Literature Review on
Formative Assessment in Higher Education

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1. Introduction

1.1 Background

One of the main drivers for this literature review on formative assessment is the new Learning Framework at Middlesex University, which is being implemented during 2007 in order to "significantly enhance the student experience"[1]. Curriculum designers are expected to develop new programmes that feature increased use of formative assessment and feedback **in addition** to summative coursework. It is expected that by increasing formative assessment, students will be offered more support and more feedback to support their learning during the period of study. Although the review will be made available to all staff at Middlesex University, it has been written specifically to support the teaching staff working in the Mental Health and Social Work Centre for Excellence for Teaching and Learning (CETL)[2].

1.2 Mental Health and Social Work CETL

The CETL in Mental Health and Social Work is made up of the Mental Health and Social Work Academic Group of the School of Health and Social Sciences at Middlesex University. Along with 73 initiatives, the Academic Group was awarded CETL status by the Higher Education Funding Council for England (HEFCE) in its largest ever funding initiative for rewarding excellent teaching practice. Its purpose is to further invest in this practice for delivering substantial benefits to students, teachers and universities, and to enhance this excellence in teaching and learning practice.

The CETL's vision is to offer the best possible learning environments for studying, such as developing new teaching facilities and informal learning spaces, and to further increase the quality of teaching and learning practices across Mental Health and Social Work programmes. It also aims to integrate campus and practice-based learning and teaching to enhance student learning experiences and outcomes, including workplace performance, through pedagogic and curriculum innovation.

The CETL work programme is being put into action via a number of Project Groups. Consisting of key stakeholders, including staff, service users, carers and students, each of the 5 Project Groups have been created to assist the development of innovative programmes that incorporate high quality teaching and learning practices. The groups each focus on: Service User & Carer Involvement; Interprofessional Working; Essential Shared Capabilities; Evaluation, and Enhancing Pedagogic Research. See the CETL pages at the Middlesex University website (www.mdx.ac.uk/hssc/cetl) for overview of each group.

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[1] Taken from "A general guide to the Learning Framework" (Middlesex University)

[2] There are 2 "CETLs" at Middlesex University. In this document all references to the "CETL" relate to that based in the Mental Health and Social Work Department

Each Project Group has its own work programme to assist the CETL in meeting its aims and objectives. This literature review has been prepared for the Enhancing Pedagogic Research Group programme.

1.3   Project Group for Enhancing Pedagogic Research

The Project Group has two key aims for using pedagogic research to encourage academic innovation. The first is to enhance the use of pedagogic research to inform teaching practice, and the second is to enhance the quality and quantity of pedagogic research undertaken by CETL members. In other words, the Project Group aims to encourage staff to use more evidence-based teaching practices and to carry out more high quality research on these practices.

A number of processes and outcomes to inform the delivery of the pedagogic research strategy were identified, including systematic literature reviews for staff to access. The key themes for these literature overviews were intended to be pertinent to Middlesex University requirements in which staff are required to incorporate the areas of **formative assessment**, **e-learning** and **student diversity** into their curricula. Formative assessment is the key theme for this literature review.

1.4   Aim of the review

The main aim of the review was to produce an information resource for assisting CETL staff in their teaching and research practice. In this instance the review was conducted to determine how formative assessment is currently used in higher education to inform staff about practices in providing formative assessment to students. It was also conducted to inform staff on potential areas for pedagogic research. The literature review was guided by the following 4 questions:

1. What is formative assessment?
2. What is the difference between formative assessment and summative assessment?
3. What is the difference between formative assessment and feedback?
4. What is the range of formative assessment practices and models available in educational literature?

In attempting to answer these questions the review aims to be "academically pragmatic". Rather than evaluating the quality of the literature through critical appraisal techniques, the review aims to provide staff with an accessible, relevant and comprehensive overview of the available information. In addition, it aims to provide staff with a resource library consisting of the literature identified in the search. In this way it is hoped that the review can be used practically by staff to help them use formative assessment more effectively to promote student learning and to guide their own research aspirations.

2. Methodology

The literature search for the review was conducted using mainly standard procedures for a systematic search. This involved selecting suitable sources of data, and formulating search and inclusion/exclusion criteria to identify potential publications. These publications would then be included in the review (and the resource library).

2.1 Sources of Data

Due to time constraints only an electronic search was carried out. Handsearching was not undertaken. Sources of data were the Google search engine, the HEA Academy website, and a number of academic electronic databases. Google and the HEA website were included in the search to find any unpublished or "grey literature" that may not be identified in the systematic search of databases. The electronic databases were:

- IngentaConnect,
- Ovid Online (incl. Medline, CINHAL, British Nursing Index, PsychInfo)
- EBESCO
- ERIC, British Education Index, Australian Education Index
- IBSS
- Blackwell Synergy

2.2 Search and Inclusion/Exclusion Criteria

To avoid a large number of "hits" usually generated from a search, the search criteria was limited to key terms and to year of publication. The search terms used were:

"FORMATIVE ASSESSMENT"
"HIGHER EDUCATION"

The search was also limited by date (1998-2007). The rationale for this was due to a comprehensive review paper by **Black & Wiliam (1998a)** identified in a preliminary Google search. The work focuses on formative assessment in the wider educational system, from primary school to university, but was felt to be directly relevant to this review and a good baseline to work from. It reviews over 250 publications, is considered a seminal paper, and has generated a considerable amount of comment and research.

Apart from **Black & Wiliam's (1998a)** review, and their summary paper "Inside the Black Box" (**Black & Wiliam 1998b**)[3], all publications were limited to higher education. Publications relating to primary or secondary education, summative assessment only or feedback only were excluded. Publications on teaching evaluation were also excluded unless they related specifically to an evaluation of a formative assessment practice.

To address the aims of the review, which largely focuses on formative assessment practices and models, a broad range of publication types were included. In addition to research papers, the review included discussion papers, reports, conference papers, briefings or guidance publications.

Publications identified in the search were screened by examining abstracts or summaries for any reference to formative assessment. Full-text versions were obtained if abstracts were not available or if there was insufficient information for screening. Full-texts (in electronic format) were also obtained (if available) for all publications included in the review in order to make up an electronic version of the library resource. Any publications freely available online will be referenced in the text via footnotes. Hard copies of non-electronic publications will be housed in the CETL Resource Library.

The review also contains references to other works (some pre-1998) cited in publications identified from the search. These are currently referenced in the Bibliography only and have not been set for inclusion in the resource library. Should any of these works be required for the library they will be obtained as necessary.

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[3] Freely available online from: http://www.pdkintl.org/kappan/kbla9810.htm (Retrieved 15 February 2007)

3. Results

The initial search generated over 450 hits. After screening abstracts and/or full-texts, the number of publications for inclusion in this review was reduced to 46. Summaries of each publication including brief descriptions of the focus and electronic copy availability are shown in Appendix A. Results are structured according to the review aims outlined in Section 1.4.

3.1 What is formative assessment?

Formative assessment is seen by **Black & Wiliam (1998a)** as at the heart of effective teaching - an essential feature for good teaching as well as efficient learning. It is a form of assessment to help students develop as learners and teachers develop as teachers to both produce effective learning. In their seminal review paper, Black & Wiliam (1998a) provide a commonly used definition of formative assessment as:

> ''encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged''.

(**Black & Wiliam 1998a, p. 7–8**)

The central role of formative assessment in teaching and learning in Higher Education is also espoused by **Juwah et al (2004)[4]**. As a process for providing information to teachers about the difficulties students may be experiencing so they can refocus their teaching efforts, the authors argue that formative assessment "should be an integral part of teaching and learning in HE" (**Juwah 2004 et al, p. 3**). They also argue that feedback and 'feed-forward' (i.e. focusing on solutions rather than mistakes and how to tackle future assigned tasks) as central tenets of formative assessment should be "systematically embedded in curriculum practices" (p. 3). Feedback on performance would enable the student to "restructure their understanding/skills to build more powerful ideas and capabilities" (**Juwah et al 2004, p. 3**).

Juwah et al (2004) also explain that formative assessment can be carried out by peers as well as teachers, a point made by **Yorke (2005)** who adds that formative assessment can be provided formally or informally. A summary of how formal and informal formative assessment may be provided and from what sources is shown in Table 1 (overleaf).

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[4] Freely available online at: http://www.heacademy.ac.uk/resources/detail/id353_effective_formative_feedback_juwah_etal (Retrieved 15 April 2007)

Table 1.   **Sources of formal and informal formative assessment**

Feedback…	Formal	Informal
From teachers	Probably the main approach in HE; feedback from computerised packages might be included here.	Where circumstances permit, such as in a studio or laboratory; or during fieldwork.
From peers	For example, via peer assessment activities.	Perhaps over coffee or a stronger beverage.
From others	This can be problematic if the ''other'' is also a mentor or supervisor, as might be the case during work experience.	Probably the main approach in work-based learning contexts.
From self	Only if it is an assessment requirement – in some assessment regimes it is.	Where the student is acting self-critically.

(Reproduced from **Yorke 2005, p. 225**)

Yorke believes that formal formative assessment is a more complex construct than it might appear (**Yorke 2003, 2005**).   In his (2005) paper, Yorke cites his earlier book (**Knight & Yorke 2003**) by arguing that formal formative assessment is a "complex system of signalling between academics and students, in which there is plenty of scope for misinterpretation" (p. 225-226).   This 'signalling system' involves 5 stages shown in Table 2 (overleaf)

Table 2.   **5 Stage Signalling System**

Stage 1:   The assessment task and criteria are specified by the tutor, who takes into account the structure of the subject discipline, the programme specification, and the point in the programme that the students are expected to have reached.

Stage 2:   The task is interpreted by the student in the light of the stated assessment criteria. The interpretation is influenced by the student's general intellectual development and also the beliefs that they hold about their capability.

Stage 3:   The student undertakes the task.

Stage 4:   The student's performance is graded by the tutor with reference to the stated criteria. The grade is ideally accompanied by comments on the performance and on how improvements might be made.

Stage 5:   The feedback is received by the student and interpreted. The student (again, ideally) learns from the feedback, and hence develops. In addition, the tutor/assessor may gain an appreciation of how the students have responded to the task, and can make inferences about the effectiveness of their teaching. This could lead to revision of the assigned task and possibly to their teaching approach.

(Adapted from **Yorke 2005, p. 226**)

In addition to the role of formative assessment in enhancing student learning (and effective teaching), some authors argue that formative assessment can also contribute to student development and retention (**Yorke 2001**), employability (**Yorke 2005**), employability skills (**Cassidy 2006**) and lifelong learning (**Boud 2000**). Others describe how formative assessment can facilitate class participation (**Dancer & Kamvounias 2005**) and improve students' attendance, performance and presentation (**Ghazi & Henshaw 1998**).

Finally, formative assessment is nowadays not just confined to pen and paper or verbal feedback in the classroom. With the advent of information technology there are many accounts of how the World Wide Web (WWW) and computing has provided new ways of implementing Web-based formative assessment packages (**Buchanan 1999, 2000; Khan 2001; Henley 2003; Prins 2005**) and computer-assisted assessment (**Bull & Stephens 1999; Brown et al 1999; Hunt & Pellegrino 2002**). Some of these innovative packages are discussed later in this review, but a more comprehensive overview will be provided in a separate review paper which focuses on e-learning.

3.2 What is the difference between formative assessment and summative assessment?

Useful, but perhaps extreme, examples of formative and summative assessment is given by **Gibbs & Simpson (2002)** in their conceptual overview of how assessment influences student learning. They describe an "archetypal" method of formative assessment at Oxford and Cambridge Universities, where both institutions provided detailed personalised feedback on assignments. Students were required to write a weekly essay and read it out in a one-to-one tutorial to the tutor who then gave immediate and detailed oral feedback. This was also often the only teaching some students experienced in which teaching meant feedback on essay writing. On the other hand, summative assessment was a consisted of final examinations at the end of three years study.

In his conference paper, **Crooks (2001)**[5] offers this brief explanation of distinguishing between summative and formative assessment:

> "Summative assessment is intended to summarise student attainment at a particular time, whereas formative assessment is intended to promote further improvement of student attainment".

> (**Crooks 2001, p. 1**)

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[5] Freely available online at: http://www.leeds.ac.uk/educol/documents/00001862.htm (Retrieved April 15 2007)

Although the distinction between both assessment practices appears quite straightforward, **Taras (2005)** argues in her theoretical paper that the line between summative and formative assessment isn't so clear. Basing her arguments on the work of **Sadler (1989)** and **Scriven (1967)**, two innovators in the field of assessment and evaluation, **Taras** believes that "formative assessment is in fact summative assessment plus feedback which is used by the learner" (**Taras 2005, Abstract**).

Her discussion on the relationship between formative and summative assessment (rather than the distinction) provides a useful discourse on how the perceived differences between the two can lead to tensions in the assessment process. She argues that they should not be viewed as separate processes (and functions) as this would create a dichotomy, and in fact this separation has been "self-destructive and self-defeating" (**Taras 2005, p. 476**).

Taras (2005) also comments on the concern that formative assessment means additional work for teachers as they have to provide both a 'summative function' and a 'formative function'. She counters this with the observation:

> "Therefore, perhaps the most useful consequence of clarifying the relationship between SA and FA, as stated in this paper, is that teachers are no longer required to duplicate an assessment process in order to obtain the information required for both SA and FA. Most SA for formal assessment purposes requires feedback; therefore the only real requirement in order to integrate FA into practice is to engage the learners with using this feedback for learning in future work".

<div align="right">(Taras 2005, p. 475)</div>

3.3   What is the difference between formative assessment and feedback?

It would seem clear from previous references to feedback in this review, that rather than being separate processes formative assessment and feedback are interlinked. Feedback should be a process to aid learning by generating information beneficial to students, but for assessment to be formative the information generated by the feedback has to be used (**Black & Wiliam 1998[a]**).   This indicates that feedback itself is central to formative assessment. **Black & Wiliam (1998[a])** define feedback as:

> "…any information that is provided to the performer of any action about that performance".

<div align="right">(p. 53)</div>

When feedback is used in formative assessment, it can be called 'formative feedback'. This then places emphasis on the recipient's role in processing the feedback and then *using* it constructively. This point is raised by **Taras (2005)** when she quotes a definition of feedback by **Ramasprasad (1983)**:

> "Feedback is information about the gap between the actual level and the reference level of a system parameter which is used to alter the gap in some way".

<div align="right">

(**Ramaprasad, 1983, p. 4,** cited in **Taras 2005, p. 470**)

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Rushton (2005) provides a short but thought provoking narrative on the pedagogical implications of formative assessment for deep learning, and in doing so discusses the centrality of feedback to formative assessment. She supports her argument by referring to a synthesis of meta-analyses of student learning that found feedback produces "the most powerful single effect on achievement" (**Hattie 1987**, cited in **Rushton 2005, Abstract**).

Rushton also takes a broader view of feedback than **Black & Wiliam's (1998ª)** "narrow" definition, particularly when it comes to enhancing learning. Referring to further work by **Hattie**, **Rushton** considers that the duality of feedback, i.e. the teacher *provides* feedback and the student *receives* feedback (**Hattie & Jaeger 1998**), necessarily means the active involvement of the teacher and the student. This in turn is dependent upon each individual's capacity to provide or receive (**Rushton 2005**).

Rushton goes on to give a wider definition of feedback as provided by **Hattie & Jaeger (1998)**, who define it as the:

> "provision of information related to the understanding of the constructions that students have made from the learned/taught information",

 and

> "polymorphous, referring to subsequent information aimed at assisting the learner in meeting the goals of the learning process".

<div align="right">

(**Hattie & Jaeger 1998, p. 113** cited in **Rushton 2005, p. 510**).

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Though their definition may be narrow, **Black & Wiliam** do recognise the "polymorphous" nature of feedback by drawing on the work of **Sadler (1989)** to underpin much of their review. According to **Sadler**, there are three conditions that must be satisfied for students to benefit from feedback. These are:

1. Possessing a concept of the goal/standard or reference level being aimed at;
2. Comparing the actual (or current) level of performance with that goal or standard;
3. Engaging in appropriate action which leads to some closure of the gap.

(**Sadler 1989**, cited in **Juwah et al 2004**)

A further point Sadler makes is that even if students are given information regarding their actual performance compared to the standard (i.e. Condition 2), they are often given insufficient information on what action to take to actually close the gap. Alternatively, they may be given sufficient information, but they don't know what to do with it as their evaluative skills are not to the same level as the person who has provided the feedback in the first place, i.e. the teacher. The need for students to be equipped with the knowledge and skills necessary to process and utilise feedback information has led to more focus on students' ability to self-assess (**Yorke 2003**).

3.4   What formative assessment models and practices are available in educational literature?

As mentioned in the introduction, this review is not a critical appraisal of the literature on formative assessment and does not therefore examine the evidence base for its effectiveness. Subsequently, this section on formative assessment and/or feedback models, principles and practices describes theoretical constructs and/or practical strategies that may or may not have been examined empirically.

The section begins by presenting a number of contemporary models and principles, and then goes on to describe a range of formative assessment and feedback strategies currently being practiced in higher education settings.

3.4.1. Models and Principles

A Conceptual Model of Formative Assessment and Feedback

The previous section shows that effective feedback is integral to successful formative assessment, and this is represented graphically in Figure 1 (overleaf), which shows a conceptual model of formative assessment and feedback (**Juwah et al 2004; Nicol & Macfarlane-Dick 2006**).
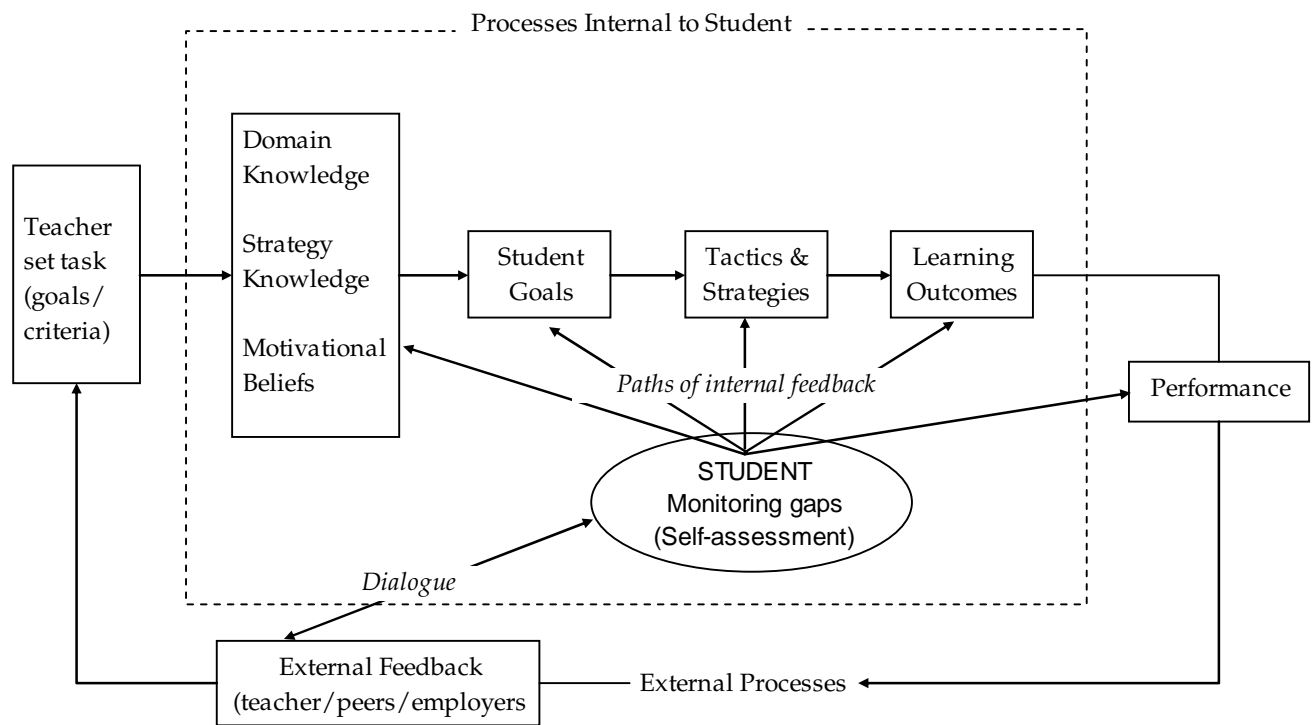
Figure 1. **A Model of Formative Assessment and Feedback (reproduced from Juwah et al 2004)**

This model of feedback practice has been developed from the current thinking of key researchers in this area (**Sadler 1983, 1989; Black & Wiliam 1998a; Yorke 2003; Torrance & Prior 1998;** cited in **Juwah et al 2004**), and is based on **Butler & Winne's (1995)** original model of feedback and self-regulated learning.

A full explanation of the model is beyond the scope of this review (please refer to **Juwah et al 2004** for a description), but the key pathways and processes are clear. Putting it simply, the teacher sets a task; the student engages with task with prior knowledge and motivations to construct a response, and then produces an outcome. Throughout these stages the student engages in *internal feedback* to monitor their progress and performance, and if *external feedback* is provided it may "augment, concur or conflict with the student's interpretation of the task and the path of learning" (**Butler & Winne 1995,** cited in **Juwah et al 2004, p. 5**).

The student's engagement in feedback processes is discussed by **Yorke (2003)** who provides an extensive dialogue on formative assessment and pedagogic practice. As pointed out by **Juwah et al (2004)**:

> "If students are always involved in monitoring and assessing their own work, then rather than thinking of ways to enhance the teacher's ability to deliver high quality feedback we should be devising ways of building upon this capacity for self-regulation".

<div align="right">(Yorke 2003, cited in Juwah et al 2004, pp. 5-6)</div>

Seven Principles of Good Feedback Practice (Juwah et al 2004)

Following on from their conceptual model, **Juwah et al (2004)** have derived seven broad principles of good feedback practice:

1. Practice that facilitates the development of self-assessment (reflection) in learning;

2. Practice that encourages teacher and peer dialogue around learning;

3. Practice that helps clarify what good performance is (goals, criteria, standards expected);

4. Practice that provides opportunities to close the gap between current and desired performance;

5. Practice that delivers high quality information to students about their learning;

6. Practice that encourages positive motivational beliefs and self-esteem;

7. Practice that provides information to teachers that can be used to help shape the teaching.

<div align="right">(Juwah et al 2004)</div>

Again, a full description of these principles is not covered here so please refer to the original text, which provides a rational for each principle, covers associated research literature *and* gives examples of how they may be applied by way of case studies.

Another set of principles or conditions are offered by **Gibbs & Simpson (2002)** who identify 11 conditions that they believe influences assessment on the volume, focus and quality of studying.   Their set of conditions was developed following an overview of assessment practice, which they found to be "not a pretty picture".

Basing their argument on most university's lack of financial and staffing resources in providing frequent assignments and on research findings, the authors claim that formative assessment (i.e. feedback) is sometimes "enormously expensive, disliked by both students and teachers, and largely ineffective in supporting learning" (**Gibbs & Simpson 2004, p. 11**).   Given these problems, **Gibbs & Simpson (2002)**

have developed 4 conditions for the influence of the design of assessment systems and their influence on study; and 7 conditions for the influence of feedback on learning. All 11 conditions are presented here.

Conditions under which assessment supports learning (Gibbs & Simpson 2002)

A.   Influence of assessment systems and assignments on study:

1. Sufficient assessed tasks are provided to capture sufficient study time-given existing competition for student time, including paid employment. The authors note however that long hours of study do not always correlate with productive study;

2. The tasks are engaged with by the student, orienting them to allocate appropriate time and effort to the most important aspects of the course. The authors note an existing lack of knowledge about the distribution of student time and effort;

3. Tackling the assessed task engages the student in a productive learning activity; most specifically the student is orientated towards deep rather than surface or strategic learning;

4. Assessment communicates clear and high expectations.

B.   Influence of feedback on learning:

5. Sufficient feedback is provided often enough and in enough detail

    (Feedback may need to be quite regular, and on relatively small chunks of course content, to be useful);

6. Feedback should focus on performance rather than on the student's character;

    (Literature on formative assessment distinguishes between feedback which tells students they are hopeless and feedback which tells students exactly where they have gone wrong and what they can do about it)

7. Feedback is timely-received when it still matters and when there is time to apply it;

    (If students do not receive feedback fast enough then they will have moved on to new content and the feedback is irrelevant to their ongoing studies and is extremely unlikely to result in additional appropriate learning activity, directed by the feedback)

8. Feedback is appropriate to the purpose of the assignment and its criteria of success;

    (This issue concerns the relationship of feedback to what an assignment has been set for and what counts as a successful attempt at the assignment)

9. Feedback takes into account student understanding of the task;

   (Students have to make sense of what kind of a task they have been set when they tackle an assignment and what would count as a 'good' attempt at it. They can misunderstand and be confused by whatever briefing and feedback they have been given in the past)

10. Feedback is received and attended to;

    (A number of studies have described students receiving their assignment back, glancing at the mark at the bottom, and then simply throwing it in the bin, including all the feedback)

11. Feedback is acted upon.

    (This issue concerns the impact of feedback on future learning. Feedback may accurately correct errors but still lead to no change in the way a student goes about the next assignment or tackles any future learning task)

The authors justify each condition with references to theory, empirical evidence and practical experience. They also state that the conditions are in the process of being tested out in a large scale project with a checklist to help teachers review the effectiveness of their own courses' assessment systems an expected product.

Note that both 'frameworks' outlined above are covered in a literature review on 'Engaging Students with Assessment Feedback' by **Millar (2005)**. **Millar** argues that although there is some overlap both frameworks come from different perspectives. She suggests that Juwah and his colleagues focus more on the student's engagement with the assessment process, whereas **Gibbs & Simpson** concentrate less on student involvement and more on the assessment environment used to support learning, this includes teaching staff (**Millar 2005**).

3.4.2. Practices and Strategies

Formative assessment can usually take the form of practices such as verbal or written feedback on an assignment, essay or project; tests and quizzes; exercises with multiple choice, or just simply question and answers in a lecture/teaching session.

The second half of this section presents an overview of specific and general formative assessment and feedback practices and strategies identified from the educational literature. Some studies describe individual assessment practices and report on their effectiveness, some report on the use of formative assessment in single or multiple settings, and some publications are briefings, reports or discussion documents that provide information on assessment in general. Papers highlighted in bold are, or will be available in the resource library.

Specific

The two main specific practices and strategies covered here are peer/self assessment, and computer assisted assessment (CAA).   Other practices are discussed under the heading 'Others'.

Peer and/or Self Assessment

Cassidy (2006) used peer assessment as a potential strategy for developing employability skills in students. The rationale for using student peer assessment is due to the general acceptance that it is beneficial to learning (**Falchikov and Goldfinch 2000**, cited in **Cassidy 2006**). Cassidy gives a list of specific benefits such as:

- increased student responsibility and autonomy; evaluative skill development;

- insight into assessment procedures and expectations for high quality work;

- students work harder with the knowledge that they will be assessed by their peers;

- potential for providing increased levels of feedback without increasing demands on tutors (**Walker 2001**); and

- encourages deep rather than surface learning (**Brown et al. 1994**).

(**Cassidy, 2006**)

Cassidy found that students were positive about peer assessment, but were concerned about their capability to assess others the responsibility that comes with it. He suggests the introduction of peer assessment as a regular practice (at least in terms of employability skills)

In his paper describing the implementation of formative elements into a Health Studies and Nursing programme, **Cooper (2000)** introduced a reflexive process to feedback. He used an action research process to review and amend the format of current assessment and encourage students to use feedback more effectively. This involved using a strategy proposed by **Jackson (1995)[6]**, which increased the use of formative comments by reading the work of other students. Peer reading gives a student an idea of where they are in relation to others and encourages them to be more reflective on their own work. This in turn encourages deeper learning moving from doing an assignment to thinking about it.

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[6] Freely available online at: http://ultibase.rmit.edu.au/Articles/dec96/jacks1.htm (Retrieved 15 April 2007)

Jackson himself gives an example of peer reading:

> "… essays are returned with formative comments but without summative grades. The grades are held in reserve. Students are then instructed in additional steps necessary to receive a grade for their essay. They must read the work of two peers and write a brief analysis of their own essay reflecting on the essays of their peers".

(**Jackson 1995, p. 5**, cited in **Cooper 2000, pp. 286-287**)

Cooper claims that the "paper demonstrated that through explicitly using the learning potential within assessment, learning can be facilitated through challenging students to move from 'doing' assignments, to reflexive thinking about their writing" (**Cooper 2000, Abstract**).

The ability of students to self-assess accurately so they can manage their own learning underpins the study by **Langendyk (2006)** in her project on the accuracy of self- and peer-assessment of medical students in a problem-based learning (PBL) medical programme. The aim of the study was to evaluate the accuracy of self and peer assessment according to low or high academic performance.   She found that low achievers marked themselves and their peers generously, whilst high achievers marked themselves harshly and their peers accurately. Langendyk suggests that a self-assessment strategy provides students with the opportunity to identify strengths and weaknesses, and low achievers require need additional support to link assessment to learning.

Two studies report the implementation of a formative assessment model incorporating peer and self assessment. The first study involved student constructed criteria in the presence of exemplars, i.e. example of a standard, and consisted of the construction of a poster presentation through a four-stage process (**Orsmond et al, 2002**). Students doing an assignment for a work experience and personal development module were informed of the assignment in Stage 1 (four weeks prior to the exercise) and given information of the peer and self-assessment and role of marking criteria at Stage 2 (two weeks prior). In Stage 3 (one week later) the students developed the marking criteria with staff and shown the exemplars, and in Stage 4 the assignment was carried out.   The results of this exercise produced positive results, including the finding that exemplars can produce higher quality outcomes.   The second study was a development of this four-stage formative assessment process and was designed to enhance students' ability to implement marking criteria over two sessions rather than four (**Orsmond et al, 2004**). This study showed that peer and self assessment help students achieve their learning goals.

A study by **Topping et al (2000)** reports on a methodology for comparing peer assessment of students' academic writing with staff assessment. There was some correlation between peer and staff assessment, and little evidence of differences. The

students found the process time consuming, challenging and uncomfortable; but it improved their subsequent written work and developed transferable skills. The authors also present a hierarchy of activities for peer assessment of academic writing.

van den Berg et al (2006) report on 7 different peer assessment designs according to a typology of peer assessment in higher education by Topping (1998). The focus was on the analysis of written and oral peer feedback, and the authors suggest that, when related to design features "feedback is adequate when (1) peer assessment has a summative (on the basis of a writing product) as well as a formative character (during the writing process); (2) the assessment is performed in small feedback groups; (3) the written feedback is orally explained and discussed with the receiver" (**van den Berg 2006, Abstract**). The lack of feedback on writing process and structure has implications for teachers, who would either have to provide the feedback themselves or design other assignments for peer assessment.
Finally, **Taras (2002)** provides a discussion paper on peer and self-assessment with regard to both formative and summative assessment. She provides a practical solution to the problem of including students in assessment and taking responsibility for their own learning by providing her own version of student summative self-assessment (**Taras 2001**) working within a framework of **Sadler's (1989)** theory of formative assessment.

Self-assessment processes in **Taras's (2001)** version uses summative work to: (1) train students in the self-monitoring processes described by **Sadler (1989)** which makes them efficient learners, and (2) allow students access to summative assessment processes and so support students on the road to autonomy and independence (**Taras 2001**). It is through these processes that students get to understand the importance of feedback and well before a grade is given. Three key features are involved in this self-assessment process, which are:

> "Firstly, to use summative, graded work for self-assessment, secondly, to receive tutor feedback in order to help them identify and understand their errors prior to self-assessment. Thirdly, it is proposed that students should receive their grade or mark only after they have completed the formative, learning aspect of the self-assessment exercise. It is argued that this process will go some way towards giving students real access to power sharing in assessment."

<div align="right">

(**Taras 2001, p. 605**; cited in **Taras, 2002, p. 507**)

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Computer Assisted Assessment (CAA)

Buchanan (1998) reports on the implementation of a World Wide Web (WWW) – mediated formative assessment package (PsyCAL – Psychology Computer Assisted Learning), and also reports on two studies for evaluating its effectiveness (**Buchanan 2000**). Accessed via a university website, PsyCAL presented a series of multiple choice questions, that when completed by students generates feedback. The studies in **Buchanan (2000)** both showed that students who used the package performed better on end-of-course summative assessments than students who did not use it.

Another web-based formative assessment system using WebCT is reported by **Henley (2003).** Also incorporating multiple choice, short answer and extended matched questions, students rated the system highly with 80% (of 51) saying it was helpful to their learning. Although a considerable amount of staff time was spent setting it up, the resource needed minimal input afterwards and was felt worthwhile considering the student response.

Khan et al (2001) also report the development of a web-based formative self-assessment system that uses multiple true-false questions. Students mark their knowledge of set questions and their confidence on that knowledge. The system provided feedback to students on their own scores and confidence relative to their peers and overall anonymous feedback to tutors on the performance relative to students at other sites. The authors suggest that this system "has the tools that students can use to direct their learning and tutors can use to tailor their teaching in the light of the instantaneously available comparative feedback" (**Khan et al 2001, Abstract**).

Hunt & Pellegrino (2002) describe two internet-based software systems of formative assessment; the DIAGNOSER and SMART programs. Both deliver continuous formative assessment and feedback to students and suggestions are made by the authors concerning the integration of these and similar programs into the educational system.

A range of formative and summative assessment online materials are described by **Peat & Franklin (2002)**, including weekly quizzes, mock exams, and special self-assessment modules (SAMs). Ongoing evaluation from as far back as 1997, including surveys and focus groups, has helped develop the system and indicates that students are making use of the materials and they are helping them with their learning.

Prins et al (2005) implemented a qualitative formative peer assessment in a computer supported collaborative learning (CSCL) environment. The study focused on students' attitude towards peer assessment and the use of peer assessment assignments and tools. Results showed a positive attitude from students and added value to assignments.   The authors give recommendations for the implementation of

peer assessment in CSCL environments (e.g. considering the role of the tutor) and suggest options for future research (e.g. focusing on collaborative and social skills).

The last paper on CAA comes from **Bull & Stephens (1999)** who describe the use of CAA software called Question Mark in two universities, one of which uses it for summative assessment and one for formative assessment. The formative assessment system was used to enable students to critically reflect on their performance via instant feedback. The authors summarise the advantages of the system as follows:

- CAA using a range of different question types may be a more suitable form of assessment than traditional techniques, especially for some first-year modules;

- Students appreciate and benefit from detailed and quick feedback, especially true of formative and self-assessment;

- Automatic marking that requires no second marker is a major time saver;

- Marking is consistent and mistakes caused by marker fatigue do not occur;

- Fast feedback to staff enables a rapid response to any potential learning difficulties if monitored effectively;

- Comprehensive statistical analysis is available.

(**Bull & Stephens 1999, p. 134**)

Others

To assist poorly performing medical students **Denison et al (2006)** developed a whole class formative assessment strategy plus academic guidance interviews. This intended to act as an 'early recognition' system for identifying weak students and for taking subsequent remedial action. The formative assessment exercise consisted of students undertaking two tests midway through the programme course. These were a 'blue-printed objective structured clinical examination (OSCE) and a written paper, identical to the summative assessment at the end of the year. These were then followed by a guidance interview for students who failed the formative assessment tests, where students were encouraged to formulate their own remedial action plan. The authors maintain that early recognition remains difficult and also report on suggestions for future research on how staff may be supported, whether weak students can be supported and whether those who fail an assessment should be given intensive and sustained support.

An unusual formative assessment strategy is described by **Hudson & Bristow (2006)**, who devised a quiz based on the format of the television programme 'Who wants to be a millionaire?'. It was developed as some students (and staff) were anxious about student learning. The paper included the following brief summary for "novices to the format of the Who Wants to Be a Millionaire quiz:

- For each group of students, one student earns the right to become the first contestant (take the "hot seat") by answering and explaining the answer to the first question correctly.

- Once in the hot seat, the contestant continues answering questions until they are unable to choose and explain the correct answer to a question. They are then replaced with a new contestant.

- When uncertain, contestants have three lifelines (assistance) to help obtain the correct answer. They may ask a friend in the group; ask the audience or whole group; or have two incorrect answers removed, narrowing their choice. These lifelines are available only once to each contestant. Prizes are available at various stages, after nominated numbers of questions are answered. Question difficulty increases as the quiz continues, culminating in the million-pound question, number 15. Needless to say, the winning student does not receive a million pounds!"

(**Hudson & Bristow 2006, p. 35**)

The study (on medical students) showed that students "valued a formative assessment activity that was fun, non-threatening, and gave them feedback on their learning. Students highlighted the benefit of having the chance to express and clarify misunderstandings" (**Hudson & Bristow 2006, p. 36**).

Jasper & Fulton (2005) discuss a strategy for developing marking criteria for assessing portfolios at masters' level. They use a 6 stage methodology for analysing QAA descriptors, and then develop, re-order, test and refine them to enhance their applicability to portfolios from practice-based disciplines. The authors present a strategy for using the portfolio in both formative and summative assessments to identify students' attainments, strengths and weaknesses.

An assessment strategy in which social work students produce and share pieces of work is described by **Akister (2003)**. Called the 'Patchwork Text', the strategy was introduced in order to provide formative feedback on a Family Therapy module to students who complained about being assessed at the end of every module. The strategy is explained as follows:

> "In practical terms, students undertake, week by week, a series of short pieces of writing in different forms – e.g. a description, a critical incident analysis, a response to a published piece of writing. Each week the students share their writing in small groups in order to gather differing responses of three or four readers…The final assignment (i.e. the Patchwork Text) is a selection of their

writing (possibly revised and not necessarily in the order in which it was written) presented within an interpretative reflective framework which brings out and explores the overall theme in relation to the individual pieces of writing".

(**Scoggins and Winter 1999, p. 487**, cited in **Akister 2003, p. 203**)

Akister explains that this approach to critical understanding is useful for the module as it breaks up the narrative of the standard essay format, thus introducing non-linearity. This concept is particularly relevant to Family Therapy given its emphasis on systemic approaches to family problems. **Akister** found that a side effect of this process was the students' improved knowledge base as a result of studying earlier in the module. Interestingly, the author finishes with a note on this strategy's comparison with portfolios, saying "The process of the Patchwork Text altered the teaching delivery significantly both in the structuring The Patchwork Text moves the students into a different, less linear approach to their work and there is some evidence that it could form a useful, succinct alternative to 'portfolios' of work. Further study is needed to explore the interface with portfolios of learning" (**Akister 2003, p. 207**). As this approach may be of interest to many readers, the full assignment guidelines detailed in the article have been reproduced in Appendix B.

General

In her multi-site study of law schools, **Bone (2006)**[7] aimed to examine the use of formative assessment by analysing the different types of feedback provided to students, evaluating the effectiveness of feedback, and analysing how feedback impacts on learning. Using interviews and focus groups with a sample of 56 students and 12 tutors from 11 universities (5 'old' school and 6 'new' school) she found the following:

- More 'old 'universities set formal formative assessment tasks than 'new' universities

- The main reasons given for *not* setting such assessment are large student numbers and lack of time

- No students in this survey were provided with any assessment criteria for either formative or summative coursework tasks

- No generic feedback was given on either formative or summative assessment by any of the participants although one university put up a 'model answer' on the student intranet which was greatly appreciated

- Marks were felt to be very important by the majority of students in order to compare their performance both with other students and across subjects

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[7] Available online from: http://www.ukcle.ac.uk/research/projects/bone.html (Retrieved April 15 2007)

- Timing is crucial - feedback is generally wanted as soon as possible so that it can be used for the benefit of later assessments.

- Students who were not set formal formative assessment expressed a wish that they be given the opportunity to obtain feedback before attempting summative assessment. This was not affected by the fact that in most instances the first year marks did not 'count' for the purposes of degree classification.

<div align="right">(Bone 2006, p. 16)</div>

She also made the following recommendations:

- It is important to give students an opportunity to obtain formative feedback on their progress before they submit a summative piece of work. If large student numbers and/or poor staff/student ratios preclude the setting of a formal piece of assessment there are other ways of giving such feedback.

- Clear assessment criteria written specifically for the piece of work to be attempted should be given to students at the time the assessed work is set.

- Feedback on students' assessed work should make specific reference to these criteria.

- Generic feedback covering the key points is found to be useful by most students and saves time for lecturers who can refer to it rather than repeating the same remarks in detail on several pieces of work. The jury is still out on whether or not model answers are a 'good thing'.

- Feedback must be prompt to be of any use. This project picked this up as has the National Student Survey. It is good practice to set a 'hand-back' date as well as a 'hand-in' date so that students know exactly when they can expect their work to be returned. Ideally the two dates should not be more than three weeks apart.

<div align="right">(Bone 2006, p. 16)</div>

The same author has also produced a practical advice and guidance publication on 'Ensuring Successful Assessment' (**Bone 1999**)[8]. This extensive handbook covers a whole range of issues concerned with assessment, and has been designed to enable the reader to: "take a pragmatic view of assessment; consider the suitability of different forms of assessment; design an assessment matrix, and evaluate the effectiveness of different forms of assessment" (**Bone 1999, Preface**). Although not specifically about formative assessment it contains a complete section on the importance of feedback, provides a self-rating checklist of feedback practices, and covers practicalities of giving effective feedback.

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[8] Available online from: http://www.ukcle.ac.uk/resources/assessment/bone.html (Retrieved 15 April 2007)

Another useful handbook has been produced by **MacDonald & Savin-Baden (2004)**, in their 'Briefing on Assessment in Problem-Based Learning'. It draws on other briefings in the LTSN Generic Centre Assessment Series, as well as having additional principles for Problem-Based Learning (PBL), and so provides information relevant to all educational approaches. The briefing examines a range of assessment practices for PBL, as well of examples of how assessment has been used in practice, across a range of disciplines, including medicine and dentistry, and nursing. In the latter, details of a formative assessment strategy was given:

> "Formative assessment was provided by regular meetings throughout the week, which allowed students to discuss what they had learned and receive feedback from their peers and staff. A summary of their findings was given in an oral presentation at the end of the week after which they received verbal and written feedback on their communication skills and findings".

(MacDonald & Savin-Baden 2004, p. 15)

Deeprose & Armitage (2004) report on a minimal formative assessment measure, and used a combination of rating scales and open-ended questions to examine student (n=49) and tutor (n=8) perceptions of this measure. Findings show that "students reported increases in their perceptions of preparation, contribution, motivation, and reward as a result of the assessment, whereas tutors did not (**Deeprose & Armitage 2004, Abstract**). The authors suggest that these differences in perceptions could be due to tutors giving feedback, but not receiving information on their feedback. They were not aware of the impact their feedback was having on students. A 'bidirectional' method of assessment is suggested (i.e. students and tutors responding to each other in turn   so both are aware of the impact of assessment) so that tutors can appreciate the impact of their feedback on students.

Krasne et al (2006) examine the effects of two types of formative assessment on the performance in summative assessments in 146 first-year medical students. The two types of assessment were closed book (i.e. a traditional mode of assessment, in which students are allowed to take no notes, books or other reference material in the assessment, relying entirely on their memory to answer the questions set) and closed book (i.e. students are allowed to refer to any material that they wish to consult while carrying out the assessment) components. Their findings suggest that formative assessments can predict summative assessment performance, and open-book components are better predictors.

A paper by **Higgins et al (2002)** reports on a 3 year research project investigating the meaning and impact of formative assessment for students. The 'Conscientious Student' in the title refers to the deeper way students wish to engage with their subject through seeking feedback, rather than just wanting to know their marks. Although the students recognised the importance of the grades, many sought feedback to help them engage with their subject more deeply. There were, however,

potential problems with seeking these 'deeper' feedback processes; as the authors put it:

> "There are clearly a number of potential barriers to the effective provision and utility of feedback comments which are, to some extent, outside of the student's sphere of influence. These may be 'structural' in nature—for example, a result of the impact of modular degree programmes. Or they may relate to the nature of feedback that students are provided with in terms of the quality, quantity and language used. But these factors become irrelevant if students' interests are confined solely to the grade, and feedback is either disregarded or sought only to provide a list of 'correct answers' for future assessment."
>
> (**Higgins et al 2002, p. 61**)

The different perceptions of assessment practices as experienced by students (n=130) and staff (N=80) is reported by **MacLellan (2001)**. Questions on feedback were included in the survey, which revealed differences in the perceptions of both groups where students were not as positive about the helpfulness of feedback as staff. The author suggests that "while staff declared a commitment to the formative purposes of assessment and maintained that the full range of learning was frequently assessed, they engaged in practices which militated against formative assessment and authentic assessment being fully realised" (**MacLellan 2001, Abstract**).

The three 'militated' assessment procedures identified in the study were ones reported to have never occurred by a large proportion of both students and staff; ones deemed to be important by the staff given the value they put on the development and formative function of feedback and assessment. These uncommon practices were: 1) baseline assessments at the start of module, which would allow the opportunity to modify teaching in response to student understanding; 2) students being assessed when they felt ready, which acknowledges that students need differential amounts of time for learning, and 3) self and peer assessments, practices already judged to put invaluable procedures in formative learning. As the author puts it, "Only when all assessment tasks can be fully authentic and only when staff and students can put the students' learning at the very centre of the educational enterprise, can the assessment practices be consistent with the standards model (**MacLellan 2001, p. 317**)

The impact of formative assessment in improving the performance of students in exams was the subject of a study by **Greer (2001)**. This study compared the performance of students from different cohorts; cohort one from an academic year that used non-formative assessment, and cohort two from the following academic year that used a new formative assessment strategy. The findings from the research indicated that changing the mode of assessment effects student performance, which on the whole was better for the cohort that used the formative assessment technique. This was particularly the case for students who had no prior knowledge of the subject, and for the weaker students.

The relationship between formative assessment, assessment preferences and approaches to learning is the subject of a study by **Gijbels and Dochy (2006)**. The focus of these authors' study was heavily influenced by **Black and William's (1998)** review, which concluded that improving teachers' formative assessment capabilities lead to significant learning gains in students. It was also influenced by other research, which found an association between assessment preferences and learning approaches, i.e. 'surface' learners preferred procedures that supported this assessment approach and 'deep' learners preferred intellectually challenging programmes.

Gijbels and Dochy's (2006) study aimed to examine these relationships further by investigating; 1) whether or not students' assessment preferences changed when they had hands-on experience with formative modes of assessment, and 2) whether or not students' approaches to learning changed (i.e. adopting a 'deeper' approach) when they experienced formative assessment.

Findings were not as expected as the authors explain:

> "The results of these analyses were not the intuitively expected ones: students prefer assessment methods with higher-order thinking tasks significantly less after experience with the new formative assessment. Moreover, students do change their approaches to learning after hands-on experience with the formative assessment, but this is towards a more surface approach to learning

> (**Gijbels and Dochy 2006, p. 406**)

However, these findings were in line with other research findings from trials that tried to deepen students' approaches to learning, but in fact had the opposite effect and increased surface learning (**Nijhuis et al 2005**; **Struyven et al 2005, 2006** cited in **Gijbels and Dochy 2006**). **Gijbels and Dochy (2006)** offer possible explanation for these findings, such as contextual elements and experiences of students that 'force' the students into a more 'surface' approach. Elements such as clarity of the goals, appropriateness of the workload and the usefulness of the literature, which when viewed negatively lead to more surface learning. The authors call for further research to clarify these relationships further, such as "students' perceptions of learning and assessment environment (including workload), its structures and the amount of feedback provided" (**Gijbels and Dochy 2006, p. 407**).

Finally, **Jill Millar (2005)** from Oxford Brookes University has written a literature review on what works in engaging students with assessment practice. The review is part of the Engaging Students with Assessment Feedback (ESWAF) project, which aims to enhance student learning by improving their engagement with assessment feedback[9]. The review is divided into 3 parts: the first part an overview of feedback practices and conceptual models of feedback, much of which has been covered in this review in Section 3.4; and the second and third parts are examinations of the

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[9] ESAF website: http://mw.brookes.ac.uk/display/eswaf/Home

student and staff perspectives of feedback respectively.

The main assertion from this review is that:

> "Direct interaction between staff and students is integral to this process [of feedback to students] - in the development of criteria, in feedback on assessment and criteria, in feedback to students on their work, and in feedback to staff on student learning through the work submitted"
>
> **(Millar 2005, p. 32)**

The full report and an overview of the project (in a Powerpoint presentation) are available from a website 'Challenging Perspectives on Assessment'[10], which also contains a range of other material on assessment. The presentation provides a useful summary of the review's findings and in it **Millar** explains "the literature suggests that:

- Students want the feedback process to be explicitly fair;

- Students feel that it is only fair that they should receive feedback having done the work;

- Some students want marks as feedback as a form of recognition

- Some students see feedback as part of the service that they are paying for;

- Feedback tends to be categorical in tone, and advice is not always explicit;

- There is not necessarily a shared set of understandings between staff and students, nonetheless what is said is shaped by academic discourse;

- There should be 'opportunities for engagement in dialogue'."

(Millar n.d.)

According to **Millar**, the most important issue to take from her review is that student engagement is not the sole responsibility of the student. It should not be seen in isolation and is not influenced just by motivation, workload and other activities. For effective engagement staff, students and context need to work together, and it may help to develop strategies that support interaction that encourages the positive dialogues that student want (**Millar 2005**).

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[10] Challenging Perspectives on Assessment website: http://stadium.open.ac.uk/perspectives/assessment/

4.   Limitations and Recommendations

4.1   Limitations of the Review

Due to limited resources and time only an electronic search was carried out. A possible consequence of this is that the number of publications identified in the search may not reflect the range of relevant published and non-published literature that exists.

In addition, the selection and categorisation of the retrieved literature was made independently from the University. Consequently, given the practical nature of the review, some of the collected publications may not meet the needs of the target audience.

4.2   Recommendations

This is the second draft of the Review of Formative Assessment. It is recommended that following dissemination to the Pedagogic Research Group, to other members of the CETL and to other departments of the university, the review should undergo regular feedback and consultation with a scope for continual amendments and improvements.

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* Not included in the Resource Library

Appendix A. Summary of Search Literature

	Author(s)	Title	Journal/Source	Year	Focus	Discipline	Country	e-copy
1	Akister	Designing and Using a Patchwork Text To Assess Social Work Students Undertaking a Module in Family Therapy	Innovations in Education and Teaching International	2003	Design, implementation and evaluation of an assessment strategy for formative feedback	Social Work	UK	Yes
2	Black & Wiliam	Assessment and classroom learning	Assessment in Education	1998	Seminal review of the literature on classroom formative assessment	N/A	UK	Yes
3	Black & Wiliam	Inside the Black Box: Raising Standards through Classroom Assessment	Phi Delta Kappan	1998	Summary of "Assessment and Clasroom Learning". Uses the term "Black Box to focus on what really happens in the interaction between teachers and students.	N/A	UK	Yes
4	Bone	Ensuring successful assessment	HEA Academy	1999	Report that provides practical advice and guidance about ensuring successful assessment,	N/A	UK	Yes
5	Bone	The impact of formative assessment on student learning: a law-based study	HEA Academy	2006	Study that explores the different forms of feedback provided to students across law schools	Law	UK	Yes
6	Boud	Sustainable Assessment: rethinking assessment for the learning society	Studies in Continuing Education	2000	Discussion paper on the role of sustainable assessment (involving formative assessment) for promoting lifelong learning	N/A	Australia	Yes
7	Brown et al	Computer-Assisted Assessment in Higher Education. Staff and Educational Development Series	Stylus Publishers Inc.	1999	Book profiling how computer-assisted assessment can help both staff and students. Publication is organized into three main sections: "Pragmatics and Practicalities of CAA," Using CAA for Formative Assessment," and "Learning from Experience"--	N/A	UK	No
8	Buchanan	Using the World Wide Web for Formative Assessment	Journal of Educational Technology Systems	1999	Implementation of computer based system and the WWW for assessment and feedback	Psychology	UK	No
9	Buchanan	The efficacy of a World-Wide Web mediated formative assessment	Journal of Computer Assisted Learning	2000	Studies the effectiveness of a WWW-based formative assessment package	Psychology	UK	Yes
10	Bull & Stephens	The Use of Question Mark Software for Formative and Summative Assessment in Two Universities	Innovations in Education and Training International	1999	Describes two approaches to the implementation and integration of computer- assisted assessment (CAA)	Multiple	UK	Yes

	Author(s)	Title	Journal/Source	Year	Focus	Discipline	Country	e-copy
11	Cassidy	Developing Employability Skills: Peer Assessment in Higher Education	Education & Training	2006	Study that seeks to identify peer assessment as a potential strategy for developing employability skills and aims to examine the process of introducing peer assessment into HE teaching programmes	Applied Social Psychology; Health Psychology	UK	Yes
12	Cooper	Facilitating Learning from Formative Feedback in Level 3 Assessment	Assessment & Evaluation in Higher Education	2000	Action Research project to develop formative elements in assessment practice	Nursing; Health Studies	UK	Yes
13	Crooks	The Validity of Formative Assessment	Conference Paper	2001	Brief overview of some of the key points re formative assessment	N/A	UK	Yes
14	Dancer & Kamvounias	Student Involvement in Assessment: A Project Designed to Assess Class Participation Fairly and Reliably	Assessment & Evaluation in Higher Education	2005	Self and Peer assessment to facilitate class participation	Law	Australia	Yes
15	Deeprose & Armitage	Reports: Giving formative feedback in higher education	Psychology Learning & Teaching	2004	Report on the introduction of a minimal formative assessment measure	Psychology	UK	Yes
16	Denison et al	Good for them or good for us? The role of academic guidance interviews	Medical Education	2006	Describes a system for identifying senior students with difficulties several months before a summative assessment occurs, so that tailored remediation can be introduced.	Medicine	UK	Yes
17	Ghazi & Henshaw L	How to keep student nurses motivated	Nursing Standard	1998	Describes how implementing formative assessment and learning contracts helped to improve students' attendance, performance and presentation	Nursing	UK	Yes
18	Gibbs and Simpson	Conditions under which assessment supports student learning	Learning and Teaching in Higher Education	2004	Summarises the way assessment influences student learning behaviour and learning outcomes.	N/A	UK	Yes
19	Gijbels & Dochy	Students' Assessment Preferences and Approaches to Learning: Can Formative Assessment Make a Difference?	Educational Studies	2006	Gains insight into the relationships between hands-on experiences with formative assessment, students' assessment preferences and their approaches to learning.	Criminology	Belgium	Yes
20	Greer	Does Changing the Method of Assessment of a Module Improve the Performance of a Student?	Assessment & Evaluation in Higher Education	2001	Assesses the impact of changing the mode of in-course assessment on the performance of a student in the end of semester examination.	Accounting	UK	Yes
21	Henley	Use of Web-based formative assessment to support student learning in a metabolism/nutrition unit	European Journal of Dental Education	2003	Development and evaluation of a Web-based formative assessment package	Dentistry	Australia	Yes

	Author(s)	Title	Journal/Source	Year	Focus	Discipline	Country	e-copy
22	Higgins et al	The Conscientious Consumer: reconsidering the role of assessment feedback in student learning	Studies in Higher Education	2002	Reports the initial findings of a 3-year research project investigating the meaning and impact of assessment feedback for students in higher education	Business; Humanities	UK	Yes
23	Hudson & Bristow	Formative assessment can be fun as well as educational	Advances in Physiology Education	2006	Description and evaluation of a formative assessment activity based on the TV game "Who wants to be a millionaire"	Medicine	Australia	Yes
24	Hunt & Pellegrino	Issues, Examples, and Challenges in Formative Assessment	New Directions for Teaching and Learning	2002	Describes two programs of formative assessment - the DIAGNOSER and SMART programs. Suggestions are made concerning the integration of these and similar programs into the educational system	N/A	USA	No
25	Jasper & Fulton	Marking criteria for assessing practice-based portfolios at masters' level	Nurse Education Today	2005	Presents Masters' level marking criteria for portfolios from healthcare disciplines. Strategy can be used by both assessors and students, in formative and summative assessment, to identify student attainments, strengths and weaknesses	Nursing	UK	Yes
26	Juwah et al	Enhancing Student Learning Through Effective Student Feedback	The Higher Education Academy (Generic Centre)	2004	Resource in report format for practitioners wishing to improve their feedback practice to students, or to get new ideas on how to improve their current practice	N/A	UK	Yes
27	Khan et al	Formative Self-Assessment Using Multiple True-False Questions on the Internet: Feedback According to Confidence About Correct Knowledge.	Medical Teacher	2001	Describes a web-based formative assessment system	Medicine	UK	Yes
28	Krasne et al	Differential effects of two types of formative assessment in predicting performance of first-year medical students	Advances in Health Sciences Education	2006	Study that investigates how performance on two different modes of formative assessment relate to each other and to performance on summative assessments in an integrated, medical-school environment.	Medicine	USA	Yes
29	Langendyk	Not knowing that they do not know: Self-assessment accuracy of third-year medical students	Medical Education	2006	Study to evaluate the accuracy of self- and peer-assessment according to academic performance.	Medicine	Australia	Yes
30	MacDonald & Savin-Baden	A Briefing on Assessment in Problem-based Learning	LTSN Generic Centre Assessment Series No 13	2004	Examines some of the main principles of assessment as applied to problem-based learning (PBL).	N/A	UK	Yes

	Author(s)	Title	Journal/Source	Year	Focus	Discipline	Country	e-copy
31	MacLellan	Assessment for Learning: the differing perceptions of tutors and students	Assessment & Evaluation in Higher Education	2001	Describes assessment practices as experienced by tutors and students.	Education	UK	Yes
32	Millar	Engaging Students with Assessment Feedback: What Works?	FDTL5 Project	2005	This literature review is the first step in the FDTL engaging students with feedback project	N/A	UK	Yes
33	Nicol & Macfarlane-Dick	Formative Assessment and Self-Regulated Learning: A Model and Seven Principles of Good Feedback Practice	Studies in Higher Education	2006	Discussion paper on research underpinning practice. Also briefly describes examples of easy-to-implement feedback strategies	N/A	UK	Yes
34	Olson & McDonald	Influence of online formative assessment upon student learning in biomedical science courses	Journal of Dental Education	2004	Study examining influence of formative assessment in promoting student learning	Dentistry	USA	Yes
35	Orsmond et al	The Use of Exemplars and Formative Feedback when using Student Derived Marking Criteria in Peer and Self-Assessment	Assessment & Evaluation in Higher Education	2002	Examines a method of self and peer assessment	Environmental Sciences; Applied Biology	UK	Yes
36	Orsmond et al	Implementation of a Formative Assessment Model Incorporating Peer and Self-Assessment	Innovations in Education and Teaching International	2004	Describes the implementation and evaluation of a method of self and peer assessment	Biology	UK	Yes
37	Peat & Franklin	Supporting student learning: The use of computer-based formative assessment modules	British Journal of Educational Technology	2002	Describes the development of and presents evaluation results from a variety of online computer-based assessment opportunities, both formative and summative	Biology	Australia	Yes
38	Prins et al	Formative Peer Assessment in a CSCL Environment: A Case Study	Assessment & Evaluation in Higher Education	2005	A case study to gain more insight into the possibilities of qualitative formative peer assessment in a computer supported collaborative learning (CSCL) environment.	Multiple	Holland	Yes
39	Rushton	Formative assessment: a key to deep learning?	Medical Teacher	2005	Discussion paper evaluating the pedagogical implications of formative assessment to deep learning.	N/A	UK	Yes
40	Taras	Using Assessment for Learning and Learning from Assessment.	Assessment & Evaluation in Higher Education	2002	Discussion paper giving an overview of current thinking on student learning and formative assessment. Offers a framework of self-assessment	N/A	UK	Yes
41	Taras	Assessment – Summative and Formative – some theoretical reflections'	British Journal of Educational Studies	2005	Argues that all assessment begins with summative assessment (which is a judgement) and that formative assessment is in fact summative assessment plus feedback which is used by the learner.	N/A	UK	Yes

	Author(s)	Title	Journal/Source	Year	Focus	Discipline	Country	e-copy
42	Topping et al	Formative Peer Assessment of Academic Writing between Postgraduate Students	Assessment & Evaluation in Higher Education	2000	Study of qualitative peer assessment of academic writing	Educational Psychology	UK	Yes
43	van den Berg et al	Student Peer Assessment in Higher Education: Analysis of Written and Oral Peer Feedback	Teaching in Higher Education	2006	Describes and evaluates 7 different designs of peer assessment	History	Holland	Yes
44	Yorke	Formative Assessment and its Relevance to Retention	Higher Education Research & Development	2001	Discussion paper on formative assessment in HE. Emphasis on student development and retention	N/A	UK	Yes
45	Yorke	Formative Assessment in Higher Education: Moves towards Theory and the Enhancement of Pedagogic Practice	Higher Education	2003	Discussion paper on formative assessment in HE. Emphasis on research, and development of pedagogic practice	N/A	UK	Yes
46	Yorke	Formative Assessment in Higher Education: Its Significance for Employability, and Steps Towards Its Enhancement	Tertiary Education and Management	2005	Discussion paper on formative assessment in H.E. Emphasis on the importance of formative assessment to employability and potential for action at the institutional, the departmental, and the individual levels	N/A	UK	Yes

Appendix B. Assignment Guidelines for Patchwork Test (reproduced from Akister 2003)

Assignment guidelines

Either by an essay assignment or a patchwork text analyse a family systemically and consider how work with them might progress.

Proposed Tasks for Patchwork Text:

Your assignment for the module will be assembled gradually during the progress of the module through a series of written tasks, which you will share with each other in small groups. There are several reasons for this:

- to avoid the last minute rush of having to write the whole assignment at the end of the teaching, when time is short;
- to enable you to use a variety of different ways of writing, and thus to increase your opportunity to demonstrate your own particular abilities;
- to enable you to give each other early constructive feedback as to how clearly you have presented your ideas and how they might perhaps be developed.

Before you submit your assignment, you will be asked to write a final piece, to be added to what you have written already. This is designed to give you the opportunity to revisit (edit and revise) the ideas you have presented in your earlier pieces and to discuss what you have gained from the work as a whole. (This is the only task that will need to be completed after the end of the teaching.)

1. Discuss the advantages and disadvantages of all family members attending the first interview referring to at least one key text (250 words).

2. Write an appraisal of the family's life-cycle stage (150 words).

3. With reference to one model of family therapy, what information would you need to gather to construct an assessment of a family's functioning (500 words)?]

4. Design a task which could be given to the family. How might this task impact on the family system? (150 words).

5. Write a letter from one family member to an 'agony aunt' (250 words).

6. (Final synthesis) Using at least three of these pieces, write a retrospective summary of what you have learned about working systemically with families.