Effective and Efficient Methods of

Formative Assessment

CEBE Innovative Project in Learning & Teaching

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Introduction

Aims

Key aims of this project are to:

- identify and share good practice in formative assessment across the built environment disciplines, highlighting the wide range of diversity possible and exploring tensions between educational effectiveness and resource efficiency
- encourage staff and student reflections on their own experience of formative assessment, deepening and broadening thinking about possible improvements and alternative practice.

Methods

The following methods have been employed:

- A multi-disciplinary project group was formed to oversee this initiative, comprised of one person from each of the School’s four programmes
- A literature review highlighting key issues and good practice principles was prepared at the beginning to inform the whole project
- Templates were produced by staff throughout the School to describe and evaluate effectiveness and efficiency of different types of formative assessment already in use in SBE, pinpointing strengths and ideas for improvements from the point of view of both students and lecturers
- A half-day seminar held in November 2009 shared experience gathered through the project, involving staff from the School, Heriot-Watt University, the wider higher education community, a professional institute and employers; discussion during the day informed this final report
- Student views were sought through liaison with School Officers, student-staff committees and year group meetings/focus groups

Definition

For the purposes of this project, formative assessment is defined as “work that a student carries out during a module for which they get feedback to improve their learning, whether marked or not”. Formative assessment can take a great variety of forms. It can be written or verbal, formal or informal and can be delivered by the lecturer, peers, outside collaborators or oneself.

Context

The topic of assessment is of critical importance for all higher education institutions, including the relationship between formative and summative assessment. One of the key conclusions from the Scottish enhancement theme on Assessment in 2003/04 was that more sharing of practice is needed. Accredited degrees within built environment disciplines have particular issues, as assessment needs to take account of both educational and professional issues. Although this project focuses on formative assessment, no doubt some of the lessons are also relevant for summative assessment.

The subject of formative assessment is particularly topical for us at Heriot-Watt because in the academic year 2008/09 we moved from three shorter terms to two longer semesters. One of the main underpinning educational advantages was the opportunity for more formative assessment, within a longer timeframe, to deepen student understanding. Staff have been experimenting with a wide range of methods and it is has been a good time to reflect on effectiveness and efficiency issues in conjunction with students. In addition, we are focusing on our National Student Survey results, which pinpointed feedback and assessment as issues which need to be addressed. Formative assessment plays a key role in providing ongoing feedback to students and staff have been specifically implementing new ideas in an effort to improve.
Richness comes from the diverse built environment disciplines within our large school of 72 academic staff from planning, urban design, all surveying fields, construction management, architectural engineering, housing and civil engineering. We also have a broad scope of flexible delivery modes: on-campus, independent distance learning, a Dubai campus and Associated Learning Partners. A variety of educational issues can be found in large and small classes, undergraduate and postgraduate courses, large numbers of overseas and mature students and full and part-time modes. There is a great variety of formative assessment methods used within the School, as well as a wide range of staff expertise, including people with international experience. Information collected in this context has allowed us to gather rich data and profit from each other’s experience and experimentation.
Principles of good practice: review of key literature

“The assessment of students is a serious and often tragic enterprise. Less pomposity and defensiveness and more levity about the whole business would be an excellent starting point.” (Ramsden, 1992, p. 181)

This literature review sets out key principles to help lecturers reflect on the role and practice of formative assessment. It will include a definition and discussion of its purpose, barriers, good practice principles and implementation issues, highlighting those to do with efficiency and effectiveness.

In the current climate of higher education, when it is widely recognised that both staff and students face pressures, there is general agreement that assessment is an issue that is particularly important and challenging (Ross, 2005, p. 12). It is hoped that the literature review will highlight useful action points for staff to both individually and collectively reflect on different ways to do things. There is evidence to show that changes in assessment practice can be fostered by sharing information about what has been tried elsewhere (QAA, 2007, p. 4).

The role and importance of assessment

“Assessment seems to be loitering expectantly in the corridors of higher education, thereby reinforcing the hope that it will soon enter the classroom to serve the learner.” (Loacker et al, 1986, p. 47)

Before considering formative assessment in detail, it is useful to provide a brief discussion of the role and importance of assessment generally to set the context.

Importance of assessment: The MacFarlane Report (1992) found that assessment is the single most important factor in students’ learning (Falchikov, 1995, p. 160). What and how assessment is carried out has a profound influence, for better or worse, on learning and is a major factor that can encourage either surface or deep learning (George & Cowan, 1999, pp. 98-99). Evidence shows that there is a direct relationship between the development and evaluation of assessment criteria and the development of whole programmes of learning (Mortimer, 1998, p. 186). Assessment is by definition learning where students are active participants, something they cannot opt out of.

Purpose: Assessment serves many diverse purposes: motivating students; directing and enhancing learning; providing feedback to students on strengths, weaknesses and how they might improve; providing feedback to the lecturer about student understanding; and checking whether learning outcomes are being achieved (Zou, 2008, pp. 82-83). It has been said that the primary purpose of assessment is to increase student learning and development rather than simply grade or rank performance. It is necessary to make an assessment in order to grade performance, but grading is a secondary activity to the goal of helping learners improve the quality of their learning (Morgan & O’Reilly, 1999, p. 13).

Current problems: There is substantial evidence suggesting that there is significant room for improvement in assessment (George & Cowan, 1999, p. 99). Recent QAA reviews reveal that assessment is generally a weak area when compared to other aspects of the curriculum; feedback is too often slow, failing to provide adequate guidance for students (Yorke, 2005, p. 127). Setting appropriate assessment is complex and not easy; many factors need to be taken into account, including numbers of students, time and resources and course objectives (Zou, 2008, p. 83). Whereas there is a growing recognition of the value of having a varied assessment regime, there continues to be too much emphasis placed on exams and standard tutor-marked essays and reports (Hornby, 2005, p. 17). There is a danger that “passive, bored students give back to teachers what they have already been given in a worthless grade-grubbing way irrelevant to their future lives” (Gibbs, 1995, p. 2).

Changing patterns: Within the built environment sector, it has been said that assessment practices are changing for six main reasons, although these are probably not unique to the sector:

a. heightened awareness of its importance

b. greater need for achieving generic skills such as communication and team work
c. increase in potential for plagiarism

d. need for time and cost effective methods of assessing large classes

e. new technology

f. changing nature of students (Zou, 2008, pp. 82 - 83).

Recent work in Scotland shows that changes to assessment practices have not kept pace with the changing environment in higher education (Hornby, 2005, p. 15). The rise in student numbers has stretched the unit of resource, resulting in unintended consequences; there is not enough formative assessment; feedback is too often slow and not meaningful; learning outcomes are often assessed several times with no rationale; there is little correlation between credit points and student and staff workload; mechanisms are poor for co-ordination across modules; and bunching of assessments results in problems.

Co-ordination and integration: It is important to see how assessment builds up across a whole course of study, linked to educational aims and learning outcomes for the whole course as well as individual modules. Students need to be explicitly aware of what is being assessed, why and how (Moore, 1995, p. 101). We need to analyze how assessment works across the whole curriculum from the students’ point of view (Boud, 1995, p. 42-43).

Definition and purpose of formative assessment

“When the cook tastes the soup it is formative evaluation; when the dinner guest tastes the soup, it is summative evaluation.” (Harvey, 1998, p. 7)

Definition: Formative assessment is the short term collection and use of evidence to guide learning (Black, 1999, p. 118). It takes place during a module and is designed primarily to give feedback to inform further development, whereas summative assessment sums up a student's achievements at the end (Baume, 1998, p. 8). Formative assessment is about improving and feedback is therefore crucial; summative assessment is about deciding and too often emphasised instead of real learning (Boud, 1995, p. 36). The Open University says formative assessment is assessment for learning, where as summative assessment is assessment of learning (Open University, undated). Formative assessment has been described as the journey, not the outcome (Wisdom, 2006, p. 193). There is a constant tension between formative and summative assessment, methods that work well for one may not work well for the other (Gibbs, 1998, p. 5).

Formative assessment can take numerous forms. It may or may not contribute to a final mark. It could be of a formal or informal nature. The distinction between formative and summative assessment may sound straightforward but even experienced lecturers can get confused. The distinction between the two can be blurred because some assignments are both; students can learn from feedback but also receive a grade (Yorke, 2005, p. 126). Some educational researchers say that the stark distinction between formative and summative assessment does not really exist (Ramsden, 1992, pp. 212-213). Brown sees formative and summative assessment along a continuum and not as opposites, one leading into the other (Brown, 1999, p. 6).

For the purposes of this project, formative assessment is defined as “work that a student carries out during a module, for which they get feedback to improve their learning, whether marked or not”.

Purpose: The principal purpose of formative assessment is developmental, to help students monitor their own understanding and progress. Its nature is diagnostic, identifying weaknesses allowing students to spend time and effort on improvement (Pety, 2004, p. 463). It must provide feedback that can help students modify their performance, whether it comes from lecturers, other students or self evaluation (Butcher et al, undated, p. 1). The process of formative assessment is a key way that reflectivity can be enhanced (Hadrill, 1995, p. 169). Regular formative assessment can be motivational, as continuous feedback is integral to the learning experience, stimulating and challenging students (Leach et al, 1998, p. 204).

From the lecturer’s point of view, formative assessment is also an opportunity to find out if the learning they planned is actually happening (George & Cowan, 1999, p. 9). It can therefore be used during a module to form judgements on the success of learning so that remedial action can be taken before it is too late (Pety, 2004, p. 449).
The importance of formative assessment

“While assessment is one of the last things that university teachers consider when planning and developing courses, it is often the first thing that most students think about.” (Open University, undated, p. 3)

Importance: A comprehensive review carried out by Black and Wiliam in 1998 found conclusively that formative assessment results in considerable learning gains, amongst the most considerable for educational interventions (Black and Wiliam, 1998). There is widespread evidence that assessment and feedback are powerful forces of learning (Baume, 1998, p. 6). Research shows that assessment that provides informative feedback while a student is learning has more effect on student achievement than any other factor (Petty, 2004, p. 450). Formative assessment with its feedback function can strongly influence motivation, encouraging interest, commitment, intellectual challenge, independence and responsibility; it is impossible to overstate the role of effective feedback on a student’s progress (Ramsden, 1992, pp. 184-185, 193).

Problems relating to formative assessment

“Students can, with difficulty, escape from the effects of poor teaching, they cannot …escape the effects of poor assessment.” (Boud, 1995, p. 35)

Strategic threats: There are clearly tensions apparent in formative assessment, because despite its importance as stated above, the literature reveals a wide range of problems and pitfalls. By way of backcloth, students have become more demanding and senior managers increasingly concerned with metrics of retention and results. On top of these challenges, lecturers are under increasing pressure to improve research scores, secure funding and develop new courses and delivery methods (Hornby, 2005, pp. 16-17).

Yorke gives several reasons why formative assessment is increasingly under threat: paradoxically, the Government concern with standards of attainment and accountability favours summative over formative assessment; research too often draws attention away from teaching; and curriculum utilisation increases attention on summative assessment over formative (Yorke, 2005, p. 127). This is echoed by a recent QAA report, stating that a significant concern about contemporary practice is that summative assessment receives far more attention than formative (QAA, 2007, p. 2). Formative assessment has been neglected in both public policy and everyday practice (Black, 1999, p. 118).

Barriers from a student point of view: The influential MacFarlane Report 1992, observed that UK students are increasingly strategic in their use of time, dominated by perceived demands of the assessment system (MacFarlane, 1992). This is in part a cultural and economic phenomenon as more students are working and competing for jobs, resulting in a careful use of their effort for grades; they do not do what is not assessed (Gibbs, 1998, p. 26). Students in a study tended to ignore activities that do not directly contribute to grades and degree class; even though they could see the benefit of developing competencies, they did not take advantage of it. Changing these attitudes is complex and takes time (Otter, 1995, p. 60). Some students are more concerned with the mark than what they understood, resulting in a mismatch between marks and learning outcomes (Mortimer, 1998, p. 186). Yorke laments that students too often play the ‘assessment game’, trying to find out what is expected and not taking risks with something more ambitious (Yorke, 2005, p. 128). There is contradictory evidence that students take on board comments better when marks are not assigned (Crooks, 2001, p. 4). There is therefore a tension between having to give marks to motivate students to complete the work as opposed to educating students to receive feedback and act upon it.

Falchikov discusses a study that found that feedback was often negative and variable in quality. It found that many students do not read and often misunderstand the feedback, and even when it is understood it is rarely acted upon (Falchikov, 1995, pp. 158-159). Recent student surveys highlight widespread and growing dissatisfaction with guidance and feedback, a concern echoed by evidence from recent quality assessment visits (QAA, 2007, p. 2). The National Student Survey consistently shows that student satisfaction with assessment and feedback receives lower scores than other indicators (Nicol, 2009, p. 9).

If students perceive assessment as primarily examining content knowledge, they will tend to do little more than rote learning; if modules are heavily burdened with factual content, they are likely to display poor levels of overall understanding (Morgan & O’Reilly, 1999, p. 17).
Barriers from a lecturer’s point of view: In an expanding higher education system, it is difficult to maintain levels and quality of feedback, presenting significant problems for lecturers who take formative assessment seriously. It takes time to achieve deep learning, developing critical and transferable skills. Increased numbers and large classes mean more marking time, yet decreasing amounts of feedback are undesirable (Falchikov, 1995, pp. 157, 159). Giving feedback can be very expensive and time consuming and not automatically helpful or effective; it can de-motivate or be useless if ambiguous or too brief (Gibbs, 1998, p. 17).

There are clearly conflicts between streamlining assessment and diversifying assessment to cope with changes in higher education and student learning needs, including disabilities. There are also tensions between making teaching and assessment more efficient on cost grounds and giving students a better learning experience; lecturers need to be more efficient with their assessment given increasing resource pressures (Ross, 2005, pp. 12-13).

Students have increasing rights of access to information, meaning that marking has to be transparent as well as reliable and fair. There are costs associated with double marking, safeguarding against bias and checking plagiarism, in terms of software, training and implementation (Hornby, 2005, p. 19).

Staff can often be accused of over assessment; unintended consequences are poor and/or late feedback, students missing class and working strategically, plagiarism and short cuts. This adds up to little meaningful learning and if these problems are evident, over-assessment could be at the root (Hornby, 2005, p. 21).

The effect of rigid assessment practice influences the capacity and enthusiasm for change amongst lecturers and vice-a-versa (Wisdom, 2006, p. 193). Given all the current pressures, convincing colleagues to change their assessment practice can be complex and difficult, requiring different levels of both risk and support (Land, 2005, p. 29).

Good practice principles related to efficiency

“Thus, at a time when resource constraints within most universities are severe and when there is an expansion of student numbers, any assessment method which involves lots of staff time…is unlikely to be implemented successfully, no matter how educationally sound it may be.” (Hornby, 2005, p. 18)

It is therefore important that assessment is efficient and a good use of lecturer’s time (Baume, 1998, p. 10). However, care needs to be taken that assessment takes account of the increasingly diverse student population which challenges some traditional methods of assessment (Hornby, 2005, p. 18).

Assessing large numbers can be especially difficult; potential solutions are to reduce the assessment load, streamline feedback procedures, delegate marking and review the curriculum for over assessment or repetition (Brown, 2001, p. 18).

Lines & Mason (2005, p. 4) suggest that efficiency comes from:

- Assessing learning outcomes only once
- Synoptic assessment at the end of the year
- Substituting summative assessment for formative assessment, however this contradicts views of others that formative assessment is required as a reflective ongoing tool to aid student progress.

Baume (1998, pp. 23- 26) suggests the following to make assessment more efficient:

- A tick list/ bank of comments and model answers
- Oral feedback given in tutorials, labs and field trips, but make sure it is understood
- Peer and self-assessment involving students with active engagement in assessing work, devising marking schemes and assessment criteria.
Peer assessment: Results from over twenty studies of peer assessment found that they were generally reliable in a variety of contexts, although it has to be acknowledged that some students do not like marking their peers (Falchikov, 1995, p. 160).

Self-assessment can lead to more effective learners, peer assessment provides comparison, group assessment leads to transferable skills development and saves marking time (Brown, 1999, p. 8). Self and peer assessment is especially appropriate in the context of learning about oneself and others, about appraisal and life-long learning, employment, career progression and continuing professional development (Mortimer, 1998, p. 175).

Group assessment can mean less marking, more is achieved and different skills are developed. In groups, formative assessment could be peer assessment with one group giving feedback on another group’s product or processes (Brown et al, 1995, p. 83).

E-assessment and using IT to give tests with instant computer feedback can help, especially with large classes; students learn while issues are fresh in their minds (Butcher et al, undated).

Hornby provides a useful summary stating that strategies for streamlining assessment might be:

- reducing summative assessment
  This could include exempting students from an exam on the basis of coursework performance, assessing learning outcomes only once, combining assessment across modules, timetabling assessment to avoid bunching and rebalancing assessment between modules.

- front-end loading
  This includes briefing sessions discussing coursework and unpacking assessment criteria, allowing students to engage with an input to the criteria and students assessing the previous cohort’s work to understand expected standards.

- in-class assessment
  This includes possible periodic tests, assessing each other and gaining exemption from the final exam.

- self and peer assessment
  These methods are underused, results from research are mixed but more recent research is more optimistic.

- group assessment
  Group work is increasingly important for employers: there are problems of free riders but there are ways to overcome this and assign marks fairly.

- automated assessment
  Automated assessment and feedback can be useful, including the use of banks of comments which can be provided online giving students instant feedback (Hornby, 2005, pp. 15, 22- 27).

Good practice principles for educational effectiveness

“Assessing means making judgements on the work of others, it also means, whether you like it or not, learning about your own teaching.” (Baume, 1998, p. 5)

Establishing an appropriate culture at all levels: There is a need for good policies and guidelines at various levels (university, department and course) to address assessment, including the use of IT and quality in learning (Moore, 1995, p. 107). Fostering an institutional and departmental culture encouraging reflection and personal development for both staff and students is important (Wisdom, 2006, p. 193). Criteria for measuring educational effectiveness across a programme might include:
• the extent to which assessment is linked to skills and competencies
• constructive alignment to learning outcomes
• methods that match task and outcomes
• variety of methods
• avoiding student overload encouraging surface approaches (Hornby, 2005, p. 18).

**Balance between formative and summative assessment:** There should be a good balance between formative and summative assessment (George and Cowan, 1999, p. 17). Biggs (1990) developed the concept of scaffolding, where formative assessment tasks provide the basis of learning activities, leading ultimately to overall summative assessment. Interweaving formative assessment gives students opportunities to know how they are progressing and can improve. Summative assessment is closely aligned with but not the same as formative tasks and forms the basis for a final judgement on performance (Dunn *et al.*, 2004, p. 20).

**Involving students:** Engaging students is important and lecturers should be explicit about assessment methods and criteria and discuss these with students. Students need to be clear about what constitutes good work. It’s not good enough to tell students what the assessment criteria are, they need to actively participate in deepening their understanding of what good work is (Sambell *et al.*, 2002, p. 142). Sharing ownership of marking criteria with students and engaging them in producing them in the first place can lead to more meaningful understanding and less anxiety (Mortimer, 1998, p. 181). Formative assessment should build confidence that students can improve their work, so trust is important and lecturers need to be encouraging, constructive and sensitive if students are to feel safe in admitting their difficulties (Crooks, 2001, pp. 4, 8). Lecturers should remember that students’ feelings are part of the whole assessment issue (Baume, 1998, p. 5).

**Variety of methods:** Formative assessment is enhanced when there is a variety of written and practical work, not just a final exam (Edwards *et al.*, 2006, p. 67). Mantz Yorke (2005, p. 126) encourages lecturers to consider both formal and informal methods of formative assessment, as per the table below. Most academics think mainly about the top left cell, but we need to encourage more of the bottom right if learning is to be effective in the long term.

<table>
<thead>
<tr>
<th></th>
<th>Formal</th>
<th>Informal</th>
</tr>
</thead>
<tbody>
<tr>
<td>From teachers</td>
<td>(probably the main approach in higher education; feedback from computerised packages might be included here)</td>
<td>(where circumstances permit)</td>
</tr>
<tr>
<td>From peers</td>
<td>(eg via peer assessment activities)</td>
<td>(perhaps over coffee or a stronger beverage)</td>
</tr>
<tr>
<td>From others</td>
<td>(though possibly problematic if the ‘other’ is also a mentor or supervisor)</td>
<td>(probably the main approach in work-based learning contexts)</td>
</tr>
<tr>
<td>From self</td>
<td>? (only if an assessment requirement)</td>
<td>(where the student is acting self-critically)</td>
</tr>
</tbody>
</table>

Table 1 A typology of formative assessment

**Good practice summaries:**

The following has been put forward as a good practice summary for formative assessment and feedback:

- Use short formative assessment with rapid feedback
• Do not bolt on assessment, tie it to course design
• Concentrate on quality not quantity, both in assessing and learning
• Use peer and self assessment
• Give better feedback as opposed to model solutions
• Frame feedback so it is meaningful, useable, constructive and interesting to students
• Give feedback on draft essays
• Give mock exams and de-brief (Race, 1995).

A major HEA-funded study on effective formative feedback identified seven key principles:

• Facilitate development of self-assessment (reflection) in learning
• Encourage teacher and peer dialogue about learning
• Clarify what good performance is
• Provide opportunities to close the gap between current and desired performance
• Deliver high quality information to students about their learning
• Encourage positive motivational beliefs and self-esteem
• Provide information to teachers that can be used in their teaching (Juwah et al., 2004).

Feedback to students

“It is not inevitable that students will read and pay attention to feedback even when that feedback is lovingly crafted and provided promptly.” (Gibbs and Simpson, 2004, p. 20)

Feedback is under-researched: As can be seen in the previous sections, the issue of effective feedback is central to any discussion of formative assessment. Mantz Yorke argues that feedback is under-conceptualised in the theoretical literature, making it hard to design effective practice and evaluate quality (Yorke, 2003).

Need for student engagement: A major study funded by the UK HEA researched how students engage with assessment feedback. While emphasising the critical importance of feedback to learning, it also concluded that feedback cannot fix everything, it is only one of many educational influences and must be “situated” in the right context (Handley et al., 2008, p. 5). The research found a wide range of feedback methods currently in use but confusion about the purpose of feedback, leading to disagreement amongst both staff and students about how to make it useful. One of the many problems with student engagement is the lack of clarity between the roles of formative and summative assessment (Handley et al., 2008, pp. 6, 8). As the quote at the beginning of this section states, it is not automatic that students will engage with feedback provided to them. Staff engagement with feedback can be constrained by resources and institutional policies. With limited resources, there is a need to take care that it is not wasted on ineffective feedback (Handley et al., 2008, p. 6).

The HEA-funded study recommends that both students and staff participate in dialogue aimed at improving student engagement with feedback, which can occur at module, programme and institutional level. Student engagement with feedback is strongly influenced by their ability to understand and apply it, which is linked to their own expectations relating to themselves, the lecturer and the assessment criteria (Handley et al., 2008, p. 6). One-off interventions are unlikely to be successful, more radical, programme-level changes are recommended, aimed at both staff and students (Handley et al., 2008, p. 9). Finally, this particular research about feedback urges the higher education community to see feedback as both a product and a process, recognising that the relationship between a student and lecturer conditions success. Recommendations include the use of professional development activities, mentoring, student dialogue and encouraging staff to use feedback to shape their teaching (Handley et al., 2008, pp. 11, 34).
Feedback is not a case of simple transmission from the lecturer, it is a complex process that is not often easily decoded or deciphered. It presupposes that students have evaluative skills similar to the lecturer, therefore we need to strengthen self-assessment skills involving monitoring their own work (Nicol & Macfarlane-Dick, 2005, pp. 105-108). Nicol and MacFarlane-Dick put forward two central arguments:

1 – Formative assessment and feedback should be used to empower students as self-regulated learners

2 – More recognition should be given to the role of feedback on learners’ motivation and self-esteem (Nicol & MacFarlane-Dick, 2005, p. 105). The following figure shows a model placing particular emphasis on students monitoring themselves (Nicol & Macfarlane-Dick, 2005, p. 107):

![Figure 1 A model of the formative assessment and feedback](image)

It is important in advance to discuss feedback explicitly with students, telling them why it is important and how you will make it useful to them. After giving it, it helps to ask what they find useful or not and why (Baume, 1998, p. 20). David Baume has produced the following advice for giving feedback:

- Be strategic in feedback comments that will have the maximum positive affect
- Be specific about why it was good and what needs improving
- Make it honest
- Make it personal, in terms of trends in the student’s learning
- Show respect
- Write feedback that the students will understand
- Write feedback which will help students increase understanding of the discipline
- Say why as well as what
- Respond to what you see in the work
- If you need to guess why the student has done something, make your guess explicit
- Start with a positive comment
- Describe problems or errors always with ideas about what the student can do next time
- End with an encouraging summary
- Turn students’ work around fast
Use it for: correcting mistakes, improving writing and presentation, clarifying the nature of the task and giving encouragement (Baume, 1998, pp. 20-23).

Feedback should include ‘feedforward’ which are explicit suggestions for improvement in the future (Lines & Mason, 2005, p. 10).

**Differing students’ needs**

“An awkward tension arises for tutors caught between the competing discourses of flexibility, access, meeting of student need (and demand) and widening participation on the one hand, and market economics and increased student numbers on the other.” (Land, 2005, p. 33)

**Widening access:** Widening participation to students from non-traditional backgrounds means that time and care need to be taken for acculturation into academic practices, including assessment; for example, some students will inevitably need much more help with essays and dissertations than others (Land, 2005, pp. 33-34). Widening participation has brought more mature and more diverse students as well as greater numbers, but education often still runs along the lines of when it was more elite. Students at the lower end struggle and this is aggravated when they do not receive good formative assessment to help them improve. We need to develop self confidence and see the student as a person but there is a risk of this being forgot through the instrumentalism of an outcome-led system (Yorke, 2005, p. 129).

**Internationalisation:** Internationalisation bringing together students from different cultures can bring its own tensions. For example, the rationale for supporting peer and group assessment might conflict with the learning cultures of some students (Land, 2005, p. 33).

**Distance learning:** It is especially important in the assessment of independent distance learning students to give guidance to help students understand; feedback in itself does not necessarily lead to learning as has been discussed above. For feedback to be effective it needs to close the gap between the current level of understanding and lecturer expectations. It is often difficult to give sufficient feedback without an opportunity for informal discussion. Given the pressure of work, feedback is often too late and therefore difficult for students to understand and act upon (Butcher et al, undated).

Criticism of distance learning has been levelled at “didactic content-focused teaching materials… encouraging learners to adopt surface approaches or ‘reproducing’ strategies. ‘Instructional industrialism’ has offered little flexibility or student centeredness… Flexibility tends to be about choice or mode of study rather than a commitment to open pedagogy.” (Morgan & O’Reilly, 1999, p. 14).

A key distinction in assessment at a distance is the small window of opportunity to assess formally, as opposed to informal contact that face-to-face learners have. Distance learners are therefore more dependent on effective, early communication of assessment requirements, well-designed and cohesive assessment tasks, useful and timely support and a transparent marking scheme explaining judgements. They are also more dependent on rapid turnaround of assignments, so that feedback can affect subsequent effort, maximising its formative nature (Morgan & O’Reilly, 1999, p. 22).

In summary, key qualities of distance learning assessment are:

- Clear rationale and consistent pedagogical approach
- Explicit values, aims, criteria and standards
- Authentic and holistic tasks
- A facilitative degree of structure
- Sufficient and timely formative assessment

**Aims and objectives = content = teaching and learning activities = assessment**

This simple equation underscores assessment as the culmination of teaching and learning activities. The closer all the elements are aligned with the assessment, the more effective it will be. In more self-directed forms of learning, students’ objectives become more central to the equation (Morgan & O’Reilly, 1999, pp. 47-48).
**Students with special needs:** It is good practice to consider what effects different assessment modes have on different groups of students (Mutch and Brown, 2001). The positive duty placed on higher education establishments by the Disability Discrimination Act 2005 means that an ‘inclusive’ approach to assessment is both cost effective and promotes equity, as opposed to depending on special arrangements for students with disabilities (University of Plymouth, undated).

**Conclusions**

“When planning and designing formative assessment, we need to think what, why, when, how where and who” (Land, 2005, p. 32).

Both lecturers and students face increasing pressures within the current higher education environment. All the evidence points to the fact that timely feedback and sound formative assessment practices are likely to enhance learning more than any other educational innovation (Knight, 2002), but these are subjects which are too often underdeveloped. We need a strategic approach and sustained leadership and commitment, as there are no quick fixes (Yorke, 2005, p. 134). Avoiding ‘chopping and changing’ or dealing in ‘deficit models’, we need to look at the system as a whole and shift our sights higher, taking risks and using our imagination (Hutchison, 2005, pp. 41, 43). It is important that lecturers role model their own demand for and willingness to get external feedback (Nicol & Macfarlane-Dick, 2005, p. 116). We need to be open to practice innovations and prepared to accept change and challenge our own views (Ross, 2005, pp. 13-14).

As part of this reflection, there is a need to balance educational effectiveness against the efficient management of resources (Hornby, 2005). Hornby (2005, p. 21) has produced the following diagram categorising various assessment methods according to whether they are high or low in terms of both efficiency and effectiveness. This diagram is helpful when lecturers reflect on their current practice and seek, in the face of increasing pressures, to develop methods which are high in both resource efficiency and educational effectiveness. The reader may disagree about where Hornby places his examples, but the principles remain valid.

![Figure 2 Survey of some assessment methods: summary findings](Source: Hornby (2003))

As Gibbs and Jenkins discuss, strategic options are a choice between ‘control’ strategies and ‘independent’ strategies. The former uses traditional assessment methods with greater efficiency, the latter shifts responsibility for formative assessment to the student themselves to enhance student performance and motivation (1992). Engaging both students and staff in discussion of formative assessment as both process and product is crucial (Nicol & MacFarlane-Dick, 2006).

“Sustainable assessment meets the needs of the present and prepares students to meet their own future needs.” (Boud, 2000)
One of the objectives of this study was to share some handy hints between colleagues on how they tackle their formative assessment. To do these staff filled in templates to explain their practices and reflect on their success. Some of these may be of much more general use. The following matrix should help you choose examples that are of interest to you.

| List of Criteria                  | Case Study 1 | Case Study 2 | Case Study 3 | Case Study 4 | Case Study 5 | Case Study 6 | Case Study 7 | Case Study 8 | Case Study 9 | Case Study 10 | Case Study 11 | Case Study 12 | Case Study 13 | Case Study 14 | Case Study 15 | Case Study 16 | Case Study 17 | Case Study 18 |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Undergraduate                    | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Postgraduate                     | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| DL                               | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Large class                      | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| International students           | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Multi-disciplinary               | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Multi-years                      | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Exam preparation                 | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Non-standard exam                | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Peer assessment                  | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Self assessment                  | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Automated assessment             | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Comments banks                   | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Verbal feedback                  | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Pass/fail exercises              | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Group assessment                 | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| Matrix for marking criteria      | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| IT for feedback                  | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
| IT for peer assessment           | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            | X            |
Case Study 1 - Stress Analysis and Element Strength and Steel and Concrete Design

Highlights:
- Problem based learning approach
- Course reading materials are available on-line in advance for students to prepare
- On-line self assessment tests allow students to monitor their own preparation
- Class sessions comprise of 3 hour Problem Based sessions which require students to apply their knowledge
- Class sessions allow lecture and demonstrator support to help guide the students through problem of increased complexity and challenge
- Staff time saved on lectures is spent on face-to-face formative feedback
- Pass/fail system of weekly formative assessments saves marking time and allows students who perform consistently well to be guaranteed a pass overall
- Students work in groups of 4. The submission from one group member is targeted weekly to give detailed feedback – cutting down marking time. All group members then scrutinise feedback.
- Weekly formative assessments are very similar style and content to the final summative open book examination.

Subject area:
Half of two modules civil engineering modules:
Stress Analysis and Element Strength
Steel and Concrete Design

Students are required to model structural problems (by hand and computer based numerical modelling) and produce a steel design solution to satisfy this model, i.e. the classic role of the practising structural designer.

Brief description, including relationship to summative assessment and timing:
Assessed by an open book class test in final week which is very similar to formative studies through semester.

No lectures – all Problem Based Learning. Students are given materials in advance on VISION and are expected to read through and do worked examples before the weekly 3 hour classes.

All formative feedback should help them directly with the final piece that is assessed in an open book class test under exam conditions. All work assessed formatively is only on a pass/fail basis. None of this counts towards the final assessment although as an incentive to perform well throughout any student that has a pass for all formative assessments is guaranteed to at least pass the final summative assessment – i.e. if you work hard throughout the session, an off day in an exam won’t drag you down.

The final and single summative assessment for this module is by a seventh exercise – set under open book examination conditions – individual submissions, not group work. Importantly the exercise is similar in style and nature to the previous weeks – no harder – maybe even slightly simpler. The aim is to challenge the students and push the boundaries in the class – not in the exam.

Method of formative assessment:
In class (seminar style room) students split into groups of 4 for all classes and they work together – peer supporting. They bring along notes and support materials. It’s an informal atmosphere and students can leave to source other material, eat/drink etc. Six exercises (“Problems”) are set in two week long stints. Each session is slightly more complex than the previous requiring further preparation by reading in the notes etc. Exercises are problems that require knowledge from the materials provided, external sources and other parts of the CE course.

They submit an exercise every other week and get formative feedback the following week. All members of each group hand in an assignment every time. Each one is looked at briefly and evaluated at a Pass/Fail level and one from each group is selected at random for more detailed feedback. As the groups get on with the next exercise the member of staff visits each group in turn to provide verbal feedback on all four of the submissions so they get about 10mins individual and personal feedback each and also get to hear the feedback given to others in their group.

The type of feedback can range from very detailed technical issues; presentation; the image a student projects; attitude to study; and most importantly, showing students HOW to think a problem through.
Pass means proceed with next problem, Fail means proceed to next problem but redo the failed exercise in their own time and resubmit.

**Student group, location and average number:**
2nd/3rd year undergraduate, on campus, about 60-80

**Staff resource required:**
Standard lecture notes and worked solutions covering the fundamental theory and principals are prepared in advance and made available on the internet (VISION). Once this has been done for one year, only updates are required annually.

Intensive face-to-face contact in 3 hour class session, prompt marking turnaround, but very little time is used to lecture. The important feature is that staff member must be comfortable with thinking on their feet and responding to questions in the seminar environment. Staff member needs to be open to letting students see how they think a problem through. A competent demonstrator can be an advantage in larger classes.

Final marking is summative only and takes similar length of time to mark as an examination script – i.e., is quicker than normal coursework marking. Comments on final assessment that may be of use in future courses are in the form of a class email of common mistakes.

**Student feedback about effectiveness in promoting learning:**
Very popular with the students. They mostly enjoy the challenge. They work very hard throughout and acknowledge the benefits. Some direct quotes:-

- “… first time I’ve worked hard since coming to university” (a 3rd year)
- “… [the] sessions were interesting and were probably the purest form of engineering I have done since coming to university”
- “being able to see something and work with …the theory[sic]… in a practical sense allowed me to understand how and why …”

**Staff reflection about effectiveness and efficiency:**
Works well for me – one class is never the same as the last, students ask completely different questions. Much better than re-presenting the same lecture material year in year out! It challenges the students and guides them to be scholarly. It requires the lecturer to dynamically interact with the class.

**Ideas for improvement/other comments:**
When students ask a lot of questions during class – I need to be careful not to spoon feed the answers and respond to the questions in a way that encourages them and guides them to work out their own answer. Need to try and step back and show them how they can look for answers themselves.

Not enough students prepare for the session by reading the materials before the class. Could consider setting a simple automated test on VISION to help students gauge their own understanding of the notes BEFORE they come to the class – but is this a step too far?

To give students a good idea of what is required for each submission I have some submissions from students from previous years which contain classic errors. I will pass these out to students (anonymised of-course) each week and ask them to identify the errors - this is a weekly session. This reflects the professional design office where engineers must check the work of colleagues before it is built - that’s how we structural designers can sleep at night!!!
### Case Study 2 - Determinate Structures and Stress Analysis & Element Strength

#### Highlights:
- Use of VLE automated tests to give feedback and marks
- Practice tests available before assessed ones
- Saves time marking and ensures consistency of marks
- Teaching sessions run as very short lectures and workshops solving problems

#### Subject area:
Half of two 2nd year modules in Civil Engineering:
Determinate Structures / Stress Analysis & Element Strength
Numerically based subjects

#### Brief description, including relationship to summative assessment and timing:
SEAS: Half a module is tested by three class tests (15% total), a final exam (25%) and 10% from laboratory work.
DS: 75% exam, 10% VLE test, 5% labs
All class tests have an associated practice test available a week beforehand. Practice tests are formative but the summative assessed tests also help students through the module as they can check their progress.

#### Method of formative assessment:
Automated VLE Tests:
- three assessed tests each contributing 5% to the total module mark
- tests are run using the University VLE system in one of the School's computer rooms during class time
- questions are selected automatically at random from a question bank. Questions are the same for each student but the input numbers are different and generated from a set of about 25 options.
- the answers are provided as a multiple choice option – this means that the student can work out the calculation and if they get an answer very close to one of the options then they know which one to pick. The aim of this is to avoid problems when students get the right answer but very slightly wrong with rounding errors.
- a week before each test a practice test is set as formative assessment
- all tests are open book
- each test consists of about 5 questions on stress analysis/structural mechanics
- each test lasts about 50 minutes
- the practice tests give answers and feedback on how to tackle each problem
- the summative assessed test only gives the mark obtained and not detailed feedback – as the final test is staggered to fit students into the computer lab this is to avoid students sending answers to others who have yet to sit the test
- the principal objective of the tests is to encourage steady working and to prepare the students for the module exam

Workshops:
- students work through problems in class
- feedback given verbally as required as they run through problems
- worked solutions given out the following week

#### Student group, location and average number:
2nd year undergraduate, on campus, about 60-80 students

#### Staff resource required:
Building the pool of test questions takes 2-3 days per test and is then rolled over each year. Running the tests eats into the timetabled time for the module (2 hours per VLE test, 6 hours total). However, the automated marking and feedback saves staff time at that stage.

#### Student feedback about effectiveness in promoting learning:
The students appreciate the discipline the tests bring to their study. In a recent questionnaire (with a >70% response rate) over 80% of students rated the VLE tests as very or extremely useful.
"It was a good indicator of how much I understood the course"
"I felt the tests gave an accurate assessment on how you are doing"
"they were very helpful and insured (sic) students studied.... therefore revision for exams made easier"
The workshop style of teaching is newer but students appeared to appreciate it during classes.
### Staff reflection about effectiveness and efficiency:
This form of formative/summative assessment works well in terms of both effectiveness and efficiency for type of material taught in these modules but it would not work so well in all subjects. It requires a certain amount of forward planning to book the rooms and to prepare the program of scheduled activities for the module. Although the tests and answers need to be very carefully prepared, thereafter marking is fairer as the automated system should be less liable to error. It seems to help them keep up to speed with their studies and their overall results are better in the long run. Workshops need to be evaluated from this year's cohort.

### Ideas for improvement/other comments:
The technology (Blackboard's VLE) gets in the way by not allowing the students to view their attempts at tests proper after the test is over. Unfortunately, this cannot be fixed unless the software is improved.

Jim Balfour
Case Study 3 - Surveying and Environmental Monitoring

**Highlights:**
- Interim formative feedback on coursework
- Comments provided using VLE
- Comments provide platform for class discussion

**Subject area:**
Module contains three distinct parts: 1. Environmental Monitoring, 2. GIS, and 3. Surveying. Each part is taught for 4 weeks. Assessment is CW only. Parts 2 & 3 are taught by me and briefly described below:

2. GIS: Lectures and hands-on sessions. Lectures consist of introduction into the concept of GIS and the hands on sessions reinforce the learnt material. Basic functions of GIS are taught during the hands on sessions and eventually the students are given the CW tasks where they have to assess the viability of the Borders Railway line. The students have the opportunity to get formative feedback on their CW well before their hand in date (at least 2 weeks).

3. Surveying: Lectures and tutorials during semester and in 1st exam week field course on campus. The lectures and tutorials teach the students the basics of surveying, the tutorials aim at reinforcing the learnt material by doing the calculations. They also serve as a preparation for the field course where groups of 10 – 12 students are given a plot and various tasks on HW campus. They have to apply different techniques, write a report, include the calculations and provide appropriate maps to document what they have done. Instruments are available for 5 days, the hand in date is 2 weeks from the beginning of the field course. During these 2 weeks, the students can get feedback from tutors and lecturers all the time.

**Brief description, including relationship to summative assessment and timing:**
No exam in this module which runs in Semester 2 year 2, all based on 3 pieces of coursework:
1) Surveying Field Course, Surveying lectures weeks 9 – 12, field course week 13, hand in end of week 14, > 33%
2) GIS, GIS lectures weeks 5 – 8, coursework to be handed in week 10 > 33%
3) Environmental Monitoring [run by another member of staff]. EM lectures weeks 1 – 4, CW to be handed in >33%

All GIS coursework is summative but students get the chance to submit their work for formative assessment at an interim stage. Feedback on the surveying field course portfolio is continuous during the field course and the following week before the hand in date. Templates of good practice given.

Field course is group work with groups of 10 – 12 (which is too many in my opinion, but we do not have the resources to run it in smaller groups)

Timing mentioned above will be reviewed in future, with submission date for GIS earlier. This is to minimise collisions with other CW from other modules and to get the work out of the way for students. There is little scope to change submission dates for the field course portfolio.

**Method of formative assessment:**

GIS
The individual coursework uses GIS to analyse the viability of reopening a rail link between the Borders and Edinburgh. All the students have the same topic.

They were all given the option to submit their coursework electronically for formative feedback via Vision 5 weeks into the coursework (7 weeks before final submission). Each submission was assessed and feedback was given within the report using “Insert Comments” function on VLE (VISION).

Feedback on the final submission is given as a summary of what struck me when I read the different pieces of work. This includes +ve and –ve. It is intended to upload this on VISION in accordance with SBE requirements on exam feedback.

Feedback on report writing skills should help them organise their reports better in the course of their studies.

Surveying Field Course
Continuous feedback during the course. Students do the work as groups of 10-12, they have to organise themselves. They get a rough template of a report and they are free to include as many drawings and maps to support their work.
rough outline is given on what the contents are expected to be. Discussion with the groups and assessing their portfolio while they work on it brings up various qualitative issues that are addressed as the work progresses.

Student group, location and average number:

**GIS**

2nd year undergraduate, on campus, total students: 58, an average of 40 turned up for lectures and maybe 25 – 30 for the tutorials.

Lectures given in lecture room but the computer labs were used for tutorials and an initial introduction into the analysis of the data used in the Borders Railway project.

**Surveying Field Course**

Outside on campus and in various rooms across SBE, computer labs, 10 groups of about 10-12 students. Weak participation from some CMS students due to allocation of only 10% of this CW to their final mark.

Staff resource required:

**GIS**

The additional marking required for the formative assessment is quite a substantial extra workload. Setting up Vision environment is easy and relatively quick, most time spent assessing and writing remarks, but this speeds up final assessment.

Student feedback about effectiveness in promoting learning:

**GIS**

This was not assessed in feedback forms but they asked about the interim feedback given and were willing to learn from it. The formative assessment was optional and 19 out of 58 actually took the opportunity to get feedback.

Without carrying out any statistical tests on the data, the table below shows the results of the marks for the GIS CW. FB students seem to have higher marks than the ones without feedback. The highest mark however was achieved by a student without feedback.

<table>
<thead>
<tr>
<th>All students</th>
<th>61.947368</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB students</td>
<td>64.789474</td>
</tr>
<tr>
<td>Non FB students</td>
<td>61.315789</td>
</tr>
<tr>
<td>All Male</td>
<td>63.76087</td>
</tr>
<tr>
<td>All Female</td>
<td>59.363636</td>
</tr>
<tr>
<td>FB Male</td>
<td>64.066667</td>
</tr>
<tr>
<td>FB Female</td>
<td>60</td>
</tr>
<tr>
<td>Max M</td>
<td>79</td>
</tr>
<tr>
<td>Max F</td>
<td>65</td>
</tr>
<tr>
<td>FB Max M</td>
<td>72</td>
</tr>
<tr>
<td>FB Max F</td>
<td>65</td>
</tr>
</tbody>
</table>

FB = Feedback, F = Female, M = Male

I will continue to monitor the marks of feedback and non FB students.

Qualitative student feedback forms for Surveying and GIS were handed out during the last session and 18 replied. I will continue to use this method in addition to the electronic feedback since the return rate is higher when the students can fill in the form during the last class session. Electronic feedback is completed by maybe 10% of students.

Most important feedback relating to GIS was more demos are needed and tutorial sessions would be of benefit. Since it is a topic that needs constant hands on experience, this will be included in future lectures. But the most important piece of feedback was that some did not like the start time on Monday, 9.15!

Feedback on formative assessment was not given due to the hand in date of the CW, which was after the qualitative feedback session.
**Staff reflection about effectiveness and efficiency:**

**Effectiveness:**
The formative feedback is a useful platform for discussing certain issues with the students and makes them aware of omissions in their work.

In particular, it helps them with writing a proper engineering report. This is an extremely important transferrable skill and is a key component of all coursework I set. The hope is that in years 4 and 5, the students need less advice on this fundamental skill. By giving them this feedback earlier in their studies I hope to end up with less work later on.

For the students who choose to seek feedback, it is an effective way to improve their work and understand what is really asked of them. It is a iterative process that will help the students develop their way of thinking.

**Efficiency:**
It is very time consuming. Of course I get an idea earlier on about the capabilities of the students and what I should look out for once I mark the coursework. It also gives me feedback on coursework while I still have time to make any changes. But, of course, having interim formative assessment will be a much higher workload than having none for each module.

The benefits they gain now may cause a paradigm shift in their thinking and may make my life (and the life of colleagues) easier as students develop a more mature way of thinking and thus need less guidance in their later stages during the studies. This needs to be considered holistically, but is hard to assess and some research would need to go into this.

**Ideas for improvement/other comments:**
I will use formative assessment in a different module (Transportation Engineering B) in the next Semester. The students will be asked to submit group work on a specific transportation topic using Wikis on Vision. This will then allow me to continuously assess the progress of the groups and comment on their work in progress.

A feedback question on formative assessment will be included from now on in all modules where formative assessment is used.

Possibly could include some interim submission with pass/fail criteria. Was thinking of something similar with Surveying tutorials. Students were not there since it did not count towards their final marks, but it was essential to understand surveying. Doing this would mean they have a better start into the field course.

Roland Burkhard
### Case Study 4 - Construction Procurement and Safety Management

#### Highlights:
- Interim audit to assess ongoing progress
- Group work for a more real work experience and to save time
- Balance of group marks chosen by students
- Use of wikis to aid communication and feedback between students
- Projects based on actual construction projects (data provided simplified)

#### Subject area:
The central aim of this module is to introduce students to the Project Management environment and to provide them with a basic understanding of project scheduling, cost management, safety management and procurement tools. The module considers both the theoretical models available to manage projects and uses real projects to illustrate the problems in running a real project.

#### Brief description, including relationship to summative assessment and timing:
Assessed by 50% coursework, 50% exam – all contribute to summative assessment
4 pieces of coursework:
1) Group audit of project to date. Individual question and answer session on each students part of project. (7.5%, week 8 tutorials)
2) Group presentation of final project (7.5%, week 12)
3) Final project report (35%, week 12)
4) The students submit a peer assessment form before the group audit (week 8) and after the submission of the final report (week 12). These assessments are taken into account when allocating the final group mark. Non submission also incurs a penalty of 5% on the group mark. The form asks for an assessment of the effort of each student, ranging from 0 -100 %. Students also assess themselves

#### Method of formative assessment:
Each group has the same project (this simulates a tender document sent to a number of companies to bid for a job). Groups are advised to produce a timetable for work and tasks for each member.

Group audit in week 8 allows for a detailed assessment of the progress of the project to this point in time. Each group member has a question and answer session on their part of the project. The audits are between the group and the tutor, not in front on the class. The overall mark is made up 50% individual response and 50% overall group performance, to reflect that in industry the success of a bid is the overall performance, not necessarily the performance of the individual.

The groups are given feed back on their progress against what would be expected at this point in time and given a guide to the work that needs to be done and deadlines for this work. Feedback is given verbally within the audits to each specific group. A general feedback form is also put on VISION. Informal discussions/feedback also takes place within the tutorials each week.

The feedback from staff at the audit stage is generally focussed groups on the tasks remaining and work to be done. It also provided an opportunity to assess the contribution of individuals within the groups. This encouraged students who were not contributing to increase their input. The peer assessment generally showed an increase in effort from those students whose effort was assessed as low in the week 8 compared to week 12 (though not all). It also enabled groups to take into account the lack of effort from members and re-allocate tasks accordingly.

A group WIKI is available for students to share and store information. At present the WIKI is optional, though this may become compulsory in subsequent years. Last year about 1/3 used it extensively, 1/3 partially and 1/3 minimally or not at all. I am actually introducing WIKIs in Year 1 Apps module, so next year all students should be familiar with it prior to course and at this point am planning on making it compulsory. Groups are encouraged to keep diaries on the WIKI and minutes of group meetings, as well as all documents relating to project. In time the contributions on the WIKI will be part of the course assessment and feed into the final mark, along with the peer assessment.

I always get at least one other member of staff with no knowledge of project to attend and mark, to give an independent assessment which balances my mark.
<table>
<thead>
<tr>
<th>Student group, location and average number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third year undergraduate, on-campus, about 70 students, Group numbers 4 to 6.</td>
</tr>
<tr>
<td>This means 4-6 people per group, giving between 10 - 15 groups. This year there are 72 students, meaning 14 groups.</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Staff resource required:</th>
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<tbody>
<tr>
<td>Academic staff have to run the audit sessions. There is a scale for converting peer assessment, individual audit contribution and wiki contributions to the final project mark. Otherwise it would be very time consuming.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student feedback about effectiveness in promoting learning:</th>
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</thead>
<tbody>
<tr>
<td>No written feedback, though students were happy that they had a method of reflecting contributions from other group members. This peer assessment does feed into the final project mark, though it is moderated by other factors. For example each student gets an individual mark in the audit, this feeds into the final group mark. The audit mark is 50% the individual mark and 50% the group average. A tender bid is only as good as the weakest part. Students learn that the team relies upon all members, as in real projects.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Staff reflection about effectiveness and efficiency:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall the final reports were of a good standard.</td>
</tr>
<tr>
<td>Generally the peer assessment encouraged most students to contribute equally to the project.</td>
</tr>
<tr>
<td>The audit provided a focus for students to progress the project, rather than leaving it till late in the semester. Also the standard of work presented at the audit improved in the final report.</td>
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<tr>
<th>Ideas for improvement/other comments:</th>
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<td>Extend the time for the audit to allow greater assessment and feedback on a group/individual basis. This year audits will take place over two weeks, allowing more in depth assessment and feedback. It is proposed to move the audit to cover weeks 7 and 8 next year, with Research Assistant support running a parallel tutorials covering lecture material and worked examples, thus freeing the academic staff.</td>
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David Law
Case Study 5 - Sustainability in Civil Engineering

Highlights:
- Use of comments bank for feedback
- A spreadsheet tool for marking scheme
- Distance learning – feedback and discussion boards encourage communication – group work can actually work with distance learning students
- International and diverse students = students can choose their own flexible path of study to reflect their interests, background and local issues.
- Self assessment of work by use of a reflective journal
- Assessment provides useful study skills for future modules/work

Subject area:
As this is such a large subject that no one can master alone, students are encouraged to follow paths of study that match their own interests within a guided framework. Groups are set up early in the course for completing the second piece of coursework but they are encouraged to communicate with each other about all aspects of the course. The course is run by distance learning and on-campus. On-campus sessions are tutorial based where students primarily use the sessions to teach each other about the aspects of the course they have chosen to follow. Peer feedback and discussion is a major part of these sessions. Lectures are only used for giving advice on the assessment as the materials for distance learning students are fairly comprehensive.

Brief description, including relationship to summative assessment and timing:
Assessed by 100% coursework. The module is assessed with 3 pieces of coursework:

5) Using a project assessment award tool used on a case study of their choice. This spreadsheet tool is one used in industry for giving sustainability awards to civil engineering projects. The case study allows the student to act as an assessor at an interim stage. A large proportion of the assessment is based on their reflections on the quality of the project and the assessment tool. (60% week 12)

6) Group work (in groups of 3-4) providing planning objection to proposed development based on detailed environmental impact assessment information. (25%) week 12

7) A Reflective Journal on how they approached their studies and show what they chose to study. This should show a variety of methods including group work, good use of library/web etc. Finally they reflect on what was the most effective parts of the module and how it could be improved. This is effectively formative self assessment. (15% week 14)

Deadlines have to be set to match deadlines for DL students at the end of the semester. Assessment 3 is allowed an extra two weeks after the first two so there can be time for feedback on the first two parts if they wait until the last minute to submit their final piece of coursework – though this doesn’t always happen.

Method of formative assessment:
All three of the submitted pieces of assessment are effectively summative as there is often little opportunity to get feedback prior to submitting the final piece of work. However, all three encourage some excellent study skills and time management so summative feedback is often cited as useful by the students for future work – especially when they come to do dissertations.

However, class sessions, group work and online discussion boards often provoke some very active course discussions from both staff and peers. This is a very effective form of formative feedback although students may not realise it counts as formative assessment. These discussions are particularly useful for the group work (2) and reflective journal (3). Students are particularly encouraged to share their written work for feedback from their peers. In class sessions this is encouraged in a more formal way.

Feedback from staff mostly relates to first coursework and the practicalities of doing the project assessment. Students can give small examples of their work and ask for informal feedback.
**Student group, location and average number:**
Postgraduate MSc and MEng. About 60+ on campus and about 20+ DL students (increasing very rapidly)

This module is used on a number of MSc courses (e.g. flooding/water courses, civil engineering, sustainably communities etc.) and also for MEng students. Students can be both on-campus and worldwide (distance learning) and so can have very differing backgrounds and cultures.

**Staff resource required:**
As the course is a distance learning one the preparation of initial materials is a very major job (maybe six months to prepare). Once this is complete the running of the module is less demanding but it still requires encouraging students in tutorials in class or use of discussion boards and emails from distance learning students.

At submission time a large amount of time is required for marking three bits of coursework – especially if any feedback is to be available before the submission of the third bit of assessment (though often students submit this early so there is not time for feedback then). However, as this is distance learning this is an important student/staff interaction.

Marking and feedback are made more efficient by using a carefully designed spreadsheet that will add up scores according to different criteria, assign grades to pieces of work and also has a long list of comments that can be chosen. Feedback to students is managed using a mail merge that automatically imports personal comments from the question bank for each student into a document with more general feedback and the student’s grade and mark for each of the three pieces of assessment. This works very well but it might cause some problems in future if an office upgrade to 2007 is done.

**Student feedback about effectiveness in promoting learning:**
Having a reflective journal as part of the coursework leads to a very large amount of feedback on the course as a whole (see below). During the module itself verbal/email feedback is more common. Usually they are less positive during the module – especially with the more labour intensive coursework as they are still struggling to understand the process and only when they have put in considerable personal effort do they understand the point of it all. The reflective journal specifically asks for feedback in the effectiveness of their learning overall. This is generally very favourable at the end of the module once they understand the broader picture of the assessment.

“… the EARL group coursework was excellent. The first time as a distance learning student I have really got to work with other students. The collaboration was very effective – really interesting to get into the depth of a project.” (This cohort of distance learning students used the discussion boards very actively thereafter.)

“For once I could see that my work at university was directly applicable to my future career which was truly satisfying. …it helped me to appreciate the broad range of environmental issues which are associated with large scale engineering projects. A CEEQUAL assessment leaves no stone unturned, exhaustively covering topics such as… I found myself researching topics which I had never even thought about before, which was definitely good for my personal development as an engineer. This was without doubt the most useful part of the course…” (Assessment for this module will be useful in other modules/dissertation.)

“In addition to carrying out the assessment, this part of the module also involved carrying out a critical review of the assessment tool and the project which was assessed. This was particularly useful as it allowed me to reflect on the work I had done and draw conclusions where possible.” (Self assessment)

“In summary I would say that this was a very well organised module, with interesting coursework and a fantastic set of class notes. The features made available on VISION were an additional bonus, such as the chat boards and the group emailing tools. Many lecturers cannot even find the time to put their class notes online so it was a pleasure to have such a great resource available at the click of a mouse.” (An on-campus student who used many of the facilities to enable efficient study)

“I thought that the way the module was marked was also very fair as it would not have suited an exam based format. By allocating the marks to three large pieces of coursework it spread the workload across the whole term rather than concentrating it all on the last couple of weeks as students crammed in information just to pass the test.” (Effective assessment and time management – not all students coped as well as this one.)

“I don’t think that any of the subjects needed to be expanded as they each gave us enough information to get us started and from there it should have been our responsibility to read on.” (Students can choose study path)

“The nature of the subject means that a more unconventional approach to teaching the module has been adopted rather than lecturing, self-directed learning has been encouraged. This approach has allowed greater flexibility and freedom in
learning and made it possible to focus more on areas where my particular interests lie rather than in a fixed curriculum. This has been especially useful in this module as the wide reaching nature of sustainability means that covering every issue would be impractical. Therefore the information provided for the course was made available as a basic outline to read around depending on existing experience/knowledge and interests. This has resulted in a module which is different for every person studying it. This means that different knowledge and benefits were gained and different conclusions drawn.” (Students can choose study path)

“…the module therefore offered the chance to work as a team, a very useful skill.” (Effective group work)

“I consider the reflective journal to be the most valuable and transferable piece of coursework carried out as part of this module. It is a tool which demonstrates the development of my self directed study. It provides a breakdown of some of the sources I have used to tackle the various coursework assignments. In addition to this it allows me to evaluate how I use references and how I extract information from them. The process has been very rewarding and useful. As a result I have applied the same principles elsewhere, using a similar format for the information I have compiled for my dissertation and also for companies that I intend to apply to for a graduate job. This aspect of the module has therefore been the most pleasing for me and demonstrates its applications as an extremely useful tool.” (New study skills)

Staff reflection about effectiveness and efficiency:
It all works surprisingly well! In particular it is very pleasing that the group work with distance learning students can be very effective (though some groups work better than others) and can sometimes trigger good use of the online discussion boards. It can take some considerable time to respond to student queries if students do not work together enough.

Within the module most informal formative feedback from staff is only available on request and most students only ask about the first, individual piece of coursework. Students generally ask for a lot of help with the practicalities but less so with the evaluation. However, the evaluation section is the place where students can really show their flair so it is helpful not to give too much feedback on this section as this is often what distinguishes the good from excellent students.

The final marking and feedback is a lot of work even with a comments bank and semi-automated system of feedback. Perhaps three pieces of coursework is too much for one module but it would be a shame to cut out one as they are all successful and they satisfy some useful requirements for the accreditation of our courses – in particular the self reflection and group work.

Ideas for improvement/other comments:
The on-campus tutorial sessions can be a bit hit and miss if students are not willing to participate. It only works well as this is an advanced level course. It would not work with less mature students. Usually peer feedback only works well for distance learning students for the CW#2.

This year we may try setting tutorial exercises where students do an exercise on developing their own marking schemes for each piece of coursework – hopefully this will give staff some useful ideas for improvements. We will then get them to assess each other’s work using these ideas and see how it works. Perhaps in future years some more formal self assessment might be used to contribute to their marks. But since this would not work well with distance learning students (who need to be assessed in exactly the same way as on-campus students) it will probably never replace the current system.

Unfortunately as numbers are growing very fast all these methods may become more impractical. However, effective peer formative feedback in class will be even more important.

Pauline Thompson
Case Study 6 – Civil Engineering Applications 1

Highlights:
- Small units of assessment spaced through semester with prompt feedback to ensure students can improve
- Group work to encourage good study skills and save marking time
- Peer assessment
- A lot of verbal feedback as class time mostly tutorial style
- Use of marking criteria matrix for efficient marking and feedback
- A spreadsheet tool for marking scheme
- Assessment provides useful study skills for future modules/work

Subject area:
This is a first year, first semester module that aims to inspire students to want to study civil engineering and give them some good study skills to use at University.

Brief description, including relationship to summative assessment and timing:
All formative assessment is also part of the summative assessment but as it is on going through the semester it allows students to improve within the module and in future courses.

Assessed by 100% coursework = 7 pieces of coursework (equally weighted):
8) Group Research Projects: Presentations on different topics (submitted week 6)
9) Group Design Project 1: Re-opening the Union canal (submitted end week 4)
10) Group Design Project 2: Lothianburn Park and Ride (submitted end week 9)
11) Group Design Project 3: Sustainable bypass design Biggar (submitted end week 12)
12) Individual Risk Assessment: of activity chosen by student (submitted week 9)
13) Individual Site Visit Report 1: this year to the Forth Bridge (submitted week 11)
14) Individual Site Visit Report 2: this year to Seafield Waste Water Treatment Works (submitted week 12)

Method of formative assessment:
Each piece of assessment is marked within two weeks of submission so that students get prompt feedback, hopefully in time to help them with their next assessment. The marking and feedback from the first design projects help with study skills such as report writing etc.

Occasionally there is not a sufficient gap in between submission dates to provide feedback to the whole class (e.g. this year between the site visits). If this happens general verbal feedback is given to all students in class to help them with their next submission.

Much of the class time is devoted to self directed study as groups. Staff are available for discussion of ideas and so there are many opportunities for a lot of informal formative feedback.

For clarity all work is assessed using a matrix of criteria (usually about 8 different categories) with different levels from A to F available within each category. A brief description within each box of the form gives the student some idea of what minimum is expected for each grade. This helps staff mark more quickly and also helps the two staff involved to mark more consistently between them. The matrix of criteria is usually shown to the students before they submit the work although they may not always be given a copy to take away – although they can certainly take notes of what is required. Only short comments are added to the matrix where appropriate.

Mostly adding up the scores from these matrices is done by estimating whether the average is e.g. a high B etc. and giving a mark accordingly. However, for some of the assignments this matrix has been entered into a spreadsheet where the grades are entered for each criteria, marks are assigned to each grade and an overall mark/grade is calculated. This does not necessarily save staff time but in one case allowed fast feedback as the spreadsheet and criteria could be emailed to students (against only their matriculation numbers so it was more anonymous). This also allows students to see their rank in the class.

For the research project presentations each group gives a presentation and they all have to contribute to the speaking. Photocopies of the assessment criteria are given to all students and each student has to mark two other groups and provide constructive critical comments as feedback. (Many students did not provide sufficiently useful comments so this could be better encouraged next year.) At the same time the member of staff makes a few notes and tries to assess the
students too. After the presentations all comments sheets are collected in, photocopied, sorted, a few short comments added from the staff and given back out to students for some peer feedback on their performance. Marks are calculated by taking an overview of all students’ views and any comments from the member of staff.

**Student group, location and average number:**
First year undergraduate, on campus, about 70

**Staff resource required:**
A few lectures to set up problems, computer lab sessions to help students with the skills they need to do the work and guidance on effective writing skills, time management and study skills. Much of the class time is spent giving verbal feedback on progress to groups. Prompt marking turnaround is important and requires quite a lot of time.

Marking is more efficient, fair and consistent by using matrix based box ticking marking with fewer personal comments. Spreadsheet versions of the marks sheet do not save time but do allow students to receive feedback more quickly by email. Marking time is also reduced by doing a number of assessments as group work.

**Student feedback about effectiveness in promoting learning:**
There is not much available in writing but verbal feedback was easy to obtain as we spent many hours talking to individuals in class. Mostly they were very positive about the module but were not all so keen on group work.

Students really like the variety of subjects and being guided through a number of different exercises. All the exercises have a relevance to real civil engineering which is refreshing for them as their other courses can be quite dry. In particular they like the site visits and contributions from invited speakers who are “real” engineers. In terms of the assessment they were all happy with the large amount of time they had to talk to members of staff for verbal feedback on their work. They certainly appreciated the prompt feedback of the formal assessment (we may have set standards that were hard for our colleagues to follow!).

However, group work was not always popular as some groups fell out during these 4 group exercises. As these students do not know each other at the beginning we allocated them to groups with the other students in their mentor groups. This meant they would get to know each other better through their mentor meetings and could even use that time to work together. We did think about allowing them to swap groups between projects but since they had some occasions where they were working on more than one project at once, this would have made time management harder for them as they needed to work with different people. We are thinking about how we could improve this but cannot see an easy solution.

**Staff reflection about effectiveness and efficiency:**
Mostly students improved through the term as they became more familiar with what is expected for University level study. However, time constraints for the students led to a decrease in quality towards the end as they approached their exams and coursework in other subjects.

**Ideas for improvement/other comments:**
Coping with so much marking quickly is difficult – hence the use of groupwork for many exercises. It might be worth considering running a formal peer feedback and assessment for one of the site visit reports. Given that we distribute the marking criteria in advance it may help them carefully consider what is expected. The only danger is then that all will do so well in the final assessment that it becomes difficult to distinguish the different abilities of the students.

We may also try a self-assessment system in addition to the peer feedback for the research projects and maybe the site visits.

Pauline Thompson
Case Study 7 - Learning from Disasters and Fire, Explosions and Process Safety

Highlights:
- Formative assessment as exam preparation
- Use of generic comments for feedback
- Distance learning – feedback encourages communication
- International students = local relevance and choice of study route
- Assessment provides useful study skills for future modules/work
- Student group with very diverse backgrounds

Subject area:
Two MSc modules:

Learning from Disasters:
Deals with the use of different accident models and some practical accident investigation techniques. The aim is to make the student more able to do an accident investigation with some experience of objective analysis on a major case study. The implications in terms of lessons learnt and legislation are then explored.

Fire, Explosions and Process Safety:
Covers much of the fundamental theories of how fires develop and how they can be prevented and protected against. This ranges from the detailed physics of fire behaviour to fire safety management plans.

Brief description, including relationship to summative assessment and timing:
Assessed by 25% coursework, 75% exam. Usually submitted at the end of week 12 just before the exams due to administrative restrictions – so feedback in time for the exam is not always possible. Details of coursework:

Learning from Disasters:
Students pick a major accident of their choice and analyse it using three different methods. They can concentrate on one that matches their own expertise and potentially is in a location where they are familiar with the legislation. Coursework should help them with exam preparation as two of the analytical methods are used again in the exam on a new simpler scenario. They also have to apply an accident model to an accident of their choice – which is usually expected to be the one they studied. The structured techniques used for accident investigation show them good methods of objective analysis and some of these could well be used as new study skills for other modules or in their work environment.

Fire, Explosions and Process Safety:
A scenario is usually set for a fire safety assessment. Students are expected to base this scenario in a local area to them and show they understand some of their local legislation. Usually this is based on a previous exam paper. This should help them with exam preparation, although more detail would be expected in the coursework. The structured assessment and imaginative solutions required gives them good practice for similar activities in other modules.

Method of formative assessment:
As these are distance learning modules it is useful to have an exam to make sure the students are doing the work themselves. However, exams are not always as good a test of understanding as coursework can be. For these two modules difficult coursework was set but exam questions were designed to test the analytical skills the students should have learnt by doing the coursework. This should mean they need to do less revision for the exam. The coursework was therefore intended to be run as formative assessment (though it also contributes a mark). Due to administrative difficulties the deadline is set only a week before the exams. Although the aim is to get formative feedback to them before the exam – this is not always possible.

Some generic feedback and advice is made available to all students – even when they start the module – on how to do well in the coursework and exams. This feedback explains the common reasons students do badly – such as not answering the specific questions in detail, etc. (but still some students ignore it!)

A postal system of assignment submission can take up to 2 weeks to reach the marker so in this case an electronic submission system has been introduced. So far this is only partially successful as not all students have followed submission instructions. Feedback is sent by email to the students to speed up the turnaround time.

Students ask for informal feedback or could submit work early and get their coursework marked with feedback in more time but this makes marking efficiency much lower with coursework coming in dribs and drabs.
**Student group, location and average number:**
Postgraduate, distance learners, between 10-30 for each module. These modules are primarily aimed at students studying MSc's in safety-related fields. As they are applicable to a huge range of industries we take students with very varied backgrounds – e.g. from types of engineers from numerical scientists to people with a business studies or economics background.

**Staff resource required:**
A lot of time (perhaps six months) is needed to prepare course materials, study guides and assessment in advance of the module running. If assessment questions are very carefully designed to avoid plagiarism issues then the materials need less updating after the first year. When the module is running staff need to respond to emails and discussion boards. A fairly large amount of marking and feedback per student but as this is distance learning this is important communication.

Careful design of marking criteria allows feedback to be made more efficient. In one module a long list of what makes a good assignment can be sent as feedback to all students and a few personal comments are added to this. In the other module much time is saved by cutting and pasting very similar comments as applicable into each student’s feedback. Again a few comments are personalised to make it very clear to the student that it applies to his own work.

**Student feedback about effectiveness in promoting learning:**
As students receive personal feedback by email they usually reply with comments. In general they are very pleased with the promptness of the feedback. Many of them are also very appreciative of the level of personal feedback e.g.:
"thank you for your feedback – I really appreciate the detail and regularity you have contacted us on this module – it makes me feel like I am not a distance learning student!"

Generally they agree with feedback comments but for those that have not done so well they wish to repeat the work:
"yes I agree this coursework could have been much better as you suggest – may I re-submit to achieve a better grade?"
Resubmission of coursework is not permitted as the level of detailed feedback would make it too easy – part of the assessment is that they are required to show initiative in answering the questions. However, it is then pointed out that the feedback (if available in time) should help them considerably in the exam.

In particular students like the freedom to choose to study something that interests them. In particular they can get very involved in the accident investigation techniques coursework:
"I really enjoyed getting into the depths of this accident – and I learnt so much more about how the techniques worked than just by reading about them – OK they were frustrating to use – but only when I reached the end did I realise how useful they were. I am not sure I would use them all again but it does make me realise how difficult it is to analyse something. I think the simpler techniques could be really useful in a wide range of situations that I use in my work"
Even if the student does not find formative feedback useful in time for the exam – success in these bits of coursework are giving them some excellent study skills for future modules.

**Staff reflection about effectiveness and efficiency:**
Timing issues are a particular problem for postal submissions but electronic submission and email feedback are helping. Coursework marking is laborious but is one of the best ways of communicating with all students. Since restructuring of the academic year this coursework is less effective as formative assessment due to the timing problems.

**Ideas for improvement/other comments:**
This year electronic submission has speeded up coursework submission (and hence emailed feedback) and has also allowed some checking for plagiarism. It was emphasised that all coursework for one module had to be submitted electronically but still about 25% of the students did not follow this advice. This was particularly a problem with our associated learning partners where the tutors do not always give the correct advice. Hopefully electronic submission will work better in future years. Submission of graphics electronically is not so good so for one of these modules a postal submission is still reasonable. The major disadvantage of electronic submission is that the lecturer has to take more time to manage the process.

It would be good to set an earlier submission deadline for coursework to allow time to get feedback to students but admin pressures of DL students not arriving on the modules until mid semester make this impractical until our admin systems are improved.

Pauline Thompson
## Case Study 8 – Mechanics A and B and Mentor system

### Highlights:
- Direct personal feedback from staff to students
- Chance for students to develop personal contact with member of academic staff, allows monitoring of progress, helps students understand our expectations, an opportunity for general good and bad feedback
- Helps students keep up with and improve their studies in the Mechanics modules

### Subject area:
Mechanics A and B

This is a first year module that teaches students the basics of mechanics – a foundation skill for most of their civil engineering modules in the rest of their course. Mechanics A is in the first semester and B in the second.

### Brief description, including relationship to summative assessment and timing:
Assessed by 25% coursework and 75% exam

Short pieces of coursework (called CATES) are submitted every week by students – in total there are 10 assignments that contribute to the coursework component. They are summative but there is plenty of time over the weeks for students to improve their submissions based upon feedback from the previous weeks.

### Method of formative assessment:
All first years in civil engineering are assigned a mentor. Usually each mentor has a group of four or five students each year. These students usually retain that mentor for the rest of their studies. In first year students are obliged to meet their mentors most weeks. After that they only come if they have any problems (both academic and welfare issues) or to discuss their exam results.

The coursework for the Mechanics modules are used as a basis for discussion at first year mentor group meetings. Although this coursework is an important part of the module and students will learn how to improve their Mechanics work from feedback in the meetings it is really more important as a means of allowing them to get to know a member of staff well who they can then turn to for further advice both during the mentor meetings and in the years to come. Mentor meetings can also be used to discuss progress on all other aspects of their course. Students can get informal feedback on reports, design exercises etc. This is a really useful way for students to work out what we expect of them in general and get some help with study skills. For weaker students this can extend to some considerable support and for stronger students we have more opportunity to give them encouraging feedback where appropriate.

Each week a Mechanics problem is set for students to complete. This is often very similar to a tutorial exercise that has been covered in class so the task should be simple for them, though they do get harder through the year. The submitted work is collected by the module leader and distributed to colleagues with solutions. Mentors mark their students work each week and the collective score at the end is their coursework for the module.

### Student group, location and average number:
First year undergraduate, on campus, about 100

### Staff resource required:
Prompt marking turnaround is important and requires a small amount of time. Mentors have to make themselves available for a session each week to meet their students. The time required can be anything from 10 minutes if all the students are doing very well to an hour if there are lots of other issues to discuss.

Marking is made more efficient, fair and consistent by using type solutions given out to all staff by the module leader.

### Student feedback about effectiveness in promoting learning:
Students may not have always provided direct feedback about the formative assessment of their Mechanics module but by the end of the year most students are very appreciative of having a friendly mentor on the staff. They sometimes call in just for a brief chat and even keep in touch during the summer. This may not be direct feedback but it is certainly a sign of
End of module feedback forms:
14 out of the 38 students who responded to the end of module questionnaire cited the CATES system as the best learning experience.

“I found the CATE’s to be very useful in keeping us up to date on our work. It meant that you had to continuously work and not let it all pile up till the end of the semester.”

Quote from a failing student to mentor after a long meeting to discuss options of changing courses etc. after failing resits: “thanks for your help – at least I can talk to you”

Staff reflection about effectiveness and efficiency:
It certainly seems to help students feel valued as individuals. It is quite a time commitment but it seems to pay good rewards in terms of student progress.

Quote from a mentor:
“I enjoy the mentoring system – with many class sizes being so big these days it is so nice to have a session in a small enough group to get to know the students personally and to really feel you can help them. This kind of interaction is why I like being a lecturer. Even with the more problematic students you can usually do some good.”

Ideas for improvement/other comments:
It might be good to extend the system to include work from other modules. This could contribute marks to other modules but might be done on a more informal basis where each week students have to bring the work they are currently doing to the mentor group and take turns to present their findings. This would have to be done in a fairly open ended way where the students do most of the talking as some of the staff are not experts in all the subjects concerned.

Pauline Thompson/Omar Laghouache
Case Study 9 - Energy, Resources and Environment

**Highlights:**
- Delivering seminar presentation, then writing it up following feedback

**Subject area:**
Interface between the planning system and other regimes managing environmental resources.

**Brief description, including relationship to summative assessment and timing:**
This module is one half of an option offered to postgraduate planners. It comprises a series of seminars, which over the years I have run in different ways. One way is to sign up the students at the start of the module to lead each weekly seminar. Typically this works out at two students per week. Apart from being an end in itself, the seminar series also supports the other half of the option, which is a team project in environmental impact assessment, in that much of what is covered in the seminars is relevant to the EIA project, although the latter is also directly supervised.

The seminar presentations are marked and contribute to summative assessment.

**Method of formative assessment:**
Tutor supplies a question to be addressed by the student in a 30 min presentation to the class. Feedback is in two forms: informal on the spot through tutor-led discussion, and formal through marksheet with commentary, worth half the module marks. The student then has to write up and expand their presentation over the following Easter break, for the other half of the marks. Marksheet templates are issued at the start of the module with the assignment brief. In 08/09 I held off returning marksheets until the end of the seminar series, in order to avoid the possibility of drift in marking. In the event, I made only very small adjustments to early marks. I have for some years now also got the class to fill in mark sheets at seminars, as a check against my being way off beam, and because, after all, it is not unreasonable that the effectiveness of a presentation ought to be judged by its audience!

**Student group, location and average number:**
Postgraduate (and some Honours) planners, on-campus, 15-20.

**Staff resource required:**
Swings and roundabouts. I have to bone up before each weekly seminar, but I do not have to deliver it. I do however have to spend a lot of time completing mark sheets, the value of which is not tested (because there is no question explicitly on that in the end-of-module feedback questionnaire). I could not adopt this method with a large class, although I could resort to moderated peer assessment.

**Student feedback about effectiveness in promoting learning:**
Getting the students to present the seminars is not always successful. Weaker students give poor ones, which are not a great learning experience for their classmates, and which I can only partly compensate in my commentary in class and through my course notes and other material on the VLE.

The balance between student and staff delivery has to be right, as shown in this summary of student feedback in an earlier year:

“They clearly found the series interesting (mean of 4.4 out of 5) and appreciated the VLE support material (mean of 4.6). But equally clearly they considered that the tutor did not contribute enough personally in class, and that he should set time aside to do so (which will require curtailing student presentation time). In short, they did not appreciate the notion of the tutor creating the arena in which the students, as predominantly postgraduates, would teach other.”

In another year in which I got the students to deliver the seminars, a different problem arose. The class was roughly half Honours and half postgraduate, and the latter did not appreciate being lectured by the former!
**Staff reflection about effectiveness and efficiency:**
I have to admit that I have not tried to test either. Since the presentation and the paper are different in kind, one could compare them only in content, to see whether weaknesses picked up in the presentation were corrected in the subsequent paper. But in reality it isn’t that simple, and it would eat time, a lot of which I have already spent on feedback.

**Ideas for improvement/other comments:**
Informed by past experiences outlined above, I think got it right in 08/09, when I chose not to deliver the seminars myself anyway due to illness. I propose to continue with this format.

Jeremy Raemaekers
### Case Study 10 - Various, including Sustainable Environments

**Highlights:**
- Various attempts to improve summative exam performance.

**Subject area:**
Planning and environment.

**Brief description, including relationship to summative assessment and timing:**
I have always been conscious that the unseen written exam tests students on material in a way wholly unrelated to how they are taught it. Hence, I have tried various ways to prepare students for the exam. Note that exams in this instance typically take the form of writing essays on 3 questions out of 5, in 2 hours. It is also relevant to know that the modules in question each spans a broad range of material, rather than developing a single theme; and that I post very full course notes on the VLE, in addition to links to other relevant material.

**Method of formative assessment:**
The School routinely posts past exam papers on its website, allowing students to test themselves in mock exam conditions (as I did in my final year so long ago). I have over the years tried at least three approaches to supplement that:

1. In- or out-of-class tests to allow students to check how well they are keeping up with material, and thus to adjust their learning behaviour in order to be ready for the exam. These tests, while primarily formative in purpose, contribute a proportion to the summative assessment, helping those students who are not particularly good at performing under exam room conditions no matter what effort they have put in. A limitation is that, while they check on knowledge of material, they do not mimic the exam experience of writing three essays in 2 hours.

2. In-class mock exam. In this I give students a mock exam question and ask them to produce an essay plan for it in 5 minutes, then tell them how I would have gone about answering it. I do not supply written model answers, in order to avoid students regurgitating the nearest applicable one in the exam. Sometimes I have got students to swap their answers and grade them before giving my version.

3. In 08/09 in a new module D47SD Sustainable Environments, I tried a different tack. A friend of mine at another HEI in another discipline said she gave out 20 exam questions at the start of her module and told the class that 5 of them would appear in the exam. Obviously, that does not preclude question spotting, but it does give students a chance to bone up on all the questions if they are motivated. I decided to vary this a little in order to avoid students never coming to class and just using my VLE material to bone up on the questions. I handed out 10 questions at the end of the module, told the class that half would appear in the exam, and very briefly sketched out how I might set about answering each of the 10, while being careful not to hint at which might be in the exam. The students then had a minimum of the 3 week Easter vacation to bone up on the 10 questions before the exam.

**Student group, location and average number:**
Stage 3 undergraduate planners, studios, 10 to 20 students.

**Staff resource required:**
No extra resource – only the devotion of class time to that rather than to subject content.

**Student feedback about effectiveness in promoting learning:**
In previous years approaches 1 and 2 have been commended by some students in end of module feedback carried out in class. For approach 3 in 08/09 I let the students feed back online, following the general request of the university. Only 4 did so, of whom none remarked on the notion of the half-seen exam, which they probably had not at that time sat.
**Staff reflection about effectiveness and efficiency:**  
This is from the module report sheet of the class mark list:  
“Strategy of raising exam performance by making it 'half seen' failed dismally. Learning benefit is also doubtful, since there was a tendency among higher scoring scripts to parrot course notes.”

**Ideas for improvement/other comments:**  
Abandoned in favour of a second essay assignment. This sacrifices breadth for depth, unless I can compose clever essay questions that span the diverse module content – but then I myself would face the uncomfortable challenge of composing model answers to them, since we have to produce model answers to both first and resit papers before delivering the module. Also, the pressure on staff to produce high scores is a disincentive to making summative assessment harder!

Jeremy Raemaekers
### Case Study 11 - Year 1 study groups

#### Highlights:
- Developing scholarship skills through study groups that challenge yet support undergraduate freshers.

#### Subject area:
A scheme to develop scholarship skills from the start of students’ courses, to put them on the road to reaching final year better equipped to work independently and with academic rigour at Honours level.

#### Rationale:
There is a perception among staff that freshers arrive from secondary school anticipating a different learning experience, in which they are required to be more self-reliant, and expect to be intellectually challenged rather than to be spoon-fed. Yet, over the years we have so improved the superficial quality and rigour of our teaching practices (e.g. provision of full course notes on the virtual learning environment) that what they actually encounter is little different from their 6th form experience. As a result, they become disillusioned, and we soon lose the engagement with their studies of those less motivated.

At the same time it is acknowledged that our existing one-staff-to-one student mentoring scheme does not work.

The scheme outlined here is intended to hit both birds with one stone, by challenging freshers, but providing mutual support among them and working more closely with staff.

#### Brief description, including relationship to summative assessment and timing:
Fresher cohorts will be divided into ‘study groups’ of 4, each allocated to a mainstream academic as their mentor, with whom they will meet once a week for about an hour, at a mutually convenient time. Meetings will take place in each week of the two 12-week teaching blocks. Mentors will set mentees a series of 5 exercises over each of the two blocks. Some of these are to be done as a group, some individually. Mentees will report back orally on most the week after they are issued, though one or two involve online or paper actions. Specific learning outcomes are shown in the appended table. Although the scheme is explicitly intended to be formative with a long-term view, students will be assessed (see below).

Mentees will remain with their study group mentors for the rest of their courses on a one-to-one basis. If the study group approach proves successful, students will be encouraged to continue to meet as groups, possibly with mentors still involved but in a more back-seat role.

#### Method of formative assessment:
Chiefly oral on the spot, through mentor-moderated discussion of mentees’ oral reports. But there will also be marking, with half the marks for attendance and contribution (which can be fed back at intervals of a few weeks). The rest of the marks will be awarded for later write-up of a few of the exercises – thereby enabling the mentees to benefit from the oral feedback before writing up. The modular system requires that the marks form a proportion of the assessment of one of the taught modules. The scheme includes stock-taking half way through the first teaching block, early in the second after students have received their module marks for the first block, and probably at the end of the second block. The last few weeks of the second block have however been left unspecified at this juncture, with the intention that mentees discuss with their mentors how they might best use them.

#### Student group, location and average number:
Fresher undergraduates, in fours, in mentors’ offices.

#### Staff resource required:
Considerable: one staff for every four students, for an hour’s meeting a week minimum = 24h/year each; plus time to work up detail of exercises, to score attendance and contribution, and to mark three or four write-ups of exercises.
**Student feedback about effectiveness in promoting learning:**
This approach is new and so far we only have informal verbal feedback. Attendance has been patchy. In groups that have students who are fully engaged, they speak positively about the value of learning in a small group as a more personal supplement to their larger classes. It has deepened learning, helped them get to know other students and a staff member well and integrated them into University life.

**Staff reflection about effectiveness and efficiency:**
Staff views are dependent on how responsive the students have been. Some staff resent having to spend time chasing students who don’t attend and have been disappointed in the lack of engagement. Where the system is working well, others feel it is time very well spent and is not so onerous in any case.

**Ideas for improvement/other comments:**
It is acknowledged that, in a sense, this is a work-around the perceived problem of the style of learning and teaching in first year. Fixing the latter wholesale would however be very hard, not least because students of each programme take modules delivered by other programmes, making it difficult to agree and to deliver a common blueprint. Moreover, a huge effort has only just been put into overhauling the courses in restructuring the academic year for semesters in 2008/09.

Jeremy Raemaekers

**Appendix for Case Study 11**

**Urban Studies - Year 1 study group scheme proposal 2/9/9**

**Purposes of the scheme**
The Urban Studies awayday on 8/6/9 discussed a proposal to put in place for session 09/10 a group-based mentoring scheme to replace and much expand the role of the existing 1-2-1 mentoring scheme, which is widely seen as moribund. At SBE level, the proposal is driven specifically by the desire to embed in freshers’ a more independent approach to learning, with a view to developing their scholarship skills and enabling ‘deeper’ learning. Students should be challenged intellectually, rather than being set tasks to which they can easily look up the answer and tick the box. These are University academic objectives, even if not expressed in precisely those words.

It is envisaged that for freshers the scheme will replace the current mentoring scheme. To that end, the mentor will serve as personal mentor to each of their mentees, which of course may require additional, 1-2-1, meetings for confidentiality.

**The scheme**
A number of mentors have already been identified in the Urban Studies workload allocation. Each will lead a study group of 4 fresher mentees, with whom they will meet once a week for about an hour, at a mutually convenient time. It is anticipated that a group will meet in the mentor’s office. Meetings will take place in each week of the two 12-week teaching blocks. Mentors will set mentees a series of 5 exercises over each of the two semesters, as outlined in the tables below. Some of these are to be done as group, some individually. Most will be reported back orally the week after they are issued, though one or two involve online or paper actions. Specific learning outcomes are shown in the table below.

The scheme will apply in principle to all four teaching programmes in SBE, but each programme will interpret it in detail to suit it best (it has been developed within a framework of communication between the first year coordinators). It is also expected that, within the Urban Studies version, each mentor will interpret it to suit them, within what is written in the final version of this document and some appendices that will be issued on individual exercises. But in the end, these are just sheets of paper: it is recognised that for mentees the success of such a scheme will be chiefly down to the enthusiasm of each mentor, and the mentor’s capacity to win mentees’ engagement.

It was proposed to have some ‘training’ sessions for mentors before the scheme starts up in week 1, to give them an opportunity both to clarify aspects of the scheme and to contribute to its refinement. This did not happen, but the University’s Academic Enhancement Unit has organised a series of meetings with mentors to discuss progress and share experience.

**Assessment**
The scheme includes assessment of study group exercises. In order to promote attendance and contribution, and in order to minimise the burden on mentors, half the marks will be given for that, at the discretion of the mentor, but following a common format to be clarified. The other half will be awarded for write-ups of some of the exercises. These will be handed in all together at the end of each semester, both to allow mentees to benefit from feedback on their oral

1 noting that some are direct entrants to stages 2 and 3. It is proposed to group advanced entrants together.
presentation and discussion before submitting, and to avoid mentors having a continuous stream of stuff to mark. As the modular system does not allow marks outwith the modules in approved course structures, marks for the SGEs will form a proportion of the overall marks for one or more modules. In the case of Urban Studies 1 this will 40% be D47PD Property, Development and Planning in semester 2, the only stage 1 module taught exclusively to Urban Studies. So high a proportion is required to provide an incentive to mentees to do each assessed SGE.

**Description of study group exercises (SGEs)**

<table>
<thead>
<tr>
<th>SGE no.</th>
<th>Task</th>
<th>Learning outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Complete learning skills questionnaire from Academic Enhancement Unit web pages. Work individually, though encouraged to discuss with others.</td>
<td>Critical self-awareness of learning style as a tool to improve your performance.</td>
</tr>
<tr>
<td>2</td>
<td>Work as a group to identify a story related to your discipline in the mainstream media and discuss how it is portrayed (e.g. the Edinburgh tram). Mentees to find different media reports on the agreed story, and group to compare and contrast them. Group report back orally for at least 10 min and mentor lead discussion.</td>
<td>Finding information. Awareness of how the public views issues in the built environment. Team working. Oral presentation.</td>
</tr>
<tr>
<td>3</td>
<td>Work as a group to e.g. compare Manchester Commonwealth games facilities with those previously developed in Edinburgh [tbc subject to associated coursework].</td>
<td>Comparative analysis. Team working. Oral presentation.</td>
</tr>
<tr>
<td>4</td>
<td>Work alone to compile a bibliography of 10 items on a topic identified by the mentor, which must include a prescribed mixture of source types (e.g. books, academic journals, official reports, professional publications, websites, etc). Submit it to mentor.</td>
<td>Finding and referencing sources.</td>
</tr>
<tr>
<td>5</td>
<td>Work as a group to find out and report back orally on - routes to professional membership, - types of job that exist in the profession, - opportunities for gaining work experience alongside your studies, - likely state of the job market when you graduate.</td>
<td>Finding information. Awareness of your profession. Team working. Oral presentation.</td>
</tr>
<tr>
<td>6</td>
<td>Investigate the environmental and social implications of a major development project (completed, ongoing or proposed) near your home. Report back orally to group for 5 min. Work individually, each on a different project.</td>
<td>Finding information. Awareness of wider impacts of development. Oral presentation.</td>
</tr>
<tr>
<td>7</td>
<td>Mid-year reflective questionnaire. Complete online as used by Civils.</td>
<td>Awareness of your performance and how it might be improved.</td>
</tr>
<tr>
<td>8</td>
<td>Constructive critique 1: Working individually, read one of your mentor's writings as instructed. Critique it as a piece of academic work and writing. To avoid repetition, it is suggested that mentor picks one mentee to report, and others are invited to agree or differ (but mentees note that this is one of the SGEs that you will write up for assessment). Mentor is encouraged to offer defences and explanation of why work was done in the way it was. The object is to develop in mentees constructive and logical critique: clearly, this requires mentors to cooperate and not be unreasonably defensive!</td>
<td>Critical analysis. Understanding of academic method. Building academic confidence.</td>
</tr>
<tr>
<td>9</td>
<td>Constructive critique 2: Each mentee pick a topic from one your current modules and prepare a 5 min talk about it to the group, arguing for a view of it that differs from that promoted by the module tutor.</td>
<td>Critical analysis. Building academic confidence.</td>
</tr>
<tr>
<td>10</td>
<td>Writing skills: Each mentee pick a piece of coursework that you have written this year in Word, and systematically apply the Urban Studies essay and report writing guide to improve it, recording the modifications in Track Changes.</td>
<td>Improved writing skills.</td>
</tr>
</tbody>
</table>
## Case Study 11 - Year 1 study groups

### Semester 1

<table>
<thead>
<tr>
<th>Week</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Getting to know each other. Mentor explains purposes of the study groups. Each person profiles self (including mentor). <strong>Agree when will meet in future.</strong> Tell mentees to bring their programme booklets next week.</td>
</tr>
<tr>
<td>2</td>
<td>How the courses work. Take group through the programme booklet and explain e.g. the learning contract, module system, grading and marking, feedback, timely submission and late penalty, plagiarism, progression requirements, who’s who. Issue SGE1.</td>
</tr>
<tr>
<td>3</td>
<td>Submit and discuss SGE1. Issue SGE2.</td>
</tr>
<tr>
<td>4</td>
<td>Report back SGE2.</td>
</tr>
<tr>
<td>5</td>
<td>Stock-take. Short private meeting with each mentee; then if appropriate meet to discuss as a group any points in common. Issue SGE3 field trip report.</td>
</tr>
<tr>
<td>6</td>
<td>No SG meeting: field trip this week</td>
</tr>
<tr>
<td>7</td>
<td>Report back SGE3.</td>
</tr>
<tr>
<td>8</td>
<td>How to source and reference material. Point mentees to written guidance on referencing, e.g. in Urban Studies guide to essay and report writing, and in SBE dissertation guide s6.2. Issue SGE4.</td>
</tr>
<tr>
<td>9</td>
<td>Submit SGE4.</td>
</tr>
<tr>
<td>10</td>
<td>Professional institution(s). Mentor briefs mentees on relevant professional institution(s), including their role in course accreditation. Shows mentees their websites. Issue SGE5.</td>
</tr>
<tr>
<td>11</td>
<td>Report back SGE5. No SGE issued this week.</td>
</tr>
<tr>
<td>12</td>
<td>Exam preparation. Open discussion, but include revision, dealing with stress, and strategy in the exam room. Issue SGE6.</td>
</tr>
</tbody>
</table>

### Semester 2

<table>
<thead>
<tr>
<th>Week</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Submit and discuss SGE6. Issue SGE7.</td>
</tr>
<tr>
<td>2</td>
<td>Submit SGE7. Discuss it in light of semester 1 results, in private session with mentor. Each mentee in turn. If appropriate, then convene group to discuss common issues.</td>
</tr>
<tr>
<td>3</td>
<td>Mentor present and discuss with the group a topic which intrigues or enthuses you and on which you have written, in preparation for SG8. Issue SGE8 on that topic.</td>
</tr>
<tr>
<td>5</td>
<td>Submit and discuss SG9.</td>
</tr>
<tr>
<td>6</td>
<td>Improving your writing skills. Mentor argue for the desirability of good writing, and use Urban Studies essay and report writing guide to raise and demonstrate points. Issue SG10.</td>
</tr>
<tr>
<td>7</td>
<td>Submit and discuss SGE10.</td>
</tr>
<tr>
<td>8-12</td>
<td>The remaining weeks are left unspecified at this time. It is suggested that students might be invited around week 5 to propose how best to use them to their advantage, whether by repeating some previous SGEs, or offering new ideas.</td>
</tr>
</tbody>
</table>
Case Study 12 - Introduction to the Environment (Urban Studies)

Highlights:
- Seminar group presentations where students get active feedback on their work
- Mock exam and review to help exam preparation

Subject area:
Climate Change impacts on the Built Environment: Practitioner responses

Brief description, including relationship to summative assessment and timing:
Students were given a range of documents to review: specific incidents of flooding/ research or policy document on adaptation to flooding/ climate change. Based on their research, seminar presentation and feedback, they then prepared a 2 page briefing note on their document which was assessed and uploaded to VISION to share with the whole student group.

Method of formative assessment:
Individual student research into either a flooding incident or a document giving advice on how to make development more resilient to future flooding incidents. Titles of documents etc. given to students – each student had a different topic. They presented a report to their seminar group (of about 9 students) which was discussed in the seminar setting. Each seminar group met twice (once for each set of topics) and half of the group presented each time. Each student gave a 10 minute presentation followed by discussion within the group and member of staff. The group discussion gave some feedback to the student on their work. All student work was put on VISION to benefit the rest of the class. Presentations were not assessed but attendance was.

First set of topic discussions were around the scale and significance of flooding in different parts of the country, the conveyance routes and components of flooding (sea-level rise, river, surface water run-off, sewage, etc) – raising the issue what should we do about this and whose responsibility is it?

The second set of topic discussions critiqued advice documents and the formal planning guidance notes to come to some view about what difference they will make to future climate change hazards such as flooding.

At the end of the module a mock exam was set in class. Attendance was poor because it conflicted with an assignment hand in from another module. The mock exam was taken in the first half of the session and then I gave some feedback with the aid of a PowerPoint slide for each question on how I would answer the questions. All the slides were put on VISION but the verbal commentary was only available to those who attended the class.

Student group, location and average number:
First year undergraduates (BSc Urban and Regional Planning/ Planning and Property Development/ Planning and Development)
37 in the class. On-campus. Seminar groups of 9. Two groups met each week.

Staff resource required:
Module Leader’s time – probably more intensive in first year or two in setting up good topics

Student feedback about effectiveness in promoting learning:
Feedback from 6 students who attended the final session (mock exam; module review) was very enthusiastic about this type of formative assessment including the exam. These 6 students are ones who want to learn and aren’t frightened by the challenge.

Staff reflection about effectiveness and efficiency:
Need to engage with first year students and get them working. They were slow at thinking outside the box in the first weeks group work and each group tended to rely on one person to write on the flipcharts and to present ideas to the whole group. Giving students a specific piece of work gave them the opportunity to be in charge. Several students had assimilated a lot of detailed information and were able to present this coherently. 15-20 out of 37 students engaged well every week and many wanted to sit in other seminar discussions.
Despite setting aside 10% of marks for seminar presentations and discussion, students who failed to turn up were emailed and asked to come to a specific tutorial slot with me to explain non-attendance. Few did, preferring to email me an excuse instead. There was a tendency amongst half a dozen students to turn up only for the one hour ppt lecture (concepts, principles, critique of the planning system) only when it was their seminar day.

I never met 5 of the students, though one of these did submit his briefing sheet.

**Ideas for improvement/other comments:**
I did try to get some practitioners and an action group in from Hawick. An actual case study of a flooding incident would give some context to student research and discussions if incorporated either at the beginning or end of the module. The last session was given over to a mock exam and the marking solutions which were being used.

Angela Hull
Case Study 13 – Urban Design Option (PG) / Urban Design Theory and Practice (UG)

Highlights:
- Matrix of marking criteria
- Formative feedback on seminar presentation in advance of written submission

Subject area:
Urban design

Brief description, including relationship to summative assessment and timing:
Students present a seminar to the class on a key urban design text, each student analyses the work of a different author. They are required to summarise the key theories and principles from the text and discuss how they may be relevant to the project site that the students are working on.

The lecturer gives them feedback on a marking sheet which guides the subsequent written submission. The feedback sheet includes a matrix of marking criteria which can quickly be filled in during the seminar, which is time-efficient for the lecturer. There is space for other comments as well. This approach ensures a rapid turnaround time – students receive the formative feedback the next week. The written submission summarises the theories/principles and applies them to the project site, the same brief as the oral seminar presentation.

Method of formative assessment:
Seminar and paper are equally weighted. The content of the seminar is marked and commented upon to help improve the content of the subsequent paper (marks are also given for presentation skills). Students receive feedback at least one week in advance of paper submission. Classmates peer assess the seminar presentations and comments are incorporated in lecturers written feedback. Verbal feedback given in class.

Student group, location and average number:
Undergraduate years 3 and 4 and postgraduates, on-campus, about 20 in a class. Students are on spatial planning and planning and development courses.

Staff resource required:
Assessment criteria form part of a matrix on feedback sheet, with columns for grades A to F. It is quick to tick these boxes during and immediately after the seminar presentation, including additional qualitative written comments.

Student feedback about effectiveness in promoting learning:
Students greatly appreciate the promptness of this feedback.

Postgraduate spatial planning students:
On a scale of 1 (low) to 5 (high) of effectiveness, average score was 4.2
Comments: “Aided my report writing, including content. Being a bit more critical would improve me further.”
“Quick turnover of results helped.”
“Gives you an opportunity to improve, thus developing your knowledge more effectively.”
“It allowed me to learn about and from my mistakes. It helped to adapt my coursework effectively and ensured I was aware of what was expected of certain aspects of my work. Feedback could be slightly more descriptive.”
“Sometimes when you work on a project for a long period of time you miss basic things, so it was helpful getting feedback to improve. It might be an idea to have another session to go over the alterations with the teacher.”
“Good to get both reassurance and to know where I went wrong and have a chance to change.”
“Allowed you to see where you were going right or wrong.”
“It was helpful as it showed ways to develop my ideas and also to look at things from a different perspective.”
“Open up thinking about things not already considered.”
“It enabled me to improve the final paper as I could inject the feedback from the earlier presentation. Perhaps you could also introduce a class discussion so we could all as a whole learn about each other’s feedback – this would also help us think about how we could improve.”
“Timely feedback allowed me to concentrate on weaker points for the next stage of assessment. Clearer objectives and marking criteria would have helped, also sitting down on a 1:1 basis to discuss feedback.”
**Undergrad spatial planning and planning and development students:**
On a scale of 1 to 5 for effectiveness, average score 4.3.
Comments: “Guidance was useful on layout, content and interpreting printed instructions. More choice of method of learning would help, i.e., assessment methods.”
“Feedback was quick and helpful for second part of assessment.”
“Helpful to know what marks had been achieved already in case you had not performed as well as you thought, so therefore could try harder on next bit.”
“Comments helped me focus on the points I may have neglected during the presentation. Took this on board resulting in an improved mark.”
“It allowed me to expand on points where I was lacking and allowed me to concentrate on areas which are regarded as important.”
“Was very helpful because it highlighted drawbacks and strong points of the project. This helped to eliminate mistakes or at least reduce them.”
“Useful to ensure that our marks from the feedback could allow the paper to become more informative. Gave us a chance to take the comments to improve, a good way of learning mistakes.”
“It showed me the strengths and weaknesses in my work. Gave an opportunity to improve. More formative assessment, yeah!”
“Comments from lecturer helped prepare for the next stage, a new thing.”
“Interesting to see fast comments on own work.”

**Staff reflection about effectiveness and efficiency:**
Marking during seminars is time-efficient, feedback sheet with marking criteria and space for comments essential. Students vary about the extent to which they follow advice for improvements – it is disappointing when they don’t! Positive as well as negative feedback was found useful by the students – a useful reminder!

**Ideas for improvement/other comments:**
Students have consistently liked this form of learning from each other, although can get very stressed about giving a 20 minute seminar. Presentation skills important in practice. Further development of this idea may be to get fellow students also filling in the feedback sheet as a peer assessment, that either contributed toward the mark or not. Additionally, the form might be used for self-assessment.

Marilyn Higgins
Case Study 14 – Peer assessment (unmarked) Personal Development Plans

**Highlights:**
- Unmarked peer assessment a week in advance of submission

**Subject area:**
Part of Strategic Spatial Vision Project for spatial planning students. This is the part where students have a strategic vision about themselves!

**Brief description, including relationship to summative assessment and timing:**
A personal development plan (PDP) is written by the student, worth 20% of the mark for the module. It comes near the end of the whole course. The PDP asks the student to reflect on what skills, knowledge and values they have gained relevant to professional planning work, giving specific examples from various parts of their lives illustrating how they have developed these. It also asks them to identify key skills, knowledge and values they need to develop further and how they might do so.

**Method of formative assessment**
Students choose a partner and peer assess each other’s work one week before submission. This doesn’t count toward the mark, it is qualitative feedback.

**Student group, location and average number:**
Postgraduates, on-campus, about 60-70 in a class.

**Staff resource required:**
Minimal staff resource required. Time is provided in class for the peer assessment, which is written into the assignment brief, so students can prepare for this from the start. Students do the work, not the lecturer. No moderation is required since no marks are allocated, only comments.

**Student feedback about effectiveness in promoting learning:**
Feedback from students has generally been positive about peer assessment. Feedback has specifically been collected for on-going PDP research. Students generally say that the process of peer assessment helps them in two different ways: 1. It is useful getting another individual’s view of what they have written in time to make improvements before the hand-in date. Students say they get so close to the work, they might not notice potential improvements themselves. Additional ideas and constructive criticism both help. 2. The act of reading and commenting on another individual’s work can provide ideas for improving one’s own work. There may have been things that one had not thought about previously.

Some students find the peer assessment more helpful than others. Some comments have included the fact that it depends on the person doing the peer assessment and how seriously they take it. At first, some students were reluctant to criticize a peer and this came out in feedback. The lecturer subsequently made it a requirement of the peer assessment that a student couldn’t just give positive feedback – people had to make at least some constructive criticism of the work. This has proved more beneficial to students.

Classes vary, but once there was an objection from a student about having another student read something personal to them. The lecturer now says that you shouldn’t write anything that you wouldn’t want another student to read, plus the lecturer, for marking purposes. It is helpful that students can choose the person to swap with themselves.

Student comments:
- “I felt the peer assessment was very beneficial.”
- “Didn’t get it done in enough time for proper peer assessment but might have been a bit embarrassed anyway.”
- “Peer assessment very useful, got feedback and advice to improve.”
- “Thought peer assessment was good. Would have liked this for the rest of the module too.”
- “It was really useful to get peer’s comments and to have feedback on my PDP.”
- “Peer – don’t think that it’s anybody in the classes (sic) business.”
- “Peer – it’s embarrassing for others to read, it’s personal.”
- “Peer assessment was useful, especially if you did it with someone you know quite well because you could give constructive criticism to one another.”
- “Useful to see how others have approached it.”
"Assessment was useful, less confident about the peer assessment part."
“Peer assessment was really useful, both getting comments on my own work and seeing how someone else did it. It helped me see things I hadn’t seen before.”
“People are a bit afraid to be too critical, especially to a friend.”
“Peer assessment not as helpful as I was hoping – it depended on who you got.”
“I was a bit nervous, but it was OK, student was nice.”

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<tr>
<th>Staff reflection about effectiveness and efficiency:</th>
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<td>This method has proved helpful and popular with students and requires minimal staff resource. There is no way I could read 60 or 70 PDPs and give formative feedback. My impression is that because students choose their partner, it can be both interesting and confidence building to read another person’s version of the same assignment, bearing in mind that no two individuals will be the same. This has been an effective way of getting students to engage with the marking criteria to deepen their understanding of it. This has been especially important because every year, there are a few students who do not understand how the PDP will be marked, so it’s another opportunity to discuss this in class. Giving and receiving criticism is a skill needed in teamwork and professional practice - this is another useful spinoff of this method. It also depends, of course, on students taking this seriously and finishing the assignment a week in advance to get it peer assessed in order to derive full benefit. The peer assessment can help to push students not to leave it to the last minute! The official submission date is the week after the peer review session.</td>
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<td>I have learned to make sufficient time available for the peer assessment, driven by student comments. The issue of having the peer assessment count toward the mark has been discussed in class but students are generally uncomfortable about this and prefer to have it commented on and discussed between them afterwards, without putting a mark.</td>
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<th>Ideas for improvement/other comments:</th>
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<tr>
<td>The success of peer marking chimes with things in the literature review about its efficiency in terms of staff time whilst deepening student learning. It’s important to make students give at least some constructive criticism.</td>
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Marilyn Higgins
### Case Study 15 – Built Environment Economics

**Highlights:**
- Four in each tutorial group, discussing tutorial questions followed by presentation to class and then overview with lecturer – contributes toward mark
- Computer test with instant feedback

**Subject area:**
This module introduces key concepts in economics at both micro and macro levels. These are then applied with examples from the built environment.

**Brief description, including relationship to summative assessment and timing:**
Tutorials (10% of total module mark); multiple choice questions test with automatic, instant feedback on answers and marks (20% of module mark). The MCQ (Multiple Choice Questions) test is set to be completed during the mid semester and is timed 1 hour. But students have opportunity to do two practice tests with instant feedback before the assessed one. The final exams constitute 70% of module marks.

**Method of formative assessment:**
First, students were given a set of questions every other week to work on individually over a week and brought along to a tutorial class of average 20 per group. The individual work is inspected followed by discussions of questions and feedback. Students are awarded marks (constituting 10% of total module mark) for attendance and participation in tutorials and discussions over the semester.

Secondly, a one hour computer based Multiple Choice Questions (MCQ) test is given at the mid semester with instant feedback, forming 20% of total module mark.

**Student group, location and average number:**
On campus, 1st year students (from various programmes) total >100 but numbering about 20 in a tutorial group; and on campus individual computer based test with instant feedback

**Staff resource required:**
Significant staff time involved in developing the questions and feedback as well as coaching students on how to use VISION for the practice and actual computer based tests. Unlike in the past where the module leader received help from others for the tutorial delivery, the five groups were being attended to by a single person - the module leader.

**Student feedback about effectiveness in promoting learning:**
The student feedback was excellent as they liked the idea of being awarded marks for participating in tutorials. They were also happy with the computer instant feedback and the idea that they could do practice tests according their own pace and time before the actual test.

**Staff reflection about effectiveness and efficiency:**
Ideally tutorial groups should be 5 to 10 in a group. But being the module leader and the only person involved in tutorials, the numbers in groups have to be increased to 20 to accommodate the about 100 students participating in the module. This obviously affected ability to pay much more attention to weaker students.

**Ideas for improvement/other comments:**
It will be helpful to recruit more hands to help in tutorials.

Noah Kofi Karley
Case Study 16 - Measurement and Value Studies 2

**Highlights:**
- Formative assessment aided exam revision
- Use of generic comments banks for feedback
- Face to face feedback encourages communication
- Exercise provides useful study skills for future modules/work
- Student motivation to participate and get feedback

**Subject area:**
Built environment topics covered by Quantity Surveying students, this is the first time they have been specifically grouped together in their core discipline.

**Brief description, including relationship to summative assessment and timing:**
Students asked to complete individually a 600 word article. Once completed this is given to another student in class to read, review and comment on. Any comments based on marking criteria established by class. This exercise was done one week prior to Part 1 of the coursework being submitted.

**Assessment:**
- Coursework 100%
  - Part 1 – Submitted week 3, returned week 5
  - Part 2 – Submitted week 8, returned week 10
  - Part 3 – Submitted week 12, returned week 13

All formative work in class helps students with revision for exams (the summative assessment)

**Method of formative assessment:**
Peer assessment on 600 word article, marking criteria created by students.

**Student group, location and average number:**
Undergraduate, on-campus, year 3, 20 students

**Staff resource required:**
Facilitating the class

**Student feedback about effectiveness in promoting learning:**
Good exercise to get them thinking about the marking criteria of the assignment and to get feedback from others reading their work. Students seem to appreciate the exercise.

**Staff reflection about effectiveness and efficiency:**
I would repeat this exercise again as it did help the students understand the coursework task and the submissions were a good standard. It did not mean I was writing the general comments on content and presentation, use of subject heading to break up text etc as I normally would.

**Ideas for improvement/other comments:**
I would repeat this with other years and try to build more similar exercises into this module.

Fiona Grant
Case Study 17 – Urban Regeneration

Highlights:
- Class debates on regeneration topics

Subject area:
Urban Regeneration

Brief description, including relationship to summative assessment and timing:
A debate led by four students. Two students will propose the motion and two students oppose it. The presentations take about 30 minutes in total and include key questions and issues that can be debated by the whole class. The debate is then thrown open to the floor for further discussion.

To prepare each group of students is required to select a topic and to read around the topic and then develop a debate hypothesis. The group is required to submit the debate title, outline of issues to be covered and a reference list approximately a month before the debate.

Each group of students will then be required to present a debate with the argument lasting approximately 30 minutes. PowerPoint, slides and other display material including maps and photographs, where relevant, can support the presentation. At the end of the presentation the class should continue the debate and question the presenters.

The debate presentation is submitted along with any supporting notes. The debate is also subject to peer review from the rest of the class who fill in a feedback sheet. Each individual student is then required to submit an essay by choosing one of the debate questions as an essay title. They select a different title than the debate they presented.

Method of formative assessment:
Oral feedback on choice of debate question.
Active response from class during debate.
Each member of the class is invited to complete an assessment feedback on each debate (other their own!)
Debate is marked and written feedback is provided to each group.

Student group, location and average number:
This is a module (option for some) offered to postgraduate and final year undergraduate Urban Studies students

Staff resource required:
No additional resources other than class time.
Need to chair the debate so everybody’s views could be heard.

Student feedback about effectiveness in promoting learning:
Positive response from students who were also very willing to contribute to the debate discussion.
Made students think more deeply about the subject and realise that there was more than one side to an issue.
Some questions about the varying quality of the presentations.

Staff reflection about effectiveness and efficiency:
Previously I used to provide the debate questions but asking the students to prepare this material is a good way of checking their progress and ensuring that they are covering the right material and preparing early enough to provide a well prepared and good quality debate.
Requiring students to write an essay on another of the debate titles also encouraged the students to engage with the debate.

Ideas for improvement/other comments:
Ensure that the room is laid out to enable the whole class to be involved in the debate.

Sarah McIntosh
Case Study 18 - Architectural Engineering

Highlights:
- A spreadsheet tool for marking scheme
- Immediate formative feedback after tutorials
- Detailed feedback after every assignment to be used as learning tool in next assignment
- Assessment provides useful study skills for future modules/work
- Relies on a multiplicity of assessment techniques: verbal and written, from the lecturer and peer review, immediate feedback and formative/summative feedback as a learning tool.

Subject area:

Brief description, including relationship to summative assessment and timing:
All three modules assessed 100% by course work. Students work both in group and individually and their work is assessed also individually and in groups.

Group assessment: to avoid some students doing all the work the lecturer assigns specific task to each student. Integration of ideas is done through group discussion, assemblage of the project and final presentation to other groups.

Method of formative assessment:
Formative assessment is provided in three ways:
1. Peer assessment with comments from lecturer to close any gaps left by peer assessment
2. Verbal feedback from lecturer using a camera projector that permits project drawing on opaque paper into a screen. Feedback to each work is formative feedback to every student, as the critique of each work highlights the main problems and omissions.
3. Written feedback from lecturer for all assignments. The aim of the feedback is to make the students aware of their shortcomings so the first assignment can be used as a learning tool for other assignments. Feedback includes suggestions about how to improve.

Each class starts with a lecture about the theoretical aspects of the problem at hand and is followed by a workshop involving class discussion and immediate verbal feedback from comments by other students and by the lecturer.

Student group, location and average number:
Undergraduate. Classes from 50 to 15 students, in some cases from different programmes e.g. architectural engineering and urban studies
Work in groups normally of 3 students.

Staff resource required:
- The immediate feedback is effective and is done during tutorials, so the resources are effectively used
- Some self reflection is also used, which also proved to be effective
- Most onerous and time consuming is written feedback used for each assignment; peer review and immediate feedback are more effective. The weekly assignments with feedback adopted earlier in the development of the modules were too onerous in terms of time.
- One tool used, a very clearly defined table with marking criteria, was time consuming to create but very effective in its use, for both students and lecturer.

Student feedback about effectiveness in promoting learning:
The modules received good feedback in two ways:
1. Students valued written feedback, because it allows them to learn from mistakes
2. Using small assignments helped to spread the marks. The greatest help came from having the marking criteria clearly and strictly tabulated, so the students could see where the problems are
**Staff reflection about effectiveness and efficiency:**
Mixed reaction. Some students make good use of written feedback and truly benefit from formative assessment, without which they would be less clued up.
Immediate feedback is also effective but those who do not attend miss considerably.
In general, it is difficult to assess in which way formative assessment is used.

**Ideas for improvement/other comments:**
It would be useful if the lecturer could give to the student the sheet with the recommended grades instead of merely marks.

Harry Smith/Alicia Montarzino
Main Findings

Importance of assessment and formative assessment

This project has highlighted the crucial importance of assessment generally and formative assessment in particular on student learning in higher education. Formative assessment can be revealing about learning and teaching alike. Lecturers need to be open to reflecting on both of these aspects.

Feedback to students

An essential component of formative assessment is the feedback that students receive on work completed. One finding from this project is that issues to do with formative assessment and feedback are inseparable. Nationally, scores in the National Student Survey about assessment and feedback are consistently the lowest. Feedback should include positive reinforcement, constructive criticism and pointers about how to improve. It needs to be clearly understandable to students. Lecturers need to remember that feedback can engender strong emotions that can both motivate and de-motivate. Feedback about how to do better is ultimately more important than the mark, since it is the aim of improvement that lies at the heart of formative assessment.

How feedback is used and interpreted by students is proof of its effectiveness. Staff and students should enter into a dialogue about the purpose, interpretation and use of formative assessment feedback. This is likely to improve practice on both sides, making learning more meaningful.

Tensions between educational effectiveness and resource efficiency

The literature review pointed to the fact that assessment is usually uppermost in students’ minds but lecturers too often do not give it the attention it deserves. There are increasing demands and pressures on staff within higher education and these are likely to get even worse if threatened budget cuts in the public sector come to fruition. Research pressures, larger classes, staff cuts, the potential for plagiarism and more distance learning are all challenges that make the balancing act between resource efficiency and educational effectiveness increasingly precarious. This project has not unearthed any magic solutions to this conundrum, but it has drawn attention to some pointers and examples of how others deal with these dilemmas.

Efficient formative assessment within modules

The literature review revealed some recommendations and possible solutions derived from educational research into the dilemma between effectiveness and efficiency. The following assessment methods can promote deep student learning while at the same time, save staff time:

- Peer assessment
- Self assessment
- Group working (which can include various methods to judge individual input)
- Comments banks and criteria matrices to speed marking
- Use of IT, including VLE tests with instant feedback
- Pass/fail exercises

To increase both effectiveness and efficiency there is a need to engage students in the whole assessment process by explaining why the assessment is undertaken in a specific way. This will help students to understand the purpose of assessment, how it relates to subject area and the relevance of the assessment to their skills and knowledge development. The engagement of students in the assessment process from inception through to marking is important throughout a course, starting in the first semester.

Ultimately, the main aim of assessment is to develop students’ skills to self assess how they are gaining subject knowledge and applying it. Self awareness, confidence and the ability to demonstrate competence at the correct level are key factors employers are looking for. If self-assessment is built into courses from the first year of study, good habits are more likely to develop, which can ultimately lead to good scholarship skills as well as life-long learning skills.
Reflective templates completed by members of staff at Heriot-Watt University demonstrate how the principles discussed in the literature review can be tailored to built environment modules. Indeed, many staff have continually developed inventive formative assessment over the years that has improved student learning, judging by comments received from students. The subject is one that is continuously evolving as higher education practice continues to change and develop. The templates also reveal tensions between efficiency and effectiveness. Student feedback often values efforts that obviously take a considerable amount of time. One of the common justifications from lecturers favours a longer-term view that what students learn during one stage of a course will save time later. This requires good teamwork across the curriculum. Another frequent comment from lecturers is that some formative assessment is particularly time-consuming to set up in the first year it is run, but this can save time later when it is re-used.

**Strategic study of assessment across a course**

One key finding from this project is that a strategic view of assessment across a whole course, year and semester is essential, particularly reflecting on the student experience integrating all modules. A related finding is that assessment needs to be fully integrated with other aspects of the curriculum, it cannot be seen in isolation. Assessment needs to be considered as an integral part of most other educational initiatives. Opportunities should be seize to integrate assessment more fully and to engage students in discussions about assessment issues.

This strategic study of assessment across a course should actively engage both the course team and students, to deepen their understanding of what and how they are learning. A strategic audit of assessment across a course can highlight:

- **importance of a variety** of assessment and feedback methods. The repetitive use of one type of assessment does not help students develop a range of academic and transferable skills, including those which employers are looking for. Students will learn in different ways from varying types of feedback, including formal and informal, marked and unmarked, written and verbal.

- **constructive alignment**, helping both staff and students to recognise the relationship between course and module aims and learning outcomes, requirements of professional institutions, assessment methods and marking criteria.

- **consistency** across modules. This could include student and staff workload, marking criteria and types and quality of feedback.

- **dangers of over-assessment** for both students and staff. This reduces the effectiveness and efficiency of assessment: students feel they are not learning subject areas in depth and staff get frustrated at the excessive work load generated. Synoptic assessment across modules is a method of reducing assessment, improving efficiency but is still assessing student knowledge and understanding. Another method to guard against over-assessment is to audit how many times the same learning outcome is tested, both within modules and across the curriculum.

- **building scholarship and transferable skills** throughout a course. An integrated view can pinpoint scholarship and skills development from the beginning of a course right to the end, showing how modules and assessment methods can build on each other to provide the desired result.

**Future reflection and action**

It is hoped that ideas from both the literature review and the templates will encourage lecturers to reflect on their own formative assessment and experiment with some new techniques. This has certainly already started happening within our own School. The workshop held as part of this project was particularly successful in giving lecturers the time and space to share experience, reflect on their own practice and develop ideas about new ways to work. We would highly recommend such events to other staff groups.

The role of the individual lecturer in reviewing and implementing different forms of assessment is crucial. Staff should not be afraid to try new types of assessment and need to acknowledge that this involves taking a risk.
This also requires staff to recognise when things are not working by being reflective and reactive. Peer support and mentoring can be invaluable in promoting this, as can open discussion with groups of students. Individual lecturers have considerable freedom to experiment within their responsibility for leading modules. The role of programme, course and year co-ordinators cannot be over-emphasised in making sure overarching discussions leading to better integration take place.
Reflection on the Process

At the end of this project, the team reflected on the whole process and highlighted the following achievements and disappointments:

Raising the profile of learning and teaching issues

Within the School: This project has been successful in raising the profile of learning and teaching within the School. It definitely got some people talking more to each other, sharing experience about possibilities and practice. This went beyond formative assessment. Asking staff to fill out the templates and the seminar in particular actively engaged a number of people across the School.

Within the University: The project also helped raise the profile of our School’s learning and teaching expertise across the University. It was showcased when the new Principal and the new Head of the Academic Enhancement Unit visited the School near the end of the project. Already, team members have been asked to deliver sessions at the Academic Enhancement Unit’s lunchtime seminar series, the University Learning and Teaching Conference and the University’s Postgraduate Certificate in Academic Practice.

Multi-disciplinary learning

The project promoted multi-disciplinarity across the School. We realised that we could learn a lot from each other. Formative assessment issues are not discipline-specific.

The project group worked well together, drawn from different disciplines across the School. We found we had complementary skills and learned from each other. This was an unexpected bonus. The people who learned the most from the project were those most actively engaged.

Seminar

Although we would have wished for larger numbers, the seminar was very successful in promoting learning amongst those who attended. Written anonymous feedback was very positive. What people seemed to value most of all was the opportunity to share experience with colleagues – something that seems to happen too rarely, given our hectic schedules. The seminar promoted interaction in a way that is more effective than reading a report. It re-energised those staff who were willing to engage and try something new. There is already evidence of a snowball effect from the success of the seminar. Colleagues are talking about what the next workshop might be about. It was also extremely positive having an employer and one of our professional institutions at the seminar – they commented at the end that they were highly encouraged to know that academics got together and addressed issues like this. It was also helpful having colleagues from other disciplines across the University, including the Academic Enhancement Unit.

Changing practice

Members of the project group have already changed their practice as a result of this project and tried a range of new formative assessment methods this semester. This is prompting further reflection and is part of the iterative process of improvement in light of student feedback and our own judgements.

Spin-offs into other educational areas

This project has already produced spin-offs benefitting other areas of the School. For example, this year we initiated first year mentor groups within several programmes in the School and some of these lessons are going to be built into the weekly meetings and exercises, ensuring that first year students are engaging better with assessment issues. There is a special focus on assessment more widely to address retention issues and this project will also benefit that. A key priority for the School is raising National Student Survey scores, particularly the questions about assessment and feedback, and this project directly addresses those issues.

Induction of recently-appointed staff
Some recently-appointed staff came to the seminar and this was a good induction to assessment in general and practices in the School in particular. It is hoped that the final report will further promote this.

**Staff and student participation**

**Staff:** We were disappointed at the lack of engagement by many staff, most of whom feel too busy or do not prioritise learning and teaching issues. It would have been nice to get more templates from staff and have better attendance at the seminar. Our Academic Enhancement Unit colleague, however, thought that the attendance was strong compared to many events they run.

**Students:** We were disappointed that we were unable to engage more students, despite making an effort. When we spoke with classes, students were keen to give us feedback about assessment they had experienced and showed an interest. However, we were unable to find students willing to be on the project group and invitations resulted in non-attendance at the seminar. It would seem that discussions need to be embedded within courses and it is difficult to engage outside that.

**Future dissemination**

As a result of this project, team members will be delivering a workshop at a Scottish HEA Enhancement Theme conference in March 2010 and at various Heriot-Watt University staff development events. They are also hoping to present papers at other conferences and are committed to writing an article for the Journal for Education in the Built Environment. This work most certainly does not stop here!
Appendix 1: Template to promote reflection about formative assessment at module level

Module title

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Appendix 2: Programme for Workshop 11 November 2009

1:30 Welcome and introductions, aims for the day, brief description of formative assessment project

1:45 Key messages from the literature review

2:00 Win Hornby, previously Robert Gordon University: Effectiveness vs. Efficiency in Assessment

2:45 Examples of formative assessment from within the School of the Built Environment, with reference to reflective templates: presentations from members of staff plus group discussion and questions

4:00 Summing up, including tips and tricks

4:15 Individual action plan

4:30 Evaluation forms


Open University (undated) Assessment and course design, Learning and teaching guides from IET series. Milton Keynes: Open University.


