Online Tutoring e-Book

Editor Carol Higgison

Chapter 4

New Assessment Methods

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Preface

Assessment and feedback are integral to the learning process and have a significant impact on what students learn and how effectively they learn.

One of the key questions addressed at the OTiS e-Workshop[1] was 'what opportunities and challenges does online learning offer for new methods of assessment and feedback that engage and motivate students, and foster deep learning?'

The chapter was written by Mhairi McAlpine, a researcher with the Scottish Computer-Assisted Assessment Network project (SCAAN, http://www.scaan.ac.uk) with additional material by Carol Higgison. It presents some examples of current practice in assessing online learning drawn from the OTiS e-Workshop case studies and discussions.

The success of the e-workshop was due to the interest and enthusiasm of the participants and their generosity and willingness to share their experiences and expertise. We hope that the participants in the e-workshop agree that they became part of an active and supportive online learning community.

My sincere thanks to all the participants and, in particular, Mhairi McAlpine, a colleague and friend at Heriot-Watt University who gave freely of her expertise and time.

Carol Higgison
(editor)

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[1] The OTiS International e-Workshop on Developing Online Tutoring Skills was held between 8–12 May 2000. It was organised by Heriot-Watt University, Edinburgh and The Robert Gordon University, Aberdeen, UK.

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Mhairi McAlpine and Carol Higgison

1. Introduction

> "Good assessment of students' knowledge, skills and abilities is absolutely crucial to the process of learning." (Brown, 1999)

Assessment and feedback are integral to the learning process and, as Erwin and Knight (1995) note, they have a significant impact on what students learn:

> "If all other elements of the course point in one direction and the assessment arrangements in another, then the assessment arrangements are likely to have the greatest influence on the understood curriculum." (Erwin and Knight, 1995)

Therefore, if, as Gibb (1999) asserts, "assessment is the most powerful lever teachers have to influence the way students respond to courses and behave as learners" then it is crucial that we use appropriate and effective methods of assessment to ensure effective learning:

> "assessment methods and requirements probably have a greater influence on how and what students learn than any other single factor." (Boud, 1988)

Online environments offer new ways of learning (Chapter 1), make new demands on the tutors' knowledge and skills (Chapter 2) and they offer us the opportunity to develop new methods of assessment that can promote learning that is more effective:

> "The possibility that innovative assessment encourages students to take a deep approach to their learning and foster intrinsic interest in their studies is widely welcomed." (McDowell, 1996)

The OTiS e-Workshop brought together experienced online tutors to share their experiences and reflect on their practice. It has produced a rich and detailed picture of how tutors have adapted and changed their strategies and methods of assessing students' learning online, and provided appropriate, effective and timely feedback.

Although we draw primarily on contributions to the OTiS e-Workshop we have also drawn on materials from UK projects on computer-assisted assessment and some published literature to set the context. In particular we refer to materials published by the Scottish Computer-Assisted Assessment Network (SCAAN http://www.scaan.ac.uk) and by the UK Computer Assisted Assessment Centre (http://www.caacentre.ac.uk).

The first part of this chapter, *Assessment Issues* (sections 2 and 3), sets the background for online assessment and feedback, and provides pointers to resources on computer-assisted assessment.

The second part of this chapter, *Assessment in Practice* (sections 4-7), describes current innovative practice in assessment which exploits the potential for collaborative learning offered by the online environment. It is divided into four sections: Relationships, Quality Evaluation, Aspects of Development and Format and Structure of Assessment, based on the content of the case study reports and the discussion.

References given without dates are references to conference case study contributions. The letter 'D' designates conference discussion group contributions, which are dated. Details are given in Appendix A.

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Assessment Issues

This part of 'New Assessment Strategies' examines some of the issues that must be considered when exploiting the potential for new methods of assessment offered by the online environment. It is divided into two sections: Assessment and Feedback, and Planning for Assessment.

2 Assessment and Feedback

Assessment plays a key role in influencing how students learn in traditional and online settings. In considering new methods of assessment and feedback for new learning environments there are two questions we need to ask:

1. **Is what we are doing really different?**

   > "I think what we need to do is to decide first to what extent these new online courses are revolutionary in pedagogy. How different are these courses from f to f [*face-to-face*] pbl [*problem based learning*] or project courses? Does the technology really make a difference, and where, exactly? Maybe the lessons for assessment have already been learnt?" (Macdonald-D 2000b)

2. **How does technology allow us to rethink what we are doing in?**

   > "The big question though is: How can we rethink what we already know about assessment to see how new technologies allow us new ways of doing things?" (Spratt-D 2000a)

As Finkelstein suggests, technology can also influence the way students learn and we need to take account of this in our assessment strategy:

> "The course I taught was in the area of cultural studies, cultural and personal identity. I had noticed a tendency of students in my courses to start using the internet as a major research and information source (almost to the exclusion of printed texts at times!)…
>
> "…So in response to that, it seemed to me that an assessment strategy was needed to play on this, and turn such activity (which at times was done unreflectively and without consideration of the accuracy, weight or reliability of net resources) into a reflective exercise." (Finkelstein-D 2000c)

Eger and Vacek consider some of these issues in planning their assessment strategy:

> "Web based courses offer the possibility of implementing online tests with online assessment. This feature can be used to advantage not only for the supervision of students' progress, but also for guiding students in how to proceed. If the test shows that the level of knowledge is not sufficient, the student can be directed back to the respective part of the course or the system can offer some additional study materials. To use this feature rationally, we have to develop a methodology of design and various types of tests. In 'soft' sciences, such as economics and management, it is not always easy to design tests based only on yes-no or multiple choice questionnaires, so the involvement of the tutor in the assessment process may be necessary, which implies possible delays in responding. Later on, it may become possible to use expert systems for assessment of solutions of more complicated problems, but at this stage we do not plan their use." (Eger and Vacek)

Online learning environments can also provide transparency in the assessment process:

> "…if we're considering new assessment strategies, then using the transparency offered by online learning environments … is also beneficial if we utilise it in a way that encourages student motivation, learning, best practice and ownership." (Finkelstein-D 2000b)

In designing our assessment strategies to take advantage of new ways of learning we still need to be clear about the basic issues, including:

- who our audience is,
- why we are assessing,
- what we are assessing,
- how we are assessing,
- who is best placed to do the assessing.

3 Planning for Assessment

This section considers the main issues that we need to address when planning new methods of assessment and feedback:

- the audience: assessment as a means of communication,
- the purpose of the assessment,
- what we assess,
- how we carry out the assessment,
- the appropriateness of our approach.

3.1 Assessment as communication

It is important to understand that assessment is a form of communication. This communication can be to a variety of audiences, including:

- the students (feedback on their learning),
- the lecturer (feedback on their teaching),
- the curriculum designer (feedback on the curriculum),
- administrators (feedback on the use of resources),
- employers (quality of job applicants, results of work-based training).

When designing and selecting assessment methods we need to ensure that the communication is as meaningful, useful and honest as possible.

3.2 The purpose of assessment

We may wish to assess students for a number of reasons that usually fall into one of two main categories (Goodall and Elvidge, 1999):

- assessment for learning (formative),
- assessment for grading (summative).

Both types of assessment can be used to motivate students and lecturers.

3.2.1 Assessment for learning (formative)

Assessment for learning, or **formative assessment,** is designed to assist the learning process by providing feedback to the learner which can be used to highlight areas for further study and improve performance.

> "Online quizzes are provided for the student to check his/her progress in understanding the subject. Sample documents can be uploaded for practice." (McFarlane)

As Glasson notes, the focus in formative assessment is on **feedback** rather than assessment:

> "The focus was on feedback rather than assessment. Feedback on the student's understanding of the technique … the (technique expert) tutor commented on and coached each participant in turn based on their original (faxed) solution and their contribution to the teleconference discussion

> and took questions. Formal assessment came in later modules where students were expected to apply the technique." (Glasson)

New learning environments offer new opportunities and ways for providing feedback:

> "… the greatest contribution of IT to all this lies in the increased interactivity offered by asynchronous networks, which for distance courses was previously unattainable. Apart from the obvious collaborative work, and possibilities for enhancing feedback, you can submit iterative drafts of assignments, or maybe negotiate assessment criteria." (Macdonald-D 2000c)

Formative assessment is intended to:

- tell students how to improve their performance,
- diagnose a student's strengths and weaknesses,
- predict success in employment,
- predict success in future courses,
- provide feedback to lecturers,
- provide feedback to students,
- provide a profile of what a student has learned.

Formative assessment is often used to prepare for students for summative assessments:

> "Apart from the obvious collaborative work, and possibilities for enhancing feedback, you can submit iterative drafts of assignments, or maybe negotiate assessment criteria." (Macdonald-D 2000c)
>
> "The quiz area was used to facilitate topic study and revision for the final exam." (McFarlane)
>
> "Formative assignments leading to final assessment by portfolio." (Sharpe and Baume)

3.2.2 Assessment for grading (summative)

Assessment for grading, or **summative assessment**, is for external purposes and does not normally provide extensive feedback to the student. It is intended to:

- pass or fail a student,
- grade or rank a student,
- select for future employment,
- select for future courses,
- give credence to a course,
- tell students what they have achieved,
- help the students develop their skills of self-assessment.

3.3 What we assess

What we assess must be valid in that we assess what we teach and what the students learn. As Macdonald notes:

> "How you measure the validity and reliability of your assessment makes vast differences..." (Macdonald-D 2000b).

> ".. if you are intending to train students to learn online, then you have to decide what skills they will need to acquire, and make sure that their development is supported in the assessment. It's no good concentrating on the subject of the course, and forgetting about the process of online learning." (Macdonald-D 2000a)

The assessment should be linked to, and measure, the students' learning measured against the stated aims, objectives and learning outcomes of the 'learning module'. As Gilbert-Hunt and McLaine suggest the methods we choose must be appropriate to the skills, knowledge and abilities the students are learning:

> "Assessment methods are closely linked to the subject objectives and incorporate validation of the individuals' active participation in their own learning and that of their peers. Thus there is a range of assessable components including: a personal learning profile; evidence of online communication with peers; bibliographic file for ten items; Instruction Package for a targeted client readership – overall plan and details of one section; written essay; self-reflective assessment." (Gilbert-Hunt and McLaine)

The types of learning we might wish to assess are summarised in Bloom's Taxonomy of Educational Objectives in Figure 3.1 below.

In developing these types of learning in an online environment perhaps we need to take a more integrated and supportive approach in designing assessment strategies:

> "... activity based assessment, where students have to undertake various online tasks, and reflect on their experiences in written assessments. Or the use of incremental skills development in assessment, where they learn a relatively simple task, reflect on their experiences, and then build on it in a subsequent assessment." (Macdonald-D 2000b)

As Spratt (D 2000a) suggests we need to employ a diverse range of assessments to suit the needs of learners and the discipline, and the assessments should be supportive and promote effective learning:

> "It seems to me that the issues you have been talking around clearly demonstrate a recognition of the need to diversify assessment to suit the discipline area, the course outcomes and the learner's needs. There are other issues related to the broader curriculum too. Too often assessments can become punitive and meaningless..." (Spratt-D 2000a)

Figure 3.1 Bloom's Taxonomy of Educational Objectives

The table is based on the work by Bloom and Krathwohl (1956).

Competence	Skills demonstrated
Knowledge	• Recall of information, • Knowledge of facts, dates, events, places, • **Question words**: list, define, label, describe, and name.
Comprehension	• Interpretation of information in one's own words, • Grasping meaning, • **Question words**: interpret, discuss, predict, summarise, and classify.
Application	• Application of methods, theories, concepts to new situations, • **Question words**: apply, demonstrate, show, and relate.
Analysis	• Identification of patterns, • Recognition of components and their relationships, • **Question words**: analyse, arrange, order, explain, connect, infer, compare, and categorise.
Synthesis	• Generalise from given knowledge, • Use old ideas to create new ones, • Organise and relate knowledge from several areas, • Draw conclusions, predict, • **Question words**: integrate, modify, invent, design, compose, plan, formulate, and arrange.
Evaluation	• Make judgments, • Assess value of ideas, theories, • Compare and discriminate between ideas, • Evaluate data, • **Question words**: appraise, judge, evaluate, defend, rank, conclude, discriminate, and recommend.

3.4 How we assess and who assesses

In designing assessments three main issues we need to consider:

- how we are going to approach the assessment,
- our choice of assessment methods,
- who should carry out the assessment.

Approaches to assessment include self-assessment, peer-assessment, group-based or collaborative assessment, negotiated assessment such as learning contracts, computer-assisted assessment and workplace-based assessment. The majority of OTiS examples and discussions refer to online learning mediated by asynchronous, text based methods with some use of synchronous, text based techniques. They focus on online assessment methods mediated by tutors and peers rather than computer-assisted assessment.

There exists a wide range of assessment methods for each of the approaches outline above. The majority of the OTiS exemplars focus on assessment methods that facilitate assessing the skills developed by active, reflective, constructivist and collaborative learning.

Traditionally the teacher or tutor has undertaken assessment. Other options include external agencies, the students themselves, employers, managers or customers/clients. The OTiS case studies document many examples of assessment by self, peers and tutor, as for example in Juwah's *Developing Effective Online Tutoring:*

> "Assessment is on a continuous basis and undertaken by a combination of self, peer and tutor assessment." (Juwah)

Most of the case studies describe multifaceted approaches to assessment and use "a rich mix of group and individual assessment methods" (Phillips).

> "Students were assessed in three ways, all of which took place within FirstClass: conferences, journals and a group project." (Gwynne and Chester)

> "Online discussion was then utilised as the basis for group and individual assignments that were sent online to communal 'assignment spaces'. Feedback and marks were relayed back in similar transparent manner. A final exam taken in traditional university spaces and forms completed the assessment pattern." (Finkelstein)

> "Each course has its own assessment process which can include short individual article analysis, online group collaboration and online presentation of the group efforts, online brainstorming, group collaborative full papers, and individual full papers. All assessment is tutor-marked." (Janes)

3.4.1 Self-assessment

Self-assessment involves the students in the process of assessing their own learning and performance. It can help move them towards becoming more reflective, autonomous and effective learners.

> "Face-to-face feedback sessions were held after the videoconferences which were videotaped. The students were asked to write a short report in which they would analyze the conference and their own performances. They were also asked to suggest what they would do differently in the following conference." (Tammelin)

> "At the end of the course, students were asked to assess and rate their success in the course, and they were instructed to give a grade for themselves for the course. They were coerced to think hard on their learning process in the course, and they became very critical about their own work. Giving ownership of their own learning experience (using the aid of web-based technologies) made them more aware of pedagogic impact of their course to their teaching profession in general." (Mohamad)

The Self-assessment in Professional Higher Education[2] (SAPHE) project has produced guidelines on self-assessment for both students and staff available from their web site at http://www.bris.ac.uk/education/saphe/default.htm.

- The 'Student Guide to Self Evaluation and Learning in Higher Education' by Karen Hinett is available online at http://www.bris.ac.uk/education/saphe/studentg.htm.
- The 'Staff Guide to Self and Peer Assessment' by Karen Hinett and Judith Thomas is available online at http://www.bris.ac.uk/education/saphe/staffg.htm.

3.4.2 Peer assessment

Peer assessment involves students assessing each other and providing feedback and opportunities.

> "I have increased the expectations for both students and myself by adding assignments, which require students to upload lesson plan files for peer review on the web site." (Hird)

Peer assessment can be combined with other approaches such as group/collaborative assessment, but like self-assessment, this approach is most often employed in formative approaches to assessment:

> "The self and peer assessment elements were formative, with the tutor's assessment being summative." (Juwah)

See also resources under self-assessment.

3.4.3 Collaborative or group-based assessment

In collaborative or group-based assessment small, interdependent groups of students work together as a team to help each other learn – the group members are dependent on each other.

> "Co-operative assignments were structured to meet the following prerequisites for effective co-operative learning (Johnson and Johnson, 1991):
>
> - a mutual goal,
> - positive interdependence, and
> - individual accountability." (Clarke)

The online environment is particularly appropriate for collaborative learning approaches that emphasise group interaction. However it can be difficult for students to adapt to this

[2] The SAPHE project was developed by the University of Bristol in collaboration with University of Bath, Southampton Institute and the University of the West of England. Details available online at http://www.bris.ac.uk/education/saphe/default.htm (accessed 20 Feb 2001).

way of working and the assessments need to be structured to allow them to develop the necessary skills:

> "…students are introduced to online collaboration in a two step process. Reflection encouraged in the first assignment is used as preparation for the next collaborative assignment." (Macdonald)

> "One assignment involved the tutorial group splitting into two subgroups and creating two web sites. This allowed the students to work in a small group on a defined project and to experience the 'forming, storming...' etc. processes, discussed in a previous tutorial activity, for themselves." (Morrison)

The case studies raise some of the problems that can be encountered in implementing collaborative assessment including resistance from students and high levels of anxiety:

> "There was major resistance to assessing online team working capability, but in fact, the concept provided a much-needed incentive to participation." (McKenzie)

> "Genuine collaboration is in very sharp contrast to the competitive ranking that students know well by the time they reach college. I find that I need to provide a tremendous amount of assurance to students that they do not have to get it 'right' the first time and that they will not slip off the honours list as the result of taking an online course." (Hird)

Only when students are confident in this new learning environment and with this new way of working should more demanding assessments be introduced:

> "Once the groups had a reasonable expectation of performing as virtual teams, later modules assessed the quality of collaborative online working through a subject tutor allocation of marks for quality, quantity and timeliness of the contribution." (McKenzie)

Group-based and collaborative approach can be combined with self and peer assessment but marking and feedback issues are often seen as barriers:

> "… there is the issue of how to issue assessment and feedback that takes into account whether you're working with large or small groups. For example, do we issue group assignments, or insist on individual assessment. Group work versus individual assignments can be tricky, particularly if you have groups with poor interpersonal dynamics (or non-contributors). At the same time, group work to me is important if we're arguing for courses and modules that address, reflect on and prepare students for how 'the real world' can operate – which can very often be team driven and dependent on group contribution and effort." (Finkelstein-D 2000a)

Finkelstein suggests one approach to group feedback and assessment:

> "… assessing it involved an explicit promise to return feedback in two forms: 1) a printed version of their assignment with comments on the side and a grade, for viewing privately by the group; and 2) an electronic statement of a paragraph of detailed commentary and a grade, which was posted online in a public space, and was meant to allow transparency and student awareness. Once again, it was important here because it allowed students to compare and contrast work and see for themselves what did well and what did not, offering students instant best practice. Result: a competitive edge among students to do better next time, particularly in light of the public forum their work was entered into. And interestingly

> enough, students did comment on other work, both positive and negative, in their online tutorial spaces, showing that they were actively visiting, reflecting, gauging, comparing and learning. Very gratifying for both tutors and students when groups did get it right and we were able to offer high marks and strong praise." (Finkelstein-D 2000b)

The online environment can enable collaborative approaches to assessment and provide new opportunities for feedback. However, these types of assessment need to be introduced with care and consideration, ensuring that the students can develop the necessary pre-requisite skills and confidence before being summatively assessed.

3.4.4 Computer-assisted assessment (CAA)

Computer-assisted assessment involves the use of computers in the assessment of student learning. Currently the most common application of CAA is for Multiple Choice Questions (MCQs) that can be automatically marked. However, CAA is becoming more sophisticated. It can:

- **provide the ability to include a wide range of media, catering for different learning styles (Chapter 1).**

  > "In addition an interactive tutorial was written for each topic within the course and short formative tests, (comprising multiple choice, multiple response, fill in the blanks and diagrammatic hotspot questions) for each topic were set." (Saunders)

  > "A small number of current tools attempt to measure higher order skills. For example, some packages assign marks to essay-style questions 'based on key words, phrases and statements recognised as forming part of an acceptable answer' (Bocij & Greasley, 1999). Some tools do not attempt to mark the students work, but provide tools to help the student develop assessment items such as portfolios (Kjollerstrom & Martensson, 1999). In the future, multimedia assessment promises to be more practical, authentic and challenging than traditional 'pen and paper' tests (Herrington & Herrington, 1998). Other innovative forms of assessment such as a summary of statistics of learners' paths through multimedia programs may also be developed (Herrington & Herrington, 1998)." (Salter-D 2000)

- **provide easier management, administration and reporting of the assessment feedback and results.**

  > "Randomisation of question presentation can reduce cheating. A host of statistics, such as date, time, number of attempts made, time taken, score etc can be recorded for each item. Some systems can automatically perform useful analyses such as an item analysis of the test." (Salter-D 2000)

- **provide immediate feedback to students that can be tailored to meet their individual needs, eg incorporating hints and tips, and suggesting appropriate follow-on learning activities.**

  > "…the feedback for objective, formative assessment consists of immediate feedback on the score for individual questions plus other static, textual or graphical advice, eg the worked example." (Nightingale-D 2000)

  > "Students appreciate the immediate feedback provided. They may be allowed multiple attempts at a test, possible until a mastery level has been

> reached. After completion students may be able to review the test in their own time to see where they made errors." (Salter-D 2000)

Student Perceptions

Salter (D 2000) reported that students can perceive CAA as more accurate and objective than traditional forms of assessment although Nightingale (D 2000) suggests that this trust needs to be nurtured:

> "A study by Bocij & Greasley (1999) found that students generally perceived computer-based testing to be more accurate and objective. A majority felt that their performance was equal or superior to that in a traditional exam. An interesting finding was that 'students felt more comfortable and relaxed in the laboratory – as opposed to an examination hall'." (Salter-D 2000)

> "It goes without saying that the assessment engine needs to be absolutely reliable but students need to trust and understand the basis of the judgement [*and hence feedback*], eg how the assessment engine deals with rounding errors, spelling mistakes, etc. Many of my responses to students are concerned with these issues." (Nightingale-D 2000)

As Nightingale (D 2000) points out, CAA does not provide all the answers and the human touch is still needed:

> A student needs to know if their answer is wrong and why it's wrong. The latter is much more difficult to personalise. There is a trade-off between appropriate, automated feedback versus the time constraints on tutors." (Nightingale-D 2000)

Tutor Perceptions

CAA can be perceived to be all advantages, particularly for the tutor as Salter (D 2000) comments:

> "One of the least favourite tasks of teachers is marking. Online tests promise to reduce this burden." (Salter-D 2000)

We must ensure that we do not use CAA excessively or in inappropriate ways:

> "The ease with which online tests can be delivered and marked may result in inappropriate and excessive use. Most of the current online assessment tools have facilities for delivering multiple-choice, true-false and short answer style questions. These generally deal with lower order cognitive skills, such as recall of facts, rather than higher order skills, such as analysis, synthesis and evaluation. Many educators take it as a matter of faith that standardised testing procedures are true indicators of learning (Herrington & Herrington, 1998). A hasty implementation of online assessment may not only promote surface learning (Littlejohn & Sclater, 1998), but give a distorted and inaccurate picture of student performance (Bocij & Greasley, 1999)." (Salter-D 2000)

A summary of the requirements for CAA systems is outlined in Appendix 4-B.

For further information on CAA visit the Centre for Computer Assisted Assessment web site at http://www.caacentre.ac.uk/. Their publication *Blueprint for Computer Assisted Assessment* (written by Bull and McKenna) provides a comprehensive guide to computer assisted assessment.

The Scottish Computer Assisted Assessment Network reports in detail on the requirements of CAA systems in three UK Higher Education Institutions, available at http://www.scaan.ac.uk/.

3.5 Taking the next step

Online learning environments offer new methods and approaches to assessment which have the potential to motivate students and promote more effective learning. However we need to apply these new assessment strategies with caution.

Currently the assessment of, and feedback on, higher order skills requires human mediations (self, peer or tutor) and as Salter (D 2000) notes, we need to ensure that in our rush to adopt new assessment methods we do not adopt inappropriate forms of assessment:

> "It is pleasing to see how many are advocating assessment methods that (we hope) measure higher-order thinking skills. A number of people have also mentioned automatic marking of assessment. This promises to ease our workload, but may also result in staff using inappropriate forms of assessment for administrative expediency." (Salter-D 2000)

Assessment in Practice describes some current examples of innovations in assessment and feedback.

Assessment in Practice

This part of 'New Assessment Methods' describes current innovative practice in assessment that exploits the potential for collaborative learning offered by the online environment. It is divided into four sections: Relationships, Quality Evaluation, Aspects of Development and the Format and Structure of Assessment, based on the content of the case study reports and the discussion.

4. Relationships

The vast majority of the material that was written, both in the case studies and in the discussion group on assessment, focused on the relationships involved in assessment. These relationships take three forms:

- the relationship of the student with themselves,
- the relationship of the student with other students,
- the relationship of the student with the tutor.

This in itself is interesting as assessment is traditionally seen as an interaction between the student and the institution rather than between individuals.

The emphasis given to self-reflection in assessment would appear far more extensive than is usual. This could be for two reasons. Firstly it may be that the nature of online learning lends itself to self-reflective practice, or secondly, it could reflect the fact that tutors involved in online learning tend to be more exposed to good practice in teaching which emphasises students' awareness of their own learning.

It is notable that peer co-operation and interaction amongst students appears to be high, with one case study commenting on the group ethic that had developed over the course. A number of courses used the assessments as a way of getting students online and to actively encourage interaction. It would appear that although this enforced collaboration and interaction (ie through the online discussions, group work and collaborative learning processes) were not universally popular with the students, they did appreciate the benefits.

The students' relationships with the tutors seem to be characterised by a more equal status than might be expected in traditional teaching. This might be related to the lack of indicative status symbols, found in traditional spaces, or by the lecturers' active encouragement of a more equal relationship. Feedback was an area that seemed to be particularly highlighted in the case study reports, suggesting that tutors were actively considering what kinds of responses they were giving to their students. Aspects of the feedback that were frequently mentioned were the speed of response, the consistency of the assessment and the supportive nature of the communication.

4.1 Reflection – relationships with self

4.1.1 Reflective Journals

There were a number of references to reflective journals in evidence, more than might perhaps be found in a survey of traditional courses. In Nurmela's *Online training for online tutors* a reflective journal is kept throughout the course:

> "During the first week participants presented themselves and described their expectations with a given peer participant. This was a start for serious reflection that continued during the whole course. Participants

> were also asked to write their thoughts and reflections that arose during the course (a personal reflective log).” (Nurmela)

In Cowan’s *Personal development planning*, a major part of the assessment is conducted through a reflective journal. The format of this is described below:

> “The student writes a reflective journal in which s/he addresses a question for which they don't currently have an answer, which they judge to be relevant to the learning in the course and for which an answer or part answer would be useful. They try to obtain an answer.
>
> “The journal is sent as an attachment to the tutor with a covering note if the student so wishes; most do.
>
> “The tutor emphasises with the entry, asking questions where the student's thinking is not clear or when information is missing; suggesting questions (but not answers) which the student might usefully pose to herself or himself; identifying strong feelings within the text; pointing out if the journal is not reflective, and suggesting how it might be made more so. The commenting tutor strenuously avoids the use of the first person singular lest the student is tempted to make the journal a piece of correspondence with the tutor. We feel that if there is dialogue, then it should be of writer with self. Comments are all added as footnotes.
>
> “The journal with comments is returned to the student. The tutor usually writes a cover note which is personal.” (Cowan)

The use of journal based assessment is also in evidence in Gwynne and Chester’s *Personal identity and community in cyberspace: an evaluation of teaching and learning online*, where students are first asked to comment on the name that they have chosen to represent their online persona:

> “The students' first task in the subject was to write a journal entry about their choice of alias. … Although some students reported that they didn’t give much consideration to the alias they chose, as the semester progressed, they were challenged to see that names they adopted nonetheless provided powerful cues for the impressions that other students formed.” (Gwynne and Chester)

As well as emphasising the need for self-reflection, this extract also gives some insight into the ways in which relationships are formed in online learning communities. There is restricted and mainly intentional interaction, as opposed to the complex interplay of exchange that occurs in an offline context (such as body language, dress, touch or annoying habits), which forms the basis for future interaction. This may hamper integration and relationship forming, as participants are basing their interactions with others on such a limited (and often misleading) set of cues; however in other contexts it might appear that this restricted interaction is beneficial.

There is some evidence that the difficulties associated with journal writing are not so much in evidence in an online context: it may well be that the impersonal nature of the medium makes the students more relaxed and less self-conscious than might be the case where more immediate contact was expected. Where face-to-face contact is the norm, it may well be that the students are writing with a view to how the reader will deconstruct the text. However, where online contact is more prevalent, it would seem that the tutor is seen in a more objective role, perhaps because a more strictly defined relationship has been formed:

> “The normal barriers to commenting on journals, of which Moon makes a fair amount of mention seemed to be much less concern to these students, who saw the commentator as even more detached and impersonal, in the sense of being intimate with highly personal thoughts recorded by the

> journal writer. So it was the opposite of a barrier, rather an advantage, upon which we built and continue to do so." (Cowan)

The use of reflective journals is in evidence in other case studies (White and Moussou, Mohamad, Nurmela, and Daele). In these studies the journal is not part of the formal assessment process but rather is used informally to encourage students to develop their skills in self-reflection, and self and peer assessment.

4.1.2 Self-assessment

Self-assessment emerged as a popular strategy in online learning, particularly in postgraduate and professional development courses:

> "Participants …were encouraged to reflect on their existing practice and seek guidance when they perceived a weakness. Staff …were taught the specific skills they identified they needed." (Newby-Fraser and Clayton)

Self-assessment is frequently used for formative assessment of students, as for example in Gilbert-Hunt and McLaine's *Critical thinking and learning in Health Science*:

> "By providing enough instruction to walk students through everything they needed to do, an even playing field was provided for the whole group. Those who were already competent could skip these aspects of instruction." (Gilbert-Hunt and McLaine)

Self-assessment mechanisms are frequently used in distance education to enable the students to monitor and gain feedback on their own progress, as for example in Higgison, Haragus, Scheuerman *et al,* and Kennedy and Duffy. Online learning offers the opportunity to make these self-assessment mechanisms more interactive and responsive to individual students' needs:

> "In addition an interactive tutorial was written for each topic within the course and short formative tests, (comprising multiple choice, multiple response, fill in the blanks and diagrammatic hotspot questions) for each topic were set." (Saunders)

Students are also asked to revise their material in the light of tutor feedback or discussion. The self-assessment involves the student deciding which feedback is valid and should be followed and which is not:

> "The transition from discussion to test completion was deliberate because each test increasingly asked students to reflect upon their contributions to discussions and to return to the discussion area to develop and refine points they had made." (Gwynne and Chester)

This continuous, formative self-assessment process might be encouraged partly because the technological context of the learning means that it is possible for students to revise their assignment easily. Changes and revision are more difficult to request when assignments are hand-written. However, this process might also reflect the increased responsibility that students have for their learning in an online context. The lack of formal structures, such as lectures and tutorial spaces may increase the focus on the learning activity itself rather than the formal structures surrounding it. It may also be the case that tutors who have become involved in online learning tend to be innovators within education, and as such are more aware of modern assessment theory than the majority of lecturers.

4.1.3 Self-reflection

Self-reflection features in a number of the case studies, with different projects requiring reflective practice at different points in the learning process, and it is often a prerequisite of self-assessment.

In Rosie and Thompson's *Using TOPCLASS to promote student learning*, the reflective process is incorporated from the start, with students required to make explicit their demands for the course, and staff producing the expected aims, so that each could be continually compared as the teaching commenced.

> "Students were explicitly asked to consider their personal learning outcomes and to see the course as a vehicle for meeting such outcomes. As part of this development the course tutor made the learning and teaching aims explicit for students and tutors." (Rosie and Thompson)

In Gwynne and Chester's *Personal identity and community in cyberspace: an evaluation of teaching and learning online*, reflection is introduced through the creation of an online persona, and students are requested to consider their 'online student identity' and become active participants in the creation of that identity.

In Bailey's *Experiences of running online learning sets* the postgraduate course consists of three modules, two of which are based on reflective practice.

Sometimes the reflective practice is built into the assessment itself as in Gilbert-Hunt and McLaine's *Critical thinking and learning in Health Science*:

> "Throughout the subject it was important to make the learning strategies explicit for the student, this was achieved by providing reflective activities, which contributed to set assignments." (Gilbert-Hunt and McLaine)

This approach requires students to use their own experiences to comment on material. This type of reflection makes explicit a constructivist view of learning, where learning is seen as being the product of repeated accommodation and integration of new knowledge and experience to construct a coherent body of learning through the refinement of, and reflection on, the learner's current awareness. This type of assessment integrates this model of learning into the assessment process:

> "In week 6 of this 12 week course the tutor introduced the first in series of 'tests'… It gave students an opportunity to comment on the extracts and to relate them to their own experience." (Rosie and Thompson)

Group work was a strong feature of these case studies, as a following section goes on to demonstrate. Reflective practice was also encouraged in group work activities in a number of the projects. From the case studies, it would appear that this was a helpful practice in encouraging students to understand the difficulties that they were facing – some of which would be general group work difficulties, while others would be more specific to online learning:

> "Teams of students were expected to submit weekly progress reports about their project, highlighting achievements and barriers to progress. This served the purpose of keeping students on track, but also let students understand that others were facing similar difficulties, and led to sometimes deep discussion about project management issues." (Phillips)

> "For THD 204, an early conferencing assignment was modified to encourage reflection on group management... A similar opportunity is offered in T171, where students are introduced to online collaboration in a

two step process. Reflection encouraged in the first assignment is used as preparation for the next collaborative assignment.

> "Integration of the practice of online group participation with reflection is also a feature in the course B823... Part of the assessment requires them to critically reflect on the experience of working in a newly formed internet team, including both social and technological aspects." (Macdonald)

And self-reflection can be incorporated at the end of a course:

> "An integral component of the subject was the inclusion of a student self-reflective assignment, which consisted of a questionnaire covering each of the four modules." (Gilbert-Hunt and McLaine)

It may well be that this emphasis on reflective practice is a reaction to the difficulties that the tutors are observing in online learners. For most of the students this may well be their first experience of online communication, thus the lecturers have the dual role of trying to teach the subject of study, but also to teach the practice of online learning. One possibility, which would require further consideration, may be that the tutors, through reflective practice are trying to assess how successful they have been in communicating the practice of online learning. This would suggest that reflective practice might be a lesser feature of online courses as student experience of online communication becomes more commonplace.

4.2 Collaboration – relationships with peers

Online learning supports collaborative approaches to learning and assessment that involve students relating to each other as well as to the course content and the tutors.

4.2.1 Nature of peer co-operation

It is notable that peer co-operation appears to be quite high, despite the restricted contact that individuals have with each other. In Anderson and Simpson's P*rogramme-wide online group interaction: developing a social infrastructure,* the strong group ethic is commented on:

> "A strong ethic of group responsibility was developed – most online tasks were group tasks that required each person to undertake some part of a task that groups had to report on. A variety of tasks were developed." (Anderson and Simpson)

While in Finkelstein's *Utilising online learning in a humanities context* it is noticeable that despite no formal guidelines, group members sometimes voluntarily shared out individual parts of an assignment.

> "Of interest here was the ways different groups co-operated in writing their assignments. For example, some broke the assignment down into individual tasks to be collated by the group leader, while the others left the entire task to the individual responsible for that particular task." (Finkelstein)

4.2.2 Student/student interaction

A number of the case studies discussed the need for student interaction to be built into the course and assessment design, in order for students to fully participate in the course.

> "Interaction must be required – build activities into the course material in such a way that the students cannot avoid interacting." (Anderson and Simpson)

> "Participation in certain discussions is required to complete many activities. Some discussions emerge from the students themselves, other discussions are initiated by the tutor, while some are initiated by students at the tutor's request." (Pickering and Duggleby)

An evaluation undertaken by Macdonald in *Integrating online tuition with assessment at the UK Open University* reveals that students appreciated this design, even where there is initial resistance as documented in McKenzie's *Enriching content teaching.*

> "The activity-based structure requires students to learn by undertaking practical activities linked to the assessment. The evaluation revealed …, they appreciated the integration of activities with assessment, because it guaranteed the involvement of all students." (Macdonald)

> "There was major resistance to assessing online team working capability, but in fact, the concept provided a much-needed incentive to participation." (McKenzie)

Where in a traditional course students may become integrated into a learning group merely by their physical presence and non-study related interaction, in an online course this is more difficult. Shy students may find themselves marginalised as the group gains cohesion, with little opportunity to interact. Linking interaction with assessment encourages students to overcome those barriers at the start.

The manner that Janes, in *Teaching online in a post-graduate certificate in technology based distributed education,* has started student interaction through the posting of biographies is an interesting technique, as much initial interaction in an offline course consists of essentially verbal biography and non-course related discussion. This is accompanied by a short informal assessment, where students are invited to discuss each other's postings.

> "Over the thirteen weeks of the course, the students engaged in a number of activities designed to increase their interaction with each other. The initial interaction was comprised of introductions and the voluntary posting of both formal and informal biographies. In addition, students were asked begin the course by submitting three short individual analyses of written work…papers, which discussed social issues and technology based learning and were looked at in light of frameworks provided in the readings." (Janes)

This approach is used in many of the other studies as for example Morrison's *T171: The pilot year experience:*

> "The discussion of the tutor group activities also formed part of the first two assignments, which encouraged participation. The aim of the first tutor group activity was to provide an opportunity:
>
> - for the group to get to know each other (by sharing a little bit about themselves),

- for individual students to make the first step towards group collaboration…" (Morrison)

Macdonald makes the point that the students' interaction itself can be assessed with students being rewarded for interaction, regardless of content. This use of assessment appears unusual, but is in fact is quite similar to giving marks for good essay grammar and punctuation, including in public examinations such as GCSE, or deducting marks on a sliding scale for late submission. All of these examples are designed to produce 'good habits' on the part of the student, although they can be perceived as 'unfair', or 'easy' marks, particularly in high stakes examinations, or with less mature audiences. It may be desirable to explain carefully why these marks are being awarded and have only a small number allocated for this purpose:

> "Other courses have focused on online activities at certain points dictated by the assessment and the following illustrates the variety of tasks which students may be required to undertake. At the most basic level, students may be encouraged to participate in online conferencing simply by awarding marks for a message input into the system, and this is employed for the first assignment in THD204, in order to ensure that all students get online at an early stage in the course.
>
> "Of course, this is not guarantee that the message submitted will contain information of relevant academic content, or contribute in any way to student learning, and other assessment devices may encourage more meaningful participation…. Marks are awarded for submitting five messages contributed to the group, each supported by another message to illustrate their ability to interact and build on other contributions." (Macdonald)

4.2.3 Group work

Group work was a very popular form of working in a great many of the case studies. Despite, or perhaps because of, the physical isolation, students seemed to have more study-related contact with their peers than might be expected in a traditional course. A number of the case studies detailed how they were implementing and assessing group work within their own context:

> "Students were assigned into groups of between five and eight members…Online discussion was then utilised as the basis for group and individual assignments that were sent online to communal 'assignment spaces'. Feedback and marks were relayed back in similar transparent manner … Every two or three weeks a general assignment was expected from each group... We expected assignment work to develop from online mutual discussions, from which the tutorial groups were expected to draw upon when writing up group assignments. When groups were satisfied with what had been written, the nominated group leader for that assignment was required to post up into a common assessment space accessible to all students. All tutorial work was assessed by individual tutorial leaders and the marks subsequently moderated by the cultural studies team. Feedback and marks were then returned electronically by tutors to online group spaces in a manner meant to offer transparency, clarity and assessment best practice. Students thus could view, compare and learn from other group submissions." (Finkelstein)

Often the group activities build on, and extend, individual work of students, leading them slowly into group work:

> "…students were asked to begin the course by submitting three short individual analyses of written work… papers, which discussed social issues and technology based learning and we looked at in the light of frameworks provided in the readings. Concurrently, after the second submission, students were asked to brainstorm the issues they felt needed to be discussed during the course.
>
> "After the brainstorming period, the students were divided randomly first into two groups (A and B) and then into six small subgroups (A1, A2, A3, B1, B2 and B3). Each of the subgroups (with five to six members selected from the Mexican, Canadian and international students) were assigned the task of deciding on what issue, or part of an issue raised by the brainstorm they wanted to research and present. In addition to a formal online presentation, written via consensus in private group forums housed within WebCT, each small group was asked to organise themselves by assigning tasks to members (presenter, moderator and summariser). In addition, each small group was asked to lead a discussion with the main group they belonged to (A or B) on the formal presentation they had written (the stand they had taken on a particular issue) and posted at the opening of the discussion.
>
> Finally, at the end of the term with the formal presentations complete, the students came back together in the larger forum to debrief and discuss their experiences. A final formal paper, submitted by each student, discussed, analysed and reflected on an issue raised by the course and their experiences within the course." (Janes)

Most of the case studies seemed to suggest that this group work had worked successfully with one module explicitly commenting on the group ethics that had developed:

> "A strong ethic of group responsibility was developed – most online tasks were group tasks that required each person to undertake some part of a task that groups had to report on. A variety of tasks were developed." (Anderson and Simpson)

Reflection on the process of working in teams was a feature of some projects, as part of a wider reflective approach. Here the emergence of group identity is explicitly identified and students are asked to evaluate the participation.

> "Teams of students were expected to submit weekly progress reports about their project, highlighting achievements and barriers to progress." (Phillips)
>
> "Integration of the practice of online group participation with reflection is also a feature in the course B823, where students are required to produce a collaborative report which evaluates the communication tools they have been given. Part of the assessment requires them to critically reflect on the experience of working in a newly formed internet team, including both social and technological aspects." (Macdonald)

Some courses also encouraged group work in subtle ways. It is notable that in Ewing's *e-learning is not always easy learning*, initially at least, more emphasis is given over to the method, rather than the content of the submission:

> "The course comprised ten learning units and in all but the last there were associated formatively assessed tasks which required student responses. Students were encouraged (strong positive reinforcement) to work and to respond to these tasks in groups." (Ewing)

> "In the early stages, stronger positive encouragement was given to groups for responding to tasks collectively than to the nature of their suggestions." (Ewing)

4.2.4 Collaborative learning

We can see from the comments in the case studies that many of the assessment tasks develop out of collaborative learning strategies integrated as part of the assessment or employed elsewhere. Finkelstein documents the use of online discussions as the basis for assessment submissions, as does Macdonald:

> "Students were assigned into groups of between five and eight members….Online discussion was then utilised as the basis for group and individual assignments that were sent online to communal 'assignment spaces'. … We expected assignment work to develop from online mutual discussions, from which the tutorial groups were expected to draw upon when writing up group assignments." (Finkelstein)

> "The activity based structure requires students to learn by undertaking practical activities linked to the assessment. They are required to reflect on issues debated online in their assignment essays, and to draw on evidence from messages contributed to online discussions, and other resources, in order to illustrate course issues." (Macdonald)

Macdonald also makes the point that although this type of collaborative learning was not universally popular, students were able to appreciate the benefit of enforced involvement, and hence active engagement with the course. McKenzie confirms the motivational force of assessment:

> "The evaluation revealed that although the emphasis on collaborative learning did not suit all students, they appreciated the integration of activities with assessment, because it guaranteed the involvement of all students." (Macdonald)

> "There was major resistance to assessing online team working capability, but in fact, the concept provided a much-needed incentive to participation." (McKenzie)

Macdonald makes explicit the collaboration through students' reflective assignments:

> "It appears that assignments may be useful as a way of building skills for online collaboration in an integral way, and in raising awareness of potential pitfalls. For THD 204, an early conferencing assignment was modified to encourage reflection on group management, and to produce a strategy for online collaboration, and this had a positive impact on the outcome of collaboration in the later project assignment. A similar opportunity is offered in T171, where students are introduced to online collaboration in a two step process. Reflection encouraged in the first assignment is used as preparation for the next collaborative assignment." (Macdonald)

4.3.5 Online discussions

Online discussions were clearly an important part of many of the case studies involved in this project. Many of the case studies used assessment as a way to encourage students to become involved in the discussion, by using it as a basis for the assignment, either as:

- a reflective device (Rosie and Thompson),

- a resource (Finkelstein),
- an activity in itself (Pickering and Duggleby).

On occasion, assessment could have the opposite effect. In Anderson and Simpson's *Programme-wide online group interaction: developing a social infrastructure*, for example, it was found that when students felt under pressure from assignments, they lessened their participation in the online discussions. A technical solution was found to ensure that the assessment load was spread more evenly thus lessening the risk of "losing" students.

> "When students found that they had a large assignment load they tended to drop out of discussion. The use of the WebCT calendar helped to provide some guidance for staff and students about the overall pattern of assessment requirements." (Anderson and Simpson)

Encouraging participation

Rosie and Thompson, in *Using TOPLESS to promote student learning,* suggest that participation is actively encouraged by tutors ensuring rapid and supportive responses to student contributions, lessening any feelings of isolation, or disengagement with the topic:

> "The key approach was that of rapid and supportive response to student contributions to discussion and letting different threads arrive. This was extended to student tests so that the students realised that they could receive rapid response and have an opportunity to refine their thought through the course." (Rosie and Thompson)

Other case studies suggest a stronger link is needed between participation in online discussions and assessment, specifically by allocating marks to discussion contributions:

> "…recent literature illustrates the fact that it is difficult to ensure participation in online debate, unless students are assessed on their participation…" (Macdonald)

> "Another very important strategy is to allocate marks as an incentive for use. Depending on the assessment mix, an allocation of ten percent is appropriate." (Phillips)

The case studies suggest a range of marks which could be awarded for contributions to online discussion ranging from five percent upwards:

> "Giving a small percentage of subject mark to active participation in the discussion. In total five percent was allocated to this and appropriate tasks set. Students had to evidence their participation in the threaded discussion to receive the percentage mark." (Gilbert-Hunt and McLaine)

> "…ten percent is allocated to contributions for each task" (Street)

> "…twenty percent allocated to online conference contributions." (Creanor)

Anderson and Simpson go so far as to suggest that these marks should be allocated by peer-assessment of the other participants in the group.

> "The assignment was a major part of the assessment for the particular course concerned – forty percent and twelve of the marks for the assignment would be based on participation and contribution to the group. The 'measure' of participation would come from other students in the group who would simply report a 'percentage mark for contribution and

> participation' to the course lecturer for every other member of their group." (Anderson and Simpson)

Perhaps Macdonald however documented the strongest use of assessment in encouraging participation in online discussions where the tutors allocated marks to participation:

- regardless (in the first instance) of the degree of relevance to the subject under discussion,
- as a way of ensuring that all students actively engaged with the environment from the start and gained familiarity with this manner of working.

> "The activity based structure requires students to learn by undertaking practical activities linked to the assessment. They are required to reflect on issues debated online in their assignment essays, and to draw on evidence from messages contributed to online discussions, and other resources, in order to illustrate course issues.
>
> "Other courses have focused on online activities at certain points dictated by the assessment and the following illustrates the variety of tasks which students may be required to undertake. At the most basic level, students may be encouraged to participate in online conferencing simply by awarding marks for a message input into the system …"(Macdonald)

Macdonald goes on to discuss the issue of the quality and relevance of the contributions to the online discussion and suggests that contributions may need to be linked to other assessment methods:

> "… this does not guarantee that the message submitted will contain information of relevant academic content, or contribute in any way to student learning, and other assessment devices may encourage more meaningful participation. For example the first assignment in the course T171 requires students to summarise their reading of course texts on online collaboration and then share and discuss their summaries online. They are then required to reflect on the theory and practice of collaboration. A similar device is employed in the forth assignment in THD204, where students are required to discuss a course topic in a small online group. Marks are awarded for submitting five messages contributed to the group, each supported by another message to illustrate their ability to interact and build on other contributions. Students are also required to summarise the whole discussion, thereby practising the ability to extract useful and relevant information from an online conference. The evaluation revealed that this assessment had a positive effect on the quality of contributions and acted as a focus for tutorial support, as well as being crucial in developing online debating skills." (Macdonald)

Some authors suggest an alternative strategy of defining assessment criteria, which apply directly to the discussion contributions. Phillips suggests using very specific criteria:

> "Forum messages were categorised according to their quality and marked on the number of messages of a certain quality. The categories are described in Table 1a, while the number and types of posts required to get certain marks is shown in Table 1b. You will see that to get top marks, you only needed to post two messages, but these have to be of high quality. Any number of messages, which demonstrated that the forum was being read, led to a maximum of two marks." (Phillips)

While Creanor suggests a generic qualitative approach:

> "Assessing contributions to the online discussion is a particularly difficult task for the tutor. Students are generally expected to make contributions, which further develop the argument and progress the discussion. Within this students are assessed according to the quantity and quality of their contributions, in particular through:
>
> - presenting new ideas,
> - building on others contributions,
> - critically appraising contributions,
> - coherently summarising discussion points,
> - introducing and integrating a relevant body of knowledge,
> - linking theoretical discussions to own experience."
>
> (Creanor)

Webster in *Undergraduate e-seminar: tutoring in a collaborative learning environment* reports on the impact of different assessment strategies on students' contributions to online discussions.

> "I tried a different approach to the continuous assessment element in each of the three years that the e-seminar has been run.
>
> (i) An individually written essay which contained a section in which the student demonstrated, with quotes, how their views have been influenced by discussion with colleagues,
>
> (ii) Assess discussion contributions only,
>
> (iii) An individually prepared essay (on the basis of individual research and discussion), with no attempt to assess individual contributions to the online discussion.
>
> "As expected, the last approach resulted in fewer students engaging in the e-seminar, but for those who did, it was an important source of ideas for their essays. The first strategy worked quite well but meant that essays were a bit disjointed. The second strategy was easiest for me and resulted in the densest participation patterns. I was not satisfied with the degree to which students synthesised ideas but this was a function of the structure I imposed on the discussions. I think it should be possible to guide discussion such that students go through some sort of process in which they converge ideas towards the synthesis of ideas and development of an argument just as they do in an essay. I have tried getting students to thrash through technical issues in e-seminar groups as a prelude to preparing an individual paper. This works for the well-motivated students but I found that much of the 'thrashing' happened face-to-face." (Webster)

4.3 Feedback – relationships with tutors

The role of the tutor is central to establishing and enabling relationships between tutor and learners and amongst learners.

4.3.1 Relationship with assessor

One of the most noticeable aspects of the students' relationship with the tutor is the equality implicit in the relationships. This may perhaps in part be due to the absence of external authority cues – such as age, position at the front of the lecture theatre, tutorials in the lecturer's office. These cues normally immediately set up a power differential between

the lecturer and the student. However there is also some evidence that this equality is actively encouraged. Making the learning and teaching aims explicit (as in Rosie and Thompson), distributes power, while the refusal of the tutors to provide 'answers', documented by Clarke, challenges any notion of the tutor as an all-seeing font of knowledge, and encourages a relationship where they are viewed perhaps as a more experienced colleague:

> "Enablers reported by learners included the open, democratic approach of the course facilitator that they considered gave them a strong sense of ownership of their classroom. The course facilitator described his approach in this process as the following:
>
> *'a) I develop NO content. I simply point them to resources.*
>
> *b) I provide NO instruction. I monitor their classroom list server discussion and prod and prompt here and there.*
>
> *c) I set goals and deadlines.*
>
> *d) I take flak from frustrated learners.*
>
> *e) I share their joy as they discover they can do it for themselves.'*
>
> "…Those of us who had been in classes with the facilitator previously were well aware of his 'hands off' approach. This is not to say that he was absent from the communication as he read all messages. It was the way he communicated and threw us back on our own resources. He emphasised strongly his own role as learner – with the virtual classroom as his project. There was agreement that the only difference in roles was that he was the one who was going to evaluate at the end of the module so he became known (openly) in class as ' HWGTM' (He who gives the marks) with the rest of us as those 'who need the marks'. These labels arose after a light-hearted thread that focused on the idea of the class taking a holiday together and the topic of golf (the sport) came up. Would the class take the facilitator – well he could always make the cocktails (drinks) and caddy was the wry suggestion. The following anguished reply was:
>
> *'No!! I do not want him for a caddy. A caddy is supose to TELL you the distance to the hole and HAND you the correct club. The caddy you are arranging for me now will advise me to determine the distance and suggest a few hypothetical options, like use an 8 iron on the back foot & go under the branches or a 9 iron with an open clubface to go over, but better yet, contact Gary Player (well knows South African golfer of international fame) for he has been known to succeed with these things...'*
>
> "These comments give a flavour of the openness of the comments about the facilitator (and each other) and the realisation that he was not going to be drawn into solving the problems for us.
>
> "Students who did not know his style – and others – tried more 'private' one-to-one communication with the facilitator. Presumably to try and draw more hands-on help from him. This simply resulted in a reply from him to the entire list each time so learners soon learnt that they may as well share all issues with everyone – from whence the help then came – which was his goal all along." (Clarke)

4.3.2 Student/tutor interaction

As noted in the section above, the student-tutor interaction seems to be characterised by a higher level of equality than might usually be the case. In addition to the equality in the assessment regime, there is also evidence that students are less inhibited about submitting work (Rosie and Thompson), and of initiating discussion (Pickering and Duggleby). Janes provides evidence that students were empowered to shape the direction of the course, which is unusual in traditional teaching.

> "While the two tutors had a reasonable idea of what issues were being debated in the literature they decided to design the course to allow for full student selection of the core issues. At the end of the brainstorm session, which had a distinct beginning and end, the tutors summarised the discussions into a series of key issues." (Janes)

4.3.3 Feedback

Feedback was mentioned a great deal throughout all of the case studies. Some of the feedback methods that were used are detailed below. The methods were generally transparent, and a number of approaches make both the submitted assessments and the tutor feedback available as an aid for other students (eg Finkelstein), although this must be used with caution lest it intimidates the less confident members of the group.

Aspects of the feedback that were often mentioned included the speed of response, the consistency of the assessment and the supportive nature of any communication, indicating that tutors were aware of, and following, best assessment practice. It was generally accepted as good practice to notify, or even negotiate, the response times with the learners:

> "The key approach was that of rapid and supportive response to student contributions to discussion and letting different threads arrive. This was extended to student tests so that the students realised that they could receive rapid response and have an opportunity to refine their thought through the course." (Rosie and Thomspon)

> "Students were assessed in two ways all of which took place within FirstClass: conferences, journals, and a group project. Each student was assigned to one of the two staff as a contact person and that contact person assessed the student and gave feedback on their work. Consistency in assessment was carefully monitored with most of the work being read by both staff." (Gwynne and Chester)

> "Participation [*in the discussions*] was not graded, but was encouraged by both tutors and peers. Participants were given regular, and positive feedback. Assignments and activities were graded within ten days of completion (unless notice to the students indicated otherwise) Email feedback was assured within forty-eight hours of receipt of the question or comment (often earlier)." (Janes)

> "The course comprised ten learning units and in all but the last there were associated formatively assessed tasks which required student responses. Students were encouraged (strong positive reinforcement) to work and to respond to these tasks in groups. The tasks were linked with the final summatively assessed task (an individual research undertaking) and were progressively tailored such that the student responses became more closely related to the work involved in the individual research activities.

> "Every student response to a task was given a tutor reply (usually within twenty-four hours, but often within one or two hours). In addition, face-to-

face learning was provided in the form of discussions, tutorials, forums, student cognate groups and demonstrations." (Ewing)

4.3.4 Differences in online learning

Cowan, in *Personal development planning,* suggested that tutors felt that the feedback they gave online was qualitatively different from feedback given in a traditional manner. No details are given about how they feel that these differences are manifested, although this would seem to make a fruitful area for further research:

> "An important outcome, not a measure of success and one for which I have no quantifiable data is our firm conviction that the style of the online comments is rather different from hand-written ones on hard copy. This has become increasingly apparent as my colleague and I sometimes have to comment to each other on hard copy – and have clearly noted the difference in the style of comment. That suspicion is something that we need to investigate – but how?" (Cowan)

Hird noted that her students experienced anxiety when asked to participate in collaborative assessment activities that were different from the environment in which they were normally assessed and were successful:

> "It seems almost ironic, but I discovered through experience that grades are a problem for my students when I expect them to make changes in their roles as learners. Most of my students, all teacher education students, have been very successful in terms of grades in a traditional classroom setting. When I ask students to try new learning strategies, many of them harbour fears that they will not succeed and their grade-point averages will suffer. One student this semester was concerned that he could not figure out where he stood gradewise in relation to other students because he couldn't see them. Genuine collaboration is in very sharp contrast to the competitive ranking that students know well by the time they reach college. I find that I need to provide a tremendous amount of assurance to students that they do not have to get it 'right' the first time and that they will not slip off the honours list as the result of taking an online course." (Hird)

5 Quality Evaluation

There was a general concern evident that the courses should be of high quality both in the learning and in the assessment, and there was evidence that tutors were checking the quality of their programs. Furthermore, one case study was addressing the difficulties that tutors had with the technology by providing a consultancy service for staff.

One important weakness that few of the case studies appeared to address was the criteria of success that they were applying to their programs. This is something that needs to be addressed in future.

Quality issues which need to be addressed and made clear and transparent to all participants include:

- Assignment submission processes.

  > "A separate booklet was provided for the students detailing the procedures for electronic submission of assignments. A 'dummy' submission area was also provided, to allow both students and tutors to practice uploading and downloading assignments and using the marking software." (Morrison)

- Establishing academic credibility for these new methods of assessment.

  > "Assessment is problematic especially in new learning environments, when credentialling is important to undergraduate and postgraduate students (how can I know enough to pass the exam!?), when our student cohorts are so varied (undergraduate, postgraduate, mature age, professionals working and studying, school leavers, off campus on campus etc), when there are enormous pressures on academic staff for their time." (Spratt-D 2000a)

  > "Tutors are provided with a marking scheme, to which they are expected to adhere. Tutors may also have the opportunity to participate in a conference in order to discuss their interpretation of the marking." (Macdonald)

- Ensuring the reliability and authenticity of the assessment process.

  > "Students had the option of submitting work via post, email or fax. The issue of authentication has not yet arisen, but I think that the assignments are of such a personal nature, the students reflect and adapt information to their own clinical setting, that it is not an issue." (Gilbert-Hunt and McLaine)

5.1 Quality of assessment

Some case studies explicitly addressed issues relating to the quality of the assessment and outlined how they ensured high quality assessment through moderation and transparency of the marking criteria. It is to be assumed that a similar quality of assessment was to be found in others, although it was not explicitly commented on. A range of techniques was suggested including:

- clear and explicit marking criteria for assessments (in some cases these were also available to the students),
- dual marking of assessments,
- moderation of assessment grades by a moderator or by a course team,

- traditional methods such as external examiners scrutinising assessment instruments and sampling marked assessments.

  "…marking guides were provided for the tutor marked assignments. A sample of assignments from the electronic system was double marked by a member of the central course team. Senior regional academic staff were able to 'visit' tutor group conferences to review what was taking place and received a summary of double marked assignments for each tutor in their region." (Morrison)

  "Marking guidelines were provided for each tutor and students were clearly given the criteria for each assignment. Although double marking of assignments was not used, on several occasions the tutors inadvertently marked the same assignment (discovered before the sending of the mark to the student) and it was noted they were within a few points of each other and consistent comments, each time." (Janes)

  "All tutorial work was assessed by individual tutorial leaders and the marks subsequently moderated by the cultural studies team. Feedback and marks were then returned electronically by tutors to online group spaces in a manner meant to offer transparency, clarity and assessment best practise." (Finkelstein)

  "All the assessments were marked by both tutors." (Littlejohn)

  "Consistency in assessment was carefully monitored with most of the work being read by both staff." (Gwynne and Chester)

  "All assessment instruments are scrutinised by external examiners. A sample of all marking by first markers is moderated by second markers and then sent to external examiners for verification." (Kennedy and Duffy)

  "All dialogue exchanged between the tutors and participants was recorded in an *Access* database. The main reason for this was to provide the external examiner with an accurate picture of these communications, though it would have been more effective to have the database fully integrated within the learning environment." (Littlejohn)

A comment made in Cowan's case study suggests that online education would seem to have some advantages over traditional means. In reflective journals, an assessment type, which although not common is evidenced relatively frequently in these case studies, students would seem to be less intimidated by the tutor and more able to reflect freely than would be the case in a face-to-face situation, leading to more accurate assessment.

> "The normal barriers to commenting on journals, of which Moon makes a fair amount of mention seemed to be much less concern to these students, who saw the commentator as even more detached and impersonal, in the sense of being intimate with highly personal thoughts recorded by the journal writer. So it was the opposite of a barrier, rather an advantage, upon which we built and continue to do so." (Cowan)

Although the issues of validity and reliability were not mentioned directly in any of the case studies, they did appear in the online discussion with one participant suggesting that:

> "What fuels assessment is probably what unit of measure one uses to assess the validity and reliability of one's assessment tools.
>
> "... reviewing the validity of the criteria you are assessing against (are they measuring what they are supposed to measure?), checking that you are being consistent in your interpretation of the criteria when you make

> judgements about different people's evidence (reliability) and checking you have sufficient evidence to that shows the person consistently applies that knowledge in their work environment (if dealing with assessment against industry competency standards). The main issue for me is how different assessors moderate the evidence they are assessing to ensure that within and across educational institutions the evidence gathered to achieve a qualification is similar and the judgements made are therefore as fair as possible. I don't think this is common practice – which is very worrying for students." (Murray-D 2000)

The use of automatic marking schemes did not appear to figure highly in any of the case studies, although their use is mentioned in the discussion. Participants who were involved in this topic appeared to agree that automatic marking, although problematic, could improve the quality of testing, both through item analysis, and through regular, if brief feedback.

5.2 Quality of learning

Phillips, in *Facilitating online discussion,* suggests that online learning is best delivered through student-centred activities, rather than simple transmission of material. This view reflects the approach reported by the majority of case studies, which advise teachers to develop activities that access higher order learning skills and suggest ways in which these might be supported. Although there is no direct comparison made to traditional teaching, it is perhaps an exhortation not simply to transfer materials and syllabuses online, but rather to redesign all aspects of the course with online delivery in mind.

> "The internet is better suited to student centred activities supported by learning resources, than to the transmission of material, and the challenge for teachers is to design activities which encourage students to discuss, critique, summarise and reflect. These activities can be supported by web-based discussion tools or even email." (Phillips)

Thompson and Rosie, in *Collaborative development of online courses, which is the tutor and which is the taught,* appear to be aware of the apprehension with which some staff approach online learning and outline their manner of addressing it by focusing on the educational aspects of the course, rather than on the technology itself:

> "The chief barrier with most staff is the development of confidence in using the technology and a fear that either it will not work educationally, or that their course will fail academically. For that reason [*Ray Thompson*] has developed a consultative method which concentrates on educational issues at the outset, both conventional issues of curriculum, learning outcomes and assessment." (Thompson and Rosie)

Regular monitoring of student participation and progress by the tutor combined with assessment strategies, which motivate participation and active learning, are recommended as ways of enabling effective learning:

> "…there were a number of small assignments along the way that helped keep a check on the progress of the group as well as reviewing who was participating in the online discussion." (Gilbert-Hunt and McLaine)

> "Instead of mimicking the tutorial program, ie once a week with one set of tasks, staff are accessing the conference more regularly for less time, more efficiently. This motivates students and reduces staff workload.

> "Assessment strategies have changed to accommodate formative assessment, which motivates the activities, and summative assessment to check the learning." (Street)

5.3 Measures of success

Remarkably, bearing in mind that the majority of these case studies were pilot projects, there was very little discussion of concrete measures of success, either in terms of completion rates or rates of students who achieve the required target.

Pickering and Duggleby did specify criteria by which success could be judged.

> "Considering that LeTTOL is a Distance Learning course, we have set ourselves challenging targets for retention and achievement that are more representative of face-to-face courses:
>
> - eighty percent of enrolments still active online at the end of the course,
> - sixty percent of enrolments submit a portfolio and achieve accreditation.
>
> For the period 1998–1999, we have consistently exceeded these targets." (Pickering and Duggleby)

As did Anderson and Simpson, and Labour, while acknowledging the work that still needs to be done in this area:

> "We undertook three consecutive annual surveys with a major focus on student perceptions of the impact on learning and student support of the web based communication component. The 1999 survey (seventy-five percent response rate) comprised twenty-seven five-point Likert scale items plus two items (reported here) requesting students to rank types of communication within the program in order of importance for learning (first item) and support (second item)." (Anderson and Simpson)

> "…nearly seventy percent of the participants stay online after having volunteered to participate in this scheme is a manner of measuring one form of 'success'. A study has been conducted on sample texts and has found that the length and complexity of email messages suggest improvement in communicative fluency even if improvement in grammatical accuracy is less easy to determine. There is still a lot of work to be done in assessing the specific gains for language learning via online tutoring." (Labour)

This is perhaps an area that should be considered when pilot projects are drawn up. Online experimentation is necessary, but unless the success rate of student participation is measured, it will be difficult to decide how beneficial introduction would be on a wider scale.

6 Aspects of Development

Four aspects of development were mentioned in the case studies:

- skills development,
- flexibility,
- motivation,
- confidence.

It was notable that flexibility, a perceived advantage of online learning, was mentioned only once in relation to assessment with the emphasis on accommodating the students' circumstances rather than as a planned feature of the assessment strategy. The most extensively discussed aspect was that of motivation – indicating that tutors were aware of the motivational problems that may develop in an online course, and that they were taking measures to prevent these developing. Assessment was seen by many as a key way in which motivation could be enhanced and retained, often using assessment mechanisms to encourage students to participate in areas of the course which were not (formally) assessed. Some tutors mentioned the need to be aware of the staff and students' lack of confidence with the new technologies, and outlined ways in which they were trying to develop both the confidence and the skills needed to make the most of the medium.

6.1 Flexibility

Despite one of the principal perceived advantages of online learning being flexibility this did not always appear to be the case as documented by Daele:

> "As long as the work of the students in Geneva and in Liege was in a way 'separated' and asynchronous, there was no problem. But when the students published their interviews… we had to write a synthesis text... Essentially, the problem involved organising the questions of research and the writing of the final document. In fact the students 'kept passing the buck' and I had to propose a concrete way to work that satisfied everybody: each 'country' could make a synthesis with their interviews and then the two documents could be merged (or just added together?) to become a paper for distribution." (Daele)

Janes commented on the flexibility offered by tutors over assessment deadlines although this appeared to have more relevance to the profile of the people taking the course, than to the medium itself.

> "Tutors practised flexibility and were very accommodating if participants required additional time to finish an assignment. It was important to recognise that these were working professionals with other commitments besides this program." (Janes)

Both students and tutors have to adapt their expectations and ways of working to meet the demands and challenges of the new environment.

> "Others attempted to maintain their traditional modes of study and work patterns, logging on infrequently or at the last minute before the lecture. Many learned the hard way with their first assignment that this was not always the best policy. Those who attempted to complete the assignment at the last minute found they had not built up sufficient reflective discussion to present an effective comparison. Those who had did better. Students seemed to have learned from this, and on subsequent

assignments generally organised and managed their time and work more efficiently as a result." (Finkelstein)

"They [*the students*] are set tasks at regular intervals and are told when the tutor will be setting these tasks and joining the conference to review progress. Some tutors are now accessing the conferences on a more frequent and ad hoc basis (in addition to the set times) to give the feeling of presence and this strategy has proved successful." (Street)

"The students used the conference in a variety of ways:

- logging in at regular intervals both on site and off site,
- logging in when they knew the tutor had left the next task,
- logging in shortly before the deadline for the task to respond to it,
- logging in as a group to 'chat' about the work,
- logging in during the timetabled hour (we timetabled an hour to ensure ability to see students at week one, and to ensure they had access to PCs (so as not to disadvantage those without Internet access at home))." (Street)

However in many cases flexibility is constrained by formal institutional structures:

"We have introduced a bit more flexibility, but we are by necessity restricted by formal structures such as assessment board meetings and external examiners' deadlines for receiving assignments." (Creanor-D 2000)

6.2 Skill development

It should be remembered that just as in traditional learning, there are two aspects to the process, the learning and assimilation of the subject, and also the acquisition of methods to facilitate this learning. In traditional courses, increasing emphasis is being placed on the acquisition of these skills. However, for most students this is an extension of skills that they have already gained through their prior educational experiences. In online learning, for the majority of students, the skills required for successful participation are unfamiliar, thus tutors must address the students' anxieties about "how" to learn in such an environment.

In Rosie and Thompson, students are required at the beginning to express their own personal learning outcomes. Although it is not referred to in the text, it might well be imagined that a number of these outcomes involve skills as opposed to learning and knowledge, such as a greater conversance with information technology and confidence in interacting online.

"Students were explicitly asked to consider their personal learning outcomes and to see the course as a vehicle for meeting such outcomes. As part of this development the course tutor made the learning and teaching aims explicit for students and tutors." (Rosie and Thompson)

The development of online collaborative skills is made explicit in Macdonald where assessments are used to promote and develop these skills.

"It appears that assignments may be useful as a way of building skills for online collaboration in an integral way, and in raising awareness of potential pitfalls. For THD 204, an early conferencing assignment was modified to encourage reflection on group management, and to produce a strategy for online collaboration." (Macdonald)

In addition, the question of skills development was addressed in the first substantive message in the online discussion, suggesting that it might well have been a tacit understanding of many of the other courses.

> "So if you are intending to train students to learn online, then you have to decide what skills they will need to acquire, and make sure that their development is supported in the assessment. It's no good concentrating on the subject of the course, and forgetting about the process of online learning." (Macdonald-D 2000a)

Some students need more support than others especially if the tutor is trying something innovative:

> "Students will … freak out if you start to do stuff that is out of the ordinary!
>
> "Especially if you are … a bit more innovative. Undergraduates (largely school leavers) in many Schools at Deakin come here expecting a face-to-face experience (unless they enrol off campus by choice). Once you start doing what they are not used to (that is teaching and assessing in ways to develop them as critical self-reflective thinkers who can work collaboratively - secondary school doesn't prepare for them that well!) then it becomes hugely challenging to get this kind of approach started and for students to see the benefits of it." (Spratt-D 2000c)

Kulp recommends a structured approach which provides students with the skills essential for successful online learning:

> "As in the classroom, early assignments should involve class socialisation so students get to know one another as well as the distributed learning environment:
>
> - to learn about their attitudes, knowledge, and experience,
> - to immediately and actively involve them in a learning activity related to the course content,
> - to practise behaviours right from the start that will prove critical to their success as a distributed learning community,
> - to help them experience how to connect with one another in a distributed environment,
> - to engage them on the first day of class in a collaborative activity that uses a variety of LearningSpace facilities,
> - to let them experience how time works differently in an asynchronous environment." (Kulp)

6.3 Motivation

Motivation was clearly something that the case studies had felt was a high priority, and felt that assessment had a clear role to play in this. Many of them highlighted the need for integrated assessment to encourage students to stay motivated in the course, and there was much encouragement of participation, even where this was not being formally assessed.

> "Interaction must be required – build activities into the course material in such a way that the students cannot avoid interacting." (Anderson and Simpson)
>
> "Weekly (asynchronous) discussion forums are held, in which relevant topics which relate theory to practice are put up for discussion on the appropriate bulletin board. Students are informed that we expect them to participate in seventy-five percent of the formal forum discussions. If a

> student appears to be falling behind in his or her contributions, the teacher reminds the student of the requirement to participate in seventy-five percent of the discussions. But there is no sanction on students who do not contribute to seventy-five percent of the discussions." (Kennedy and Duffy)
>
> "This case study illustrates a variety of ways in which assessment can be designed to provide the motivating force to participate online in a productive way, by maintaining momentum, influencing the quality of contributions and dictating the direction and timing of participation. It can also play an important role in providing the opportunity to practise and reflect on the skills of online working." (Macdonald)

Students' initial motivation for participation in the course is examined in Rosie and Thompson where one of the first tasks that they are asked to complete is a reflective exercise examining their desired outcomes, perhaps as a manner of allowing students to use their initial focus to stay motivated for the duration. In Phillips, weekly progress reports are required from the students. Apart from the obvious formative assessment purpose of allowing the tutor to see where students are finding difficulty and revising the course appropriately, it also served as a motivational mechanism, encouraging students to reflect on the progress that they were making and compare their experiences with that of others:

> "Teams of students were expected to submit weekly progress reports about their project, highlighting achievements and barriers to progress. This served the purpose of keeping students on track, but also let students understand that others were facing similar difficulties, and led to sometimes deep discussion about project management issues." (Phillips)

Anderson and Simpson identified that assessment overload could lower students' motivation to participate in the discussions, and informed by this, developed a technical solution to try to avoid the problem.

> "When students found that they had a large assignment load they tended to drop out of discussion. The use of the WebCT calendar helped to provide some guidance for staff and students about the overall pattern of assessment requirements." (Anderson and Simpson)

Hird and Ewing recognised the need to provide students with guidelines and a schedule and overtly reminding them of key deadlines:

> "…students need clear structure and deadlines to help them maintain the discipline needed for participation in course discussion and completion of assignments." (Hird)
>
> "…many students suggested that they wished they had been more diligent in keeping on track within the timetable. In this study a more overt system of reminding students was put into operation but at the end there were still some who had fallen behind and they also expressed the wish that they had not. In addition, partly as a result of the delegation of control to students of how they learn, several students claimed not to 'realise the value' of the course for supporting their undertaking of the final research activity. Student comments on how to overcome this unhelpful perception have been videorecorded for use with the following year cohort." (Ewing)

6.4 Confidence

Confidence was recognised as a barrier to achievement by a number of projects. The assessment methods used were designed to encourage students to participate more widely in the online activities thereby encouraging their confidence to develop.

> "[*students*] appreciated the integration of activities with assessment, because it guaranteed the involvement of all students.
>
> "At the most basic level, students may be encouraged to participate in online conferencing simply by awarding marks for a message input into the system, and this is employed for the first assignment in THD204, in order to ensure that all students get online at an early stage in the course." (Macdonald)

As has been commented on elsewhere, in Thompson and Rosie, the lack of confidence of staff with the new medium was identified. In this instance this was addressed by consultation with an experienced member of staff on educational issues – relating these to the technology:

> "The chief barrier with most staff is the development of confidence in using the technology and a fear that either it will not work educationally, or that their course will fail academically. …developed a consultative method which concentrates on educational issues at the outset, both conventional issues of curriculum, learning outcomes and assessment" (Thompson and Rosie)
>
> "The course comprised ten learning units and in all but the last there were associated formatively assessed tasks which required student responses. Students were encouraged (strong positive reinforcement) to work and to respond to these tasks in groups. The tasks were linked with the final summatively assessed task (an individual research undertaking) and were progressively tailored such that the student responses became more closely related to the work involved in the individual research activities." (Ewing)

7 Format and Structure of Assessments

The format and structure of the assessment was not discussed very extensively – of the one case study which did mention what forms the assessment took, it would appear that a range of styles were in use. In terms of structure, it would appear that there are patterns of a cycle occurring:

task completion →feedback → task refinement

There are also moves from a strong emphasis on group assessed submission at the beginning of the course toward individual, and even traditional formal assessment at the end. All of the commenting case studies did however note the importance of assessment for formative purposes, which appeared to take precedence over summative assessment.

7.1 Variety of assessment formats

A few case studies provided detailed notes of what forms the assessments actually took, (reflective journals, online collaborative activities, scaffolding in the initial stages) and many restricted the use of innovative methods of assessment to formative assessment of their assessments. Further data would be required to assess whether this was indeed the case with other online courses:

> "In week six of this twelve week course the tutor introduced the first in series of 'tests'. …the term 'test' [*is used*] but in fact what was being provided was a set of formative assessments designed to ensure students understood the extract provided. It gave students an opportunity to comment on the extracts and to relate them to their own experience. The questions set followed different formats, eg text-based student input, multiple choice, selection of key ideas and commentary on each of them. Each test setting contained URL links to relevant web sites." (Rosie and Thompson)

In particular see Cowan, Finkelstein, Janes, Macdonald, and Rosie and Thomson. Further examples are provided in section 7.3.

7.2 Structure of assessment

Two themes emerge from analysis of the structure of the assessments. Firstly, that there is a cycle of student task-completion, followed by lecturer or peer feedback, which is then used as the basis for further development (eg as described by Cowan, and Rosie and Thompson):

> "The student writes a reflective journal …The journal is sent as an attachment to the tutor.
>
> "The tutor empathises with the entry, asking questions where the student's thinking is not clear or when information is missing…Comments are all added as footnotes.
>
> "The journal with comments is returned to the student. The tutor usually writes a cover note which is personal.
>
> "Students read the comments. Some make notes. Some return them later." (Cowan)
>
> "The transition from discussion to test completion was deliberate because each test increasingly asked students to reflect upon their contributions to

> discussions and to return to the discussion area to develop and refine points they had made." (Rosie and Thompson)

The second theme which emerged strongly from the case studies was a pattern from group assessment towards increasingly independent completion of activities, often culminating in a traditional university examination as described by Finkelstein and Macdonald.

Finkelstein (D 2000b) in the online discussion:

> "I got students to undertake graded exercises where they were required to do two things: 1) examine and analyse specific types of net resources, and 2) compare these with physical representations of those resources. For example, one assignment given over the last few years has been to visit an online 'museum' in Australia that has several exhibitions on Australian cultural identity and compare it to a visit to the Royal Museum of Scotland here in Edinburgh, with a view to reflecting on how presentation, information, and cultural representation might differ according to the audience aimed at and medium used. The results were quite interesting, because it made students think very carefully about the internet and online resources, and about how learning experiences are mediated and changed by where and how they are done.
>
> "How it was physically managed was something else that was important, allowing accountability and tracking. I had students work in groups for this, with asynchronous postings of thoughts during the three weeks allowed for the assessment. At the end, an appointed co-ordinator was responsible for the final submission of 1000 words (we're speaking here of 1st year undergraduates). They were free to choose the method by which they arrived at a final submission: some chose to be responsible for small sections, with the coordinator patching everything together at the end; others chose to have the coordinator write up the piece based on group discussion and contributions; others got together as a group in a physical space and team wrote it. The final submission had to be submitted electronically, in a form which automatically dated and time stamped it and displayed it in a public assignment space – hence clarity about exactly when it was posted, a responsibility imposed on the students to keep to time, and a transparency in presentation. Students could see what each of the other groups had written on the subject, and thus compare and contrast." (Finkelstein-D 2000b)

Macdonald's case study – *Integrating online tuition with assessment at the UK Open University* – focuses specifically on assessment in online courses and its impact on the participation and motivation of students.

7.3 Examples of assessment in practice

Examples of assessment strategies and methods in practice have been extensively quoted throughout the text, including Macdonald, Finkelstein, Cowan, and Rosie and Thompson. Additional examples are documented below.

Clarke in *Online learners doing it for themselves*:

> "Assignment 1 was an 'ice-breaker' that started the interaction process and provided each student with the opportunity to present familiar material while they tried out the email list conventions and procedures. Each student emailed a submission to the list entitled: "Who Am I?". More than a formal introduction, it also required each student to explain why they were enrolled for the course, outline their current support

> structures and present some line art. As well as providing useful information for learners to get to know more about one another, it provided information on what motivated them to take the class." (Clarke)

Glass in *Professional development for VET teachers:*

> "Completion of set 'class' activities; attendance at face-to-face sessions; peer teaching; compilations of FAQs and production of an induction booklet; successful completion of external online courses (WebCT and Online Tutor Training) and face-to-face training." (Glass)
>
> "As part of the work-based learning approach taken, participants created a shorter 40 hour professional development program and delivered this program to other VET lecturers via a combination of face-to-face and online." (Glass)

Janes in *Teaching online in a postgraduate certificate in technology based distributed learning:*

> "Concurrently, after the second submission, students were asked to brainstorm the issues they felt needed to be discussed during the course.
>
> "While the two tutors had a reasonable idea of what issues were being debated in the literature, they decided to design the course to allow for full student selection of the core issues. At the end of the brainstorm session, which had a distinct beginning and end, the tutors summarised the discussions into a series of key issues.
>
> "After the brainstorming period, the students were divided randomly first into two groups (A and B) and then into six small subgroups (A1, A2, A3, B1, B2 and B3). Each of the subgroups (with five to six members selected from the Mexican, Canadian and international students) were assigned the task of deciding on what issue, or part of an issue raised by the brainstorm they wanted to research and present. In addition to a formal online presentation, written via consensus in private group forums housed within WebCT, each small group was asked to organise themselves by assigning tasks to members (presenter, moderator and summariser). In addition, each small group was asked to lead a discussion with the main group they belonged to (A or B) on the formal presentation they had written (the stand they had taken on a particular issue) and posted at the opening of the discussion." (Janes)

Juwah in *Developing effective online tutoring:*

> **"Formative assessment** is carried out by a combination of self, peer and tutor assessment. The candidates, as part of their learning of how to assess learners' work, generate the 'required' assessment and grade criteria, based on the nature of the assessment. The assessment criteria focus on: content, skills: e-moderating skills and degree of performance, quality of contribution etc. The final outcome of the formative assessment is a pass or fail grade (with no marks awarded) and based on the aggregated grades from all the other participants. The candidate's own grading of his/her own work is not used in producing the final grade. The value of the formative assessment is that of enabling personal/professional development based on valuable feedback received from other peers. To ensure quality of standards, the tutor verifies and approves the final outcome of the formative assessment.
>
> **"Summative assessment** is graded on a pass or fail basis, with no marks awarded. The pass or fail (competence based) approach is used, as the

> candidate is required to achieve all the assessment criteria. All the assessment criteria are of equal weighting. Where a candidate has not satisfactorily achieved an assessment criterion/criteria, s/he is given the opportunity to provide further evidence to ensure full compliance. Where a candidate, after having been given the opportunity to provide additional work to demonstrate satisfactory achievement of the assessment criterion/criteria and competency, and is unable to do so, the candidate's work is graded as a fail." (Juwah)

Morrison in *T171: The pilot year experience*:

> "The discussion of the tutor group activities also formed part of the first two assignments, which encouraged participation. The aim of the first tutor group activity was to provide an opportunity:
>
> - for the group to get to know each other (by sharing a little bit about themselves),
> - for individual students to make the first step towards group collaboration,
> - for a simple diagnostic test i.e. for the tutor to check that the students could all leave a message and respond to others by using threading." (Morrison)

Anderson and Simpson in *Program-wide online group interaction: Developing a social infrastructure*:

> "However, collaboration and participation are difficult to establish and maintain without some way of showing they are valued.
>
> "The work in the program was designed to be collaborative and one course included a collaborative assignment presentation, which came quite naturally from the context that had been set. When the students came to the assignment they were still on their own (ie no local courses or tutor visits) and tackled it in small teams (five or six) online. The assignment was a major part of the assessment for the particular course concerned - forty percent and twelve of the forty marks for the assignment would be based on participation and contribution to the group. The 'measure' of participation would come from other students in the group who would simply report a 'percentage mark for contribution and participation' to the course lecturer for every other member of their group. It then became a fairly simple spreadsheet exercise to work out the overall participation/contribution mark. Probably tiresome in classes over about a hundred though.
>
> "The lecturer set a series of weekly tasks throughout the semester that contributed to the development of the final piece of work. These tasks contributed to the design of a series of web pages about course related topics that the groups developed and then published as one linked site for each group. Some of the results were quite stunning - both in academic and in design terms.
>
> "What was learnt? Perhaps most important was the need to ensure that groups were setting roles for each of their members so that all members were always involved in the weekly tasks. Maintaining the group cohesion over the semester was the most difficult part and within that, convincing the groups that they needed to be flexible enough to cut each other a bit of slack from time to time when pressures grew." (Anderson and Simpson)

Radic in *Parliamo Italiano: a computer mediated course of Italian language for beginners delviered at a distance:*

> "During the course, students are expected to write five homework (to be sent to the tutor via e-mail), to sit five online tests, make five phone calls for oral practice. There is one final, oral exam over the telephone…
>
> "Assessment is by five written tests on line (30%), five best out of six written assignments sent by e-mail and where participation in the online Discussion Forum counts as one (30%), five oral communication assessment via internet or telephone (10%) one final oral exam via internet or telephone (30%)." (Radic)

Rosie and Thomson in *Using TOPCLASS to promote student learning*:

> "Two pieces of assessment:
>
> (1) an essay where students demonstrate an analysis of one aspect of identity from topics covered during the course,
>
> (2) a seen examination paper where students indicate a personally chosen learning outcome which they have discussed with the tutor, and then analyse a selection from ten passages covering anthropology, philosophy, psychology, literature, sociology to show how they can illuminate the students' understanding of their personally chosen learning outcome on identity." (Rosie and Thompson)

Webster in *Undergraduate e-seminar: tutoring in a learning environment:*

> "Summative assessment of students was by conventional unseen examination (75%) and by continuous assessment relating to the e-seminar (25%). I tried a different approach to the continuous assessment element in each of the three years that the e-seminar has been run:
>
> (1) an individually written essay which contained a section in which the student demonstrated, with quotes, how their views have been influenced by discussion with colleagues;
>
> (2) assess discussion contributions only;
>
> (3) an individually-prepared essay (on the basis of individual research and discussion), with no attempt to assess individual contributions to the online discussion. (Webster)
>
> As expected, the last approach resulted in fewer students engaging in the e-seminar, but for those who did, it was an important source of ideas for their essays. The first strategy worked quite well but meant that essays were a bit disjointed. The second strategy was easiest for me and resulted in the densest participation patterns. I was not satisfied with the degree to which students synthesised ideas but this was a function of the structure I imposed on the discussions. I think it should be possible to guide discussion such that students go through some sort of process in which they converge ideas towards the synthesis of ideas and development of an argument just as they do in an essay. I have also tried getting students to thrash through technical issues in e-seminar groups as a prelude to preparing an individual paper. This works for the well motivated students but I found that much of the 'thrashing' happened face to face. (Webster)

8 Executive Summary

Assessment and feedback are integral to the learning process and have a significant impact on what students learn and how effectively they learn.

One of the key questions addressed at the OTiS e-Workshop was 'what opportunities and challenges does online learning offer for new methods of assessment and feedback that engage and motivate students, and foster deep learning?'

8.1 Assessment and Feedback

- In considering new methods of assessment and feedback for new learning environments we need to ask two key questions: "Is what we do really different?" and "How does technology allow us to rethink what we are doing?"

8.2 Planning for Assessment

- Assessment is a form of communication to a variety of audiences: students, lecturers, curriculum designers, administrators and employers.
- The purpose of assessment can be formative (for learning) where the emphasis is on feedback, or can be summative (for grading) for external purposes.
- Participants recognised that it is important that we assess what we teach and what the students learn.
- Key features of self-assessement, peer-assessment, group based collaborative assessment and computer assisted assessment are identified.
- Online learning environments offer new methods and approaches to assessment but may also result in inappropriate forms of assessment.

8.3 Relationships

- Reflective journals were a popular means of assessment.
- Self-assessment featured in a number of case studies.
- Reflective practices were encouraged.
- There was high peer co-operation in assignments.
- Student interaction was often built in as an integral part of the course frequently through assessment.
- Group work was a popular learning and assessment style and would appear to have been successful.
- Assessment often emerged from collaborative learning practices. Although this was not universally popular, students appreciated its benefits.
- Online discussions were encouraged through assessment means.
- Heavy assessment loads were found to cause students to participate less frequently in online discussions.
- Students appeared to have a very equitable relationship with their tutor, more than might be expected in a traditional course.

- There is evidence of lowered inhibition in students towards taking the initiative.
- Feedback was mentioned frequently and characterised by quick response, high consistency and supportive communication.
- There was a suggestion that the feedback given in an online course was qualitatively different to a course run in the traditional manner.

8.4 Quality Evaluation

- The quality of assessment was discussed in a number of case studies, as well as in the discussion.
- The quality of learning also provoked discussion, with innovative suggestions of ways to tackle lack of confidence among staff being suggested.
- There was remarkably little discussion on criteria for success. That is something that will be addressed as this type of learning and assessment matures.

8.5 Aspects of Development

- The flexibility of the assessments was mentioned very infrequently and related primarily to issues of accommodating and adapting the working patterns of staff and students to the new environment. Whether this was self-evident, or not applicable, it is difficult to tell.
- There was evidence that the tutors were developing students' skills not just in the subject of study but also in the process of engaging with online learning.
- Motivation was discussed frequently by many of the case studies and was clearly an area that tutors had spent time thinking about.
- Confidence was appreciated as a barrier to performance by a number of projects and many were using assessment to try to address this.

8.6 Format and Structure of Assessments

- A few case studies provided information about what format the assessment took.
- Two themes emerged from looking at the structure of the assessments. Firstly, there would appear to be a cycle of student task completion followed by feedback and then revision, and secondly there was a linear progression through the course from group to individual feedback.
- Examples from the case studies illustrate the importance of introductory activities, scaffolding and supporting students.

8.7 Conclusion

In conclusion:

> "...we have talked about a range of complicated issues that we all grapple with in relation to assessment generally and they become more complicated (challenging?!) in new learning environments. I wanted to suggest that the ways in which we do all this as someone has already suggested, are largely determined by the nature of the subject matter to be taught and learnt. Implicitly too, our commitment to what we as academics and teachers believe education to be influences why and how and what we assess." (Spratt-D 2000b)

> "If I were to posit examples of how one might structure assessment and feedback, it seems to me that key elements might include: 1) mixture of work that allows students to demonstrate original individual contribution but also participate in group dynamic effort; 2) a pattern of continuous assessment that allows student and tutor to monitor, encourage and review personal growth, development and learning throughout lifetime of course; 3) a regular, dependable and non-discriminatory mechanism for feedback, whether in form of individual feedback, group feedback, questionnaires, etc. 4) A mixture of assessment patterns that also allows student ownership, such as peer assessment, group reflection and critical analysis of other group assignments, and the offering of best practice exemplars." (Finkelstein-D 2000a)

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Appendix 4.B Requirements of a CAA system

The essential features of a CAA system have been derived from the 'SCAAN Academic Requirements Document' (2000) produced by the Scottish Computer-Assisted Assessment Network project (available online at http://www.scaan.ac.uk/public_docs/academic-requirements.doc). The project is funded by SHEFC under the ScotCIT Programme (http://www.scotcit.ac.uk) and details are available online at http://www.scaan.ac.uk. A full list of project documentation is available at http://www.scaan.ac.uk/doc.html.

Essential facilities of a CAA system

Essential facilities of a CAA system (SCAAN, 2000) include:

- a registration system,
- a question authoring system,
- an assessment authoring system,
- an assessment display system,
- an automatic marking system,
- a results display system,
- a feedback mechanism.

The 'SCAAN Academic Requirements Document' (SCAAN, 2000) identified four groups of stakeholders each with their own expectations and requirements of CAA systems:

- students,
- lecturers,
- central administration,
- systems management.

Students' expectations

Students expect that:

- the system will securely and reliably mark and store assessments,
- the system will require minimal training,
- they will be able to examine their results,
- appropriate feedback will be given,
- the system will be accessible.

Lecturers' expectations

Lecturers expect that:

- the system will provide an appropriate range of question types,
- the system will provide equivalent questions with variation,

- the system will allow tests to be easily created and updated,
- the system will maintain data on student progress and provide statistical data,
- that the tests can be reused in a different CAA system with minimal intervention (interoperability).

Central administrator's expectations

Central administration expect that:

- the system is reliable,
- the system is compatible with the management and student information systems,
- the system is secure and maintains confidentiality.

System manager's expectations

The system management expect that:

- the system will be easy to maintain,
- the system can be easily extended, eg add new questions types,
- the system will comply with the relevant international standards,
- the system is easily scalable (from a single course to the whole institution),
- the system can support multiple, simultaneous assessments.