecular to ecological systems) and be able to explain how evolutionary theory is relevant to their area of study.	Have a secure and accurate understanding of the explanation of biological phenomena at a variety of levels (from molecular to ecological systems) and be able to understand the relationship of evolutionary theory to their area of study.
Be able to plan, execute and present an independent piece of work (eg a project) within a supported framework in which qualities such as time management, problem solving and independence are evident.	Be able to plan, execute and present an independent piece of work (eg a project) in which qualities such as time management, problem solving and independence are evident, as well as interpretation and critical awareness of the quality of evidence.

Have some understanding of ethical issues and the impact on society of advances in the biosciences.	Be able to construct reasoned arguments to support their position on the ethical and social impact of advances in the biosciences.
Be able to record data accurately, and to carry out basic manipulation of data (including qualitative data and some statistical analysis where appropriate).	Be able to apply relevant advanced numerical skills (including statistical analysis where appropriate) to biological data.
Have developed basic strategies to enable them to update their knowledge of the biosciences.	Have well developed strategies for updating, maintaining and enhancing their knowledge of the biosciences.

Table 3: Generic standards for the Biosciences, not specific to any particular area (adapted from QAA, 2002, p8)

So far, we have outlined various standards for assessment in higher education. This has involved drilling down from the guidelines contained in the code of practice which concern all assessment practices in higher education, to the generic skills and standards expected to be achieved in the subject area of the Biosciences, to the stage where we now look at some example subject-level standards at the 'good' level. We will then examine how the teaching, learning and assessment strategies should be aligned to deliver the intended skill-set and achieve the desired standards. Finally, we will look at how assessment is applied through use of an example BSc programme in Biology. This will indicate typical and specific assessment types and how they may differ by academic level.

Table 4 allows comparison of what is expected of students achieving a 'good' or 'threshold' subject-specific standard for one of the subjects under the Bioscience umbrella: Molecular aspects of Biology (including Biochemistry). Other example standards reported by the subject benchmark statement for the Biosciences include: Organisms; and Ecology and Environmental Biology (QAA, 2002, pp10–11).

Molecular aspects of Biology (including Biochemistry)	
Threshold	**Good**
Be able to express relevant biological reactions in chemical terms	Understand and explain the chemistry that underlies biochemical reactions and the techniques used to investigate them
Understand how the chemistry and structure of the major biological macromolecules, including proteins and nucleic acids, determines their biological properties	Understand the principles that determine the three-dimensional structure of biological macromolecules and be able to explain detailed examples of how structure enables function
Understand how the principles of genetics underlie much of the basis of modern molecular biology	Have a critical understanding of the molecular basis of genetics, and be able to explain some detailed examples

Understand the main principles of gene expression	Have critical knowledge and understanding of gene expression, with a detailed knowledge of specific examples; the structure, arrangement, expression, and regulation of genes; relevant experimental methods
Know and understand the structure and function of various types of cells in unicellular and multi-cellular organisms, the structure and function of cell membranes, cell differentiation	Be familiar with a wide range of cells (both prokaryotic and eukaryotic) and be able to explain critically how their properties suit them for their biological function, and how they could be investigated experimentally
Understand a range of appropriate and relevant experimental techniques and how they are used	Be able to perform some of them; be able to devise and evaluate suitable experimental methods for the investigation of relevant areas of biochemistry and molecular biology
Have a knowledge of cell metabolism, including the main anabolic and catabolic pathways	Have a critical understanding of essential features of cell metabolism and its control, including topics such as energy and signal transduction, respiration and photosynthesis. This should include knowledge and experience of some experimental techniques
Have knowledge of enzyme structure and function and of some of the most important mechanisms controlling the action of enzymes and other proteins	Understand the chemical and thermodynamic principles underlying biological catalysis and the role of enzymes and other proteins in determining the function and fate of cells and organisms

Table 4: Subject-specific standards (adapted from QAA 2002, p9)

Once again, the main differences between ‘threshold’ and ‘good’ are concerned with the depth of understanding, the level of interpretation, and the degree of critical awareness and cognitive development expected to be achieved.

Having outlined some general and specific knowledge- and skill-sets which are expected to be achieved by students in the Biosciences, it is useful to investigate how assessment regimes are structured in order to ensure that the aforementioned levels and standards of knowledge- and skill-sets are achieved by students.

There has been an increasing interest in the scholarship or pedagogy of teaching and learning in higher education over recent years and this has fed into work on the design, form and purpose of assessment types. This involves not only generic work but also increasingly work with a subject-specific focus. In terms of

the subject-specific scholarship on teaching and learning, a major driver for innovation has been the specific-subject centres operated under the auspices of the HEA.

In the case of the Centre for Bioscience, a range of initiatives to support teaching, learning and assessment are underway. These include specific Network Groups in: Formative Assessment; Numeracy; and Problem-based Learning. Additionally, the Centre provides funding for small-scale projects to enhance student learning; the most recent involving the use of online interactive laboratory exercises (Hudson, 2007). Further, the Centre is involved with other relevant centres in organising a bi-annual conference on science teaching. The proceedings include papers on e-learning and assessment, including reports on the FAST (Formative Assessment in Science Teaching); OLAAF (Online Assessment and Feedback); and EFEL (Effective Learning Enhanced Learning) projects.

Moreover, the Centre publishes its own electronic peer-reviewed journal: *Bioscience Education E-journal*. This is in addition to traditional paper-based journals which look at a variety of issues in science education. These include: *Biochemistry and Molecular Biology Education* (published by the International Union of Biochemistry and Molecular Biology); the *Journal of Biological Education* (published by the Institute of Biology); and the *Journal of Research in Science Teaching* (published by the National Association for Research in Science Teaching).

Having outlined a range of subject-specific resources and research on the role of teaching, learning, and assessment, it is useful to now turn to some concrete examples of how the scholarship on pedagogical issues noted above translates into actual assessment practice through illustration of some exemplars of assessment in a typical Biology undergraduate degree programme.

Case study: BSc Biology at the University of Stirling

BSc Honours Biology at the University of Stirling (2007)

Educational aims of the programme

The programme aims to give students:

- key biological science knowledge including a molecular, physiological, structural, functional and an ecological understanding of the major kinds of living organism
- a familiarity with the techniques and methods by which biological knowledge has been and continues to be obtained
- the practical skills in both the laboratory and the field which they can use to understand and to contribute to the advancement of knowledge in those areas of the biological sciences in which they have a general and a specific interest
- the scope to develop their talents and their broader education so that they can pursue their future within and beyond the biological sciences

In relation to the development of students, the programme specifies the level of knowledge and understanding expected to be achieved by a student and also the level of intellectual, practical and generic skills expected to be obtained. These can be related to the subject benchmarks outlined in the previous section.

Specifically in relation to teaching and assessment, most modules consist of lectures and practical work although the emphasis on one or the other depends on the specific module. Modules taken in the first two years place more emphasis on directed learning through lectures and formal practical sessions. In more advanced modules taken in years three and four, there is more emphasis on independent learning and its communication in seminar and supervised project work.

Modules taken during the first two years are structured to:

- form a coherent sequence which introduces Biology from the cell to the ecosystem so as to provide the essential knowledge and skills base of a degree in the Biological Sciences
- ensure students have basic biological practical and field skills and they understand the importance of their own and other's safety in the progress of experimental work
- develop the student's curiosity for observation and enthusiasm for experiment
- introduce communication, statistical and IT skills
- ensure students have sufficient knowledge and practice in those aspects of Mathematics, Physics and Chemistry which are required to pursue the Biological Sciences
- introduce the range of topics in the Biological Sciences in sufficient depth that students can make an informed decision as to whether or not they want to specialise in a particular aspect of the Biological Sciences during the subsequent two years

Modules taken during the third and fourth years:

- advance the student's biological knowledge into subject areas which make greater intellectual demands and which approach the forefront of our knowledge in those particular areas in which staff have an expertise
- provide opportunities for them to demonstrate that they have embedded their core knowledge and can bring it to bear on aspects of Biology which are open to debate or are partially understood
- allow scope for experimental work which originates from the student's own hypotheses and their design and is undertaken through supervision rather than prescribed direction
- provide students with practice in tasks which involve the handling of larger amounts of information including numerical data, and its collection and communication into formats acceptable to publishers of biological journals

Students are assessed by a diversity of methods which include written or practical examinations completed within a very restricted timeframe and coursework which has substantially longer deadlines for completion.

Examinations include either solely or in combination:

- Questions testing basic and limited knowledge requiring a response of very restricted word length or selection from a choice of predetermined answers.
- Questions requiring extended responses which require students demonstrate a broader knowledge and an understanding which integrates a number of aspects of a biological topic.
- Data handling or other material which incorporates a degree of problem solving.

Coursework includes either solely or in combination:

- Written reports, usually incorporating students' own results, submitted in the standard format used for the publication of experimental findings in the biological sciences.
- Extended written responses, such as dissertations and reviews of the scientific literature, which relate to a biologically relevant topic.
- Presentations which assess their ability to communicate orally supported by computationally generated visual material.
- A thesis which reports the findings of their research project completed during their fourth year.

Details of specific practical modules and also for the honours level project are available at University of Stirling (2007) (Biology, http://www.quality.stir.ac.uk/ac-progs/nat-sciences/bio.php)

Issues in Science and Biology assessment

HMIE (2005) reports indicated that one area of concern in Science assessment is at the primary school level. There is a clear need for more research on both formative and summative assessment practices at primary and S1–S2 levels. Results of such research and HMIE recommendations might suggest a programme of continuing professional development in Science assessment at primary level. Careful evaluation of such programmes could provide needed data that high quality Science lessons are being taught and evaluated at the 5–14 level. Schools that have successfully implemented AifL practices could be tapped for sharing their expertise with other schools. Attention to Science assessment at the primary level will be increasingly important as Curriculum for Excellence is implemented in Scotland over the next few years.

A second issue is the potential mismatch between the highly traditional forms of Biology investigation that are currently being assessed with the new goals in Curriculum for Excellence.

The major aims of Science in Curriculum for Excellence are that students will be able to:

- investigate their environment by observing and exploring
- demonstrate a secure understanding of the big ideas and concepts of science
- make sense of evidence collected and presented in a scientific manner
- establish the foundation where appropriate, for more advanced learning and future careers in the sciences and technologies
- recognise the impact science makes on their lives, on the lives of others, on the environment and on culture
- express opinions and make decisions on social, moral, ethical, economic and environmental issues informed by their knowledge and understanding of science (Curriculum for Excellence, 2007).

Although a case can be made that current NQ exams and investigation assessments address the first four of these goals, new assessments are needed to assess the last two. A separate, yet related, issue is the relatively unexplored validity of the current investigation assessments for measuring students' understanding of the scientific processes. Recent research has indicated that the traditional four-part laboratory report with sections for aims, methods, results and conclusions tends to obscure rather than illuminate the scientific thinking that goes into investigation (Wallace, Hand and Prain, 2004). Newer formats for scientific reporting that refocus students on constructing conceptual understanding of their practical activities have resulted in greater student achievement as well as understanding the connections among questions, tests, data, claims, and evidence in science (Hand, Prain and Keys, 2002; Poock, Burke, Greenbowe and Hand, in press; Wallace and Hand, 2004). Research into students' understanding of scientific investigation as a result of pedagogical and assessment practices in Scotland is warranted.

A third issue in Science and Biology assessment is the incorporation of ICT into assessment. Currently, ICT is not utilised at all in assessment practices at school level in Scotland, although it is becoming a major pedagogical tool in classrooms at every level. In the interests of validity, assessment tools should match learning tools, so that pupils have the opportunity to express what they have learned via the modes in which they have learned it (Linn et al, 1991). Thus, the assessment of Science using technology and pupils' abilities to use technology to do Science are areas that also need exploration.

7 Summary and implications

This review of assessment began with an overview of pertinent literature within the domain. Subsequently, we considered issues of assessment at school level in Scotland in the context of the Assessment is for Learning initiative. By contrast, we then considered the context of work-based learning, reviewing not only vocational qualifications in Scotland and the rest of the UK, but also alternative procedures for assessment within the Assessment of Prior (Experiential) Learning (AP[E]L) camp.

Further and higher education issues were dealt with in the context of two contrasting disciplines, English and Biology, and in these sections we also dealt with school-related assessment issues relevant to these disciplines. These provide an integrated cross-sectoral perspective to assessment in these areas with issues pertinent to each of the disciplines highlighted.

When we consider the general literature in the field, we note two international trends in relation to summative assessment over the past two decades; one increasing the use of external standardised exams for accountability purposes and the other decreasing the use of standardised exams in favour of a combination of internal and external assessments for high-stakes awards. The arguments for the use of alternative, internal and teacher-based assessments include tapping a wider base of thinking skills, practical abilities, and values, increasing authenticity of assessments, improving validity, and creating a more positive affective impact on students. An Australian model (Cumming and Maxwell, 2004) provides information on the successful combination of internally- and externally-based summative assessments for awarding certificates at school leaving.

In the discipline of Biology, assessment in Scotland at school level has been shaped by national policy since the 1990s — with a clear distinction between formative assessment led by teachers and summative assessment led by national guidelines. Formative assessment practices by teachers in Biology in Scotland are generally strong, especially for those teachers who have worked with the Assessment is for Learning national initiative. Currently, Scotland assesses and awards certificates for Higher Biology subjects with external standardised exams. Scotland is unusual with regard to other international comparators in continuing to assess practical skills in Biology with strong moderation procedures and substantial teacher input into the process.

Scotland may need to modify current summative assessment practices in order to include valid assessments of constructs such as values and knowledge of contemporary issues in biology in correspondence with Curriculum for Excellence. In particular, learning objectives having to do with the application of biology to daily life and to ethical and social aspects will require new forms of assessment. Combining teacher-based assessments, such as portfolios, with external exams holds promise for a more valid and positive assessment process.

Assessment in primary school Science has some noticeable weaknesses including the reliability and validity of current assessments.

In the subject of English, at school level, the use of a selection of the assessment forms is important in order to accommodate the different strengths and weaknesses, aptitudes and enthusiasms of students. This might include synopses, critical book reviews, biographical research, selected and annotated bibliographies, assessed engagement with software packages, personal learning statements and personal learning portfolios, creative writing, web pages, creative 'pitches', diaries, and published collections and magazines. Such forms are likely to be best utilised in parallel with more traditional instruments since although diversity provides a richer experience for the student, it requires time and effort to introduce, examine and quality assure.

There is a renewed attention in literacy practices within Curriculum for Excellence, which is already present in the emphasis on communication in Scottish schools and FE colleges. This needs to acknowledge that literacy is socially determined and in a process of flux; rather than being a set of core skills to be mastered and then applied to life, literacy is acquired through life experience. Furthermore, literacy is a core pillar for lifelong learning and takes a range of forms in the modern world, encompassing numeracy and digital skills as well as reading and writing. Thoughtful approaches to assessment design in English, by reflecting student interest in and engagement with the world around them, can encourage the burgeoning of literacy in school, which can be sustained throughout life.

A variety of forms of assessment and their summative nature are amongst the strengths of HNC/HND programmes in Communication and Media. More generally, it appears that the FE sector is seeking to improve learning through an increase in formative assessment practices and assessment to promote learning.

In relation to assessment in higher education, there is considerable interest in assessment matters in undergraduate Biology. Subject areas are supported in the development of suitable assessment regimes through the relevant Subject Centre of the Higher Education Academy (http://www.bioscience.heacademy.ac.uk/).

A major component of any assessment regime is the subject-specific standards which students are expected to acquire and which relate to the specific-subject benchmarks as outlined by the Quality Assurance Agency. As this report reveals in the case of Biosciences , a range of assessment types are utilised in order to ensure that students have achieved the specified learning outcomes for each module they complete. In most cases, for each module a number of assessments have to be successfully completed to pass the module. This allows assessment types to be closely aligned to module aims and objectives in order to deliver the requisite learning outcomes. This is illustrated with reference to the specific examples contained in the main body of the review where a number of forms of assessment through examination and through coursework are reported. This range of assessment types allows lecturing staff to closely align the specific form

of assessment to best measure the achievement of the specified learning outcomes.

At higher education level, English is a popular subject in both combined and modular programmes and overlaps with other complementary disciplines including Linguistics, Drama, Communication Studies, and Philosophy. Case studies of assessment within programmes of Creative Writing in HE show that criteria used to assess are contentious. Similar ambiguities are encountered when marking in other Arts and Humanities subjects where the notion of 'originality' still haunts the upper ranges. Nonetheless, the specificity of criteria within some HE courses may provide models for broader use.

More generally in English and other Humanities and Social Science subjects in higher education, traditional forms such as extended essay writing are still the norm. Their introduction at an early point may be an important feature of alignment across the school/FE/HE boundaries and ensure better transition. Studying a broad range of literary texts, as is current practice in Scotland, is good preparation for the student who is determined to go on to study a degree in English as they will find a similarly text-laden curriculum at university.

In higher education generally, the theme of aligning teaching and learning approaches with assessment and grading has received considerable attention. Less attention has been given to alignment across sectors. Given that high proportions of school leavers and considerable numbers of older adults progress from programmes within which SQA awards are achieved to Scottish higher education institutions, a knowledge of the requirements of assessment in HE may be important in the management of transition.

This may especially be the case where there is a mismatch of assessment forms between schools, FECs and HEIs. Many HEIs now offer learning support programmes, originally created to address the needs of participants entering through widening participation routes. However, these programmes are increasingly being used by those entering with traditional qualifications and more often than not the needs identified by undergraduates irrespective of qualification route relate to coping with the demands of unfamiliar assessment modes. Stronger matching between forms of assessment in all sectors might be desirable to improve progression rates and to alleviate the inevitable stress of undertaking remedial work.

Differences in performance by gender according to forms of assessment pertain across sectors (Cox et al, 2004; Elwood, 2005). These differences may also apply to other socio-demographic characteristics. The scope of this study has not been sufficiently extensive for such investigations to have been made, but this would be an interesting feature of a more extensive study given the national context of a massified further and higher education system with an increasingly diverse student population.

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Assessment Standards Knowledge Exchange (ASKe)

Lead institution: Oxford Brookes University
Assessment standards guide and mould student learning both in terms of what they must do and how well they must do it, yet students often claim to be unsure about expectations. Research at the Business School has proven that sharing tacit, alongside explicit knowledge of standards, significantly improves students' academic performance. ASKe will spread this innovative practice and pioneer the cultivation of an assessment community with students, pre-HE and HE staff, alumni and employers as active partners. The community will be nurtured by the creation of bespoke 'social learning space' and socialisation processes that move beyond a focus on assessment technique to a more holistic perspective in which assessment's position as central to learning is fully exploited. Website: www.business.brookes.ac.uk/aske.html

'Crisis? What crisis?' QCA's consultation English 21 raises crucial issues for English teachers. John Hodgson outlines NATE's response: TES 30 September 2005 — http://www.tes.co.uk/search/story/?story_id=2140219

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Feel the creative force in English — TES report, 11 November 2005, on Taking English forward includes a response from NATE — http://www.tes.co.uk/search/story/?story_id=2156707

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Journal of Biological Education http://www.iob.org/

Journal of Research in Science Teaching http://www.narst.org/

Formative Assessment in Science Teaching (FAST) http://www.open.ac.uk/fast/

Online Assessment and Feedback (OLAAF) http://www.bbk.ac.uk/olaaf/)

Effective Learning Enhanced Learning (EFEL)
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The SFEU site has a number of useful resources including an Information Gateway. The Information Gateway is a directory of electronic learning resources on either the internet or CD-ROM. It is a resource for anyone involved with the delivery of education or training in Scotland. These resources have been evaluated to set criteria and mapped to the Scottish qualifications structure by subject specialists from the Scottish further education sector. The gateway contains links that are Core Skills specific and also subject-specific, it is available at: http://www2.sfeu.ac.uk/

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SQA (2006) Animal Biology, Assessment Exemplar. Retrieved from secure website 21 April 2007.

For all subject-specific information at NQ and HN levels, there is a subject search available at: http://www.sqa.org.uk/sqa/CCC_FirstPage.jsp

This search will reveal the following information, all separately searchable:

Subject-specific information

Arrangements documents
Assessment exemplar packs
Moderation feedback

HN review

Computing
Computer Games Development
Computer Networking
Interactive Multimedia Creation
Multimedia Computing: Web Development
Software Development and Technical Support

HMI subject review reports for Communication and Media

Cardonald College 23 April 2004
Falkirk College 18 June 2004
Fife College 16 March 2001
Glasgow College of Building and Printing 7 June 2002
Glenrothes College 7 March 2003
Inverness College 12 September 2003
North Glasgow College 16 May 2003
Perth College 10 September 2004
Stow College 25 April 2003
West Lothian College 11 June 2004