Assessing activity-based learning for a networked course

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Abstract

Networked environments offer new scope for presenting activity based courses, in which activities and reflection form the central backbone of course pedagogy. Such courses promise an enriching approach to study, but there are also challenges for the design of assessment. This paper describes a qualitative study of student and tutor perspectives on the assessment of an innovative undergraduate course at the UK Open University which has employed an activity-based approach. It discusses the relationship between assessment, student participation, and the development of skills, and then outlines the priorities for the design of assessment for such courses.

Activity-based learning and implications for assessment

We know that assessment plays a major role in driving student learning appropriately (Knight, 1995). It follows that an integrated teaching and learning strategy within a course must include consideration of the assessment. For distance learners, assessment is particularly significant, since assignments are the crucial points at which individual correspondence tuition and feedback are focused (Gibbs, 1995). The assessment must not only be appropriate to the subject content of the course, it must also have an important role in supporting course pedagogy.

Distance technologies have opened up new potential in higher education, including the scope for new ways to access and combine information. Distance students need no longer work in isolation, but can join an electronic “community of learners” (Collis, 1998). These developments offer a new context for constructivism, which maintains that knowledge construction is an evolving process in which socially situated individuals attempt to make sense of new information by relating it to familiar contexts and existing conceptions. Importance is placed on understanding, rather than on
memorising and reproducing facts, on experiences in the learning environment, and on the contribution of social interaction and collaboration to problem solving (see for example Lebow, 1993). The objective is to encourage self-directed learning and metacognitive development.

Constructivist philosophy accommodates a family of closely related pedagogies, which are employed to optimise the potential of networked environments. These include collaborative learning (McConnell, 2001), resource-based learning (Macdonald, 1999; Macdonald, Heap and Mason, 2001) and problem-based learning (Oliver, 2001). Networked environments offer great potential for these approaches because of their ability to support both distributed collaborative interaction, and access to information rich resources (http://csalt.lancs.ac.uk/esrc/manifesto.pdf). While all three of these pedagogies have the same constructivist aims, and exploit the potential of networked environments through both collaborative interaction and access to information-rich resources, they lay different emphases on particular facets of constructivist philosophy, as their names suggest.

There are in fact a variety of ways in which media may contribute to the learning process, and Laurillard’s conversational framework (Laurillard, 1993) provides useful criteria for judging the appropriateness of media. As an additional tool Laurillard (1996) devised a theoretical model which analysed student study in terms of attending, practising, discussing and articulating. Twining (1999) used part of this framework, labelled the Media Mix Model, to analyse the underlying pedagogical models implicit in Open University UK courses with respect to the affordances for learning presented by the various media.

Traditional OU courses comprise predominantly paper-based self-study materials, combined with television programmes, and increasingly the use of computer-based learning materials, supplemented with tutorial support. Most of the learning material is still “pre-packaged” and best fits a transmission model of learning in that the predominant form of student engagement is attending to content provided by the courses’ authors. In the late 1990s there was a move within the UK Open University towards courses which shifted the balance of student study towards more overtly constructivist approaches. The mix of media was adjusted in order to encourage students away from attending and towards practising, discussing and articulating, thus optimising the opportunities for self-directed learning and metacognitive development. In this context the term activity-based learning came into use, originally with respect to some courses in the UK Open University’s MA in Open and Distance Learning, and it underpins the course which is the subject of this paper.

The activity-based approach has constructivist aims, and exploits both collaborative interaction and access to information-rich resources. The central backbone of course pedagogy is the series of activities, which present the student with opportunities for “learning by doing”. Importantly, these activities are structured carefully in order of increasing complexity, so that learning is scaffolded in simple steps. Conscious use is
made of a mix of media (Twining, 1999) in order to optimise their affordances for engaging and supporting meaningful learning through student activity. Activities are undertaken in a variety of environments, including the use of custom-written software, and encompass the use of wider resources, or online collaborative interaction, and structured approaches to reflection, in order to engage students in a reflective learning cycle.

We recognise that there is considerable overlap in the interpretation and usage of the terminology in this area, indeed, all three pedagogies described above are arguably forms of activity-based learning. Such terminology, originally coined to describe particular aspects of educational practice, in particular contexts, tends to overlap in intention or philosophy. The strength is that, because these pedagogies are closely related, findings from one approach can be useful in enhancing our understanding of other constructivist approaches.

This paper describes a qualitative study of student and tutor perspectives on the assessment of a networked activity-based course at the UK Open University, and discusses the practicalities and pitfalls of assessing activity-based learning. Specifically, it explores:

• the extent to which the assessment supported student learning and participation;
• factors influencing the effective design of assessment for activity-based learning in networked environments.

It has long been recognised that when activities are embedded in traditional correspondence texts, they can be used to enhance the learner’s experience, by simulating a “tutorial in print”. In fact, the general expectation is that by undertaking activities the learner will engage with the course content, relating it to their own previous experience and establishing an understanding of its implications. At the same time, Lockwood (1992) found that whilst most learners do undertake some activities, they operate a balance between the benefits, whether in terms of the contribution to understanding, to personal development, or to assignment writing, and the costs, notably the time they take. Sometimes students misunderstand the intellectual demands of the activity, while at other times they may recognise these demands, but reduce them in favour of simplifying the task.

The extent to which Lockwood’s observations are applicable in these new activity-based courses is yet to be established, although intuitively one might expect little guarantee that students will undertake any element of a course in the prescribed manner, unless there is sufficient motivation to do so. Some students might be attracted to the “fun” element in activities, others might be motivated by the online interaction, whilst others might see activities as intrinsically “lightweight” in comparison with traditional course content. Obviously, this issue of participation is of critical importance for an activity-based approach, because the activities form a central part of the course, reflecting its philosophy. Where activities involve online communication, the issue of participation is even more critical, because non-participation in an activity by one student impacts on other students.
On an activity-based course, which explicitly adopts a constructivist pedagogy, the development of student-centred learning means a shift in the balance of power between tutor and student, which requires adaptations and new ways of working, both for the students and the tutors who support them. Lauzon (1999) argues that the “communicative dimension” of new technologies tends to exacerbate this shift by effectively undermining the authority of the educator and leading to multiple subjectivities.

In addition to a more self-directed approach to study, students may also need to acquire new skills, and the nature of these skills will depend on the activities they are expected to undertake. So for example they may need to practice online collaboration, or the appropriate use of electronic resources, or maybe the use of a specific piece of software.

The radical changes in course philosophy described here signal a vital role for assessment, in order to ensure, and reward, the participation of all students at critical points in the course, whatever their motivation and orientation to study. The assessment must also support student-centred learning, and the development of particular skills, whilst reflecting those messages from the course which the course designers value most.

"Learning Matters: Challenges of the Information Age": course aims and objectives

At the UK Open University a number of activity-based networked courses have been developed at various levels. The course which formed the subject of this case study was a second level undergraduate course, which aimed to empower students to deepen their understanding of learning (Twining, 2001a) and offered a variety of perspectives on learning, with particular reference to the growing influence of ICTs. It placed particular emphasis on students' personal and metacognitive development.

The course was presented to 200 students in 2001. All of the students were working at a distance, being spread around the UK, Europe and as far afield as Singapore. The vast majority of them were mature people studying for a degree. The course required students to use a multimedia PC with an Internet connection. It was designed to cater for students with a wide range of levels of technical competence prior to starting the course. As a minimum, students were expected to be able to: turn on their computer; run a program; enter and edit information (for example, entering text into a word processor and editing it using cut and paste functions); use a scroll bar to move about in a window; connect to the Internet; and copy/move files (for example, using Windows Explorer). Whilst a significant proportion of the students had used computer conferencing as part of their previous OU studies, others had had very little previous IT experience of any sort. For many, this was their first exposure to computer conferencing or using educational multimedia. As with most OU courses the students were supported by tutors, based around the UK. Each of the 12 tutors worked with an average of 17 students, via email, computer conferencing, telephone, post and occasional face to face contact.

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The course placed an overt emphasis on experiential learning and reflective analysis, whilst being relatively low in print delivered content, in comparison with conventionally produced distance courses.

“One of the key concerns for the course team was to reduce the extent to which students were asked to ‘absorb’ content that was presented to them in the course materials. We were keen to reduce the emphasis on the transmission of ‘knowledge’ and increase the level of learning through activities.” (Twining, 2001a, 106)

Students learned by exploring a range of learning environments, including paper, video or software, which aimed to support various aspects of learning and reflection and they also participated in online conferencing. They were expected to engage in an overt experiential learning cycle, by integrating and exemplifying concepts, readings, and other course material, with personal experience.

The course was assessed by five pieces of coursework, in addition to a final extended essay, which attracted 50% of the marks. In common with all UK OU courses, assignments had an important formative role in providing an opportunity for students to develop a coherent understanding of course content through their writing, to integrate their new learning with existing learning and experience, and also to practise and reflect on particular skills.

The course activities represented an integration of three types of task, in addition to course readings and videos:

- participation in online conferencing and Internet searching with fellow students;
- hands-on experience of ICT as a tool for structuring reflection on learning;
- maintenance of a portfolio in which they recorded personal learning experiences and made notes on course readings and various other activities.

For example, Table 1, which contains an extract from the Course Calendar, illustrates a range of activities encompassing print readings, Internet searching, online collaboration, structured reflection, and use of course software. For each type of task, the activities were structured in gradually increasing complexity, in order to scaffold student learning, as illustrated in Table 2.

**Methods**

A qualitative study was carried out involving both students and tutors, in which the aim was to describe the extent of diversity in attitudes to, and perceptions of the assessment. A case study approach was adopted for this research, in which qualitative data would be used to construct a detailed picture of perspectives. The underlying paradigm to case studies is a “naturalistic” philosophy (Lincoln and Guba, 1985), which is concerned with the study of a phenomenon in its natural setting, without separating the phenomenon from the context.

Since the course was networked, it was possible to conduct the evaluation using short email questionnaires, timed to arrive immediately after coursework submission, and
Likely contacts were established through tutors, who supplied names of students known to represent a range of abilities and motivations. In this way the evaluation covered a wide range of perspectives from students working in a variety of contexts. The aim was to obtain as full a picture as possible of the variations in perspectives from students, in line with the principles of theoretical sampling (Glaser and Strauss, 1967). Respondents were sought for each stage of the evaluation until the researcher reached a point at which little new information was gained. All the tutors on the course were also contacted for their perspectives after the relevant marking periods.

By iterative reading of the email transcripts, it was possible to identify a number of common trends in learning behaviour and perceptions. The account that follows describes these trends for the three types of course activity described above, and illustrates them with quotes taken from the students’ and tutors’ email responses.

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<table>
<thead>
<tr>
<th>Study week</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 14         | 3.1 Apprenticeship and Collaboration 1 (Video)  
             | 3.2 Modes of Learning (Multimedia—5hrs)  
             | 3.3 Reflection on your own learning  
                 (Hypermedia authoring—5hrs)  
             | 3.4 DIY Learning (Audio-tape)  
             | 3.5 An Internet Search (WWW—3 hrs)  
             | **3.6 A collaborative task** (CMC—13 hrs over 4 weeks)  
             | 3.7 Reflecting on experience (“Paper”)  
             | 3.8 Scott chapter (Reader article)  
| 15         | **3.6 A collaborative task continued** (CMC)  
             | 3.9 Apprenticeship and Collaboration 2 (Video)  
             | 3.10 Eastop chapter (Reader article)  
             | 3.11 Apprenticeship and Collaboration 3 (Video)  
| 16         | **3.6 A collaborative task continued** (CMC)  
             | Assignment 3 (10 hrs)  
             | 3.12 Digital Planet: cybertalk (Video)  
             | 3.13 Fenwick chapter (Reader article)  
| 17         | **3.6 A collaborative task continued** (CMC)  
             | Assignment 4 (10 hrs)  
             | 3.14 Guile and Young chapter (Reader article)  
             | 3.15 Usher chapter (Reader article)  
             | 3.16 Reflecting on collaborative CMC  
                 (Hypermedia authoring—5 hrs)  
| 18         | Assignments 5 and 6 (8 hrs)  
             | 3.17 Review of progress (CMC)  
| 19         | Assignment 7 (10 hrs)  
             | 3.18 Apprenticeship and Collaboration 4 (Video)  
             | 3.19 Eastop chapter (Reader article)  
| 20         | Assignment 8 (10 hrs)  
             | 3.20 Exposing students to new perspectives (CMC)  
| 21         | Study week—time to reflect and review  

Participation in online conferencing and Internet searching with fellow students (respondents: 10 tutors)

Throughout the course, students were expected to engage in online discussion in groups of 15–20, which were moderated by their tutor. The course writers’ intention was that:

“Computer conferencing is an integral part of the course and, as such, is an essential component of it. Computer mediated communication (CMC) also feeds directly into your assignments.” (Twining, 2001b, 6)

Table 2: The sequence of activities involving HyperNote, demonstrating scaffolding of learning through their increasing complexity

<table>
<thead>
<tr>
<th>Study Week</th>
<th>Activity</th>
<th>Purpose of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.1 Introducing the software</td>
<td>To explain the importance of the software to the students—and how it fits into the overall design of the course.</td>
</tr>
<tr>
<td></td>
<td>0.4 Installing the software (3 hrs)</td>
<td>Install the software and learn how to load it.</td>
</tr>
<tr>
<td>1</td>
<td>0.5 Perspectives (2 hrs)</td>
<td>Learning how to browse an existing hypernote.</td>
</tr>
<tr>
<td>8</td>
<td>2.2 Analysing a learning situation (8 hrs)</td>
<td>Learn how to: edit an existing hypernote; create a new hypernote; make links to notes; make links to video clips.</td>
</tr>
<tr>
<td>11</td>
<td>2.13 Reflecting on Block 2</td>
<td>To reflect on the differences between different forms of representation (eg. Hypernote and serial text).</td>
</tr>
<tr>
<td>14</td>
<td>3.3 Reflecting on your own learning (5 hrs)</td>
<td>Use HyperNote as a tool to help you reflect on your own learning.</td>
</tr>
<tr>
<td>19</td>
<td>3.16 Reflecting on collaborative conferencing (5 hrs)</td>
<td>Use HyperNote as a tool to help you reflect on a learning situation.</td>
</tr>
<tr>
<td>23</td>
<td>4.7 Read HyperNote essay (5 hrs)</td>
<td>To model for students how they might use HyperNote to represent information (as they are required to do in Assignment 5)—as well as providing them with more “course content”.</td>
</tr>
<tr>
<td>24</td>
<td>4.8 Analysing clips (7 hrs)</td>
<td>Use HyperNote as a tool to help students analyses a range of “learning scenarios” presented in the form of short video clips.</td>
</tr>
<tr>
<td>26</td>
<td>4.15 Website analysis (6 hrs)</td>
<td>Use HyperNote as a tool to help students analyse two websites.</td>
</tr>
<tr>
<td>27</td>
<td>Assignment 5 (10 hrs)</td>
<td>Demonstrate their ability to use HyperNote to analyse some “learning scenarios” in the light of the concepts and theories presented so far.</td>
</tr>
</tbody>
</table>
Mid-way through the course students were also given an online collaborative activity, in which they were expected to work in small sub-groups of four to six students in order to search for resources on the Internet, and to reflect on their experiences of online collaborative working (see Table 3). Table 1 illustrates the way in which the students’ collaboration was integrated with the other activities within this part of the course.

Tutors were emailed for their feedback on group participation towards the end of the online collaborative activity, which was just before the fourth assignment. It appeared that for about half the tutor groups, input to group discussion had waned since the start of the course, and the sub-groups had only achieved limited success in the collaborative task. In the other half, students had achieved success, or partial success in the collaborative tasks.

It is likely that the extent of success was related to a variety of factors, notably the skill and moderation style of the tutors. Indeed, some tutors staged online chats, emailed individual students, and changed the composition of groups to encourage participation. This is in line with previous observations on the crucial role of moderators in online discussion (see for example Mason and Bacsich, 1998).

However, it was clear that the greatest hurdle to successful participation was the lack of integration of assessment with the collaborative task. At the same time, an impending assignment (Assignment 3 in Table 2), which was not related to the activity, materially detracted from student efforts.

"Assessment tasks take priority and however valuable the learning opportunity might appear to be, it will be sacrificed in the name of survival... collaborative work without a fairly obvious outcome/deadline/audience/grade is extraordinarily difficult."

"... an impending [assignment] reduces participation significantly, and the very short gap between [assignments 3 and 4] has more or less killed activity in my conference stone dead... Some of my students who began hopefully in the spirit of the course have been put off conferencing simply because they began to feel they were providing useful material for others who read but did not contribute."

"... timing and incentive are both important—a number of my students commented that they would have completed this activity (and taken a more active part) but stopped when they felt they had to give priority to work on assignments."

The effects of assessment on student learning are common knowledge in conventional university courses (see for example Knight, 1995), and the experiences described here have been observed on other distance and networked courses (Lockwood, 1992; Macdonald, in press). These effects really underline the crucial role which assessment plays in providing a focus for study, in rewarding effort, and in providing feedback. Students see assessment as clearly signalling which areas of the course are most valued by the course writers. This was something the course designers were aware of and attempted to address (Twining, 2001a), by locating the collaborative task three months
### Table 3: Extract from Study Guide describing a collaborative activity

**ACTIVITY 3.6 A collaborative task**

In this activity you will work with a sub-group of your tutor group using FirstClass—your tutor will set up these groups for you. The conference is expected to take place over several weeks—please refer to your Study Calendar for details.

The purposes of the activity are to:

- develop your ideas about independent learning by discussing them with others in your tutor group;
- give you an experience of collaborative conferencing activity within the context of E211. You should draw on this experience in your thinking about collaborative learning within this block.

As in Activity 3.5, your task is to answer the key question:

**What are the main characteristics of independent learning?**

However, on this occasion you have to come up with **one joint answer** to this question within your group.

As before, we have divided this task into separate stages.

**Activity 3.6a**

In the FirstClass sub-group conference, post the analysis you carried out in Activity 3.5, with the evidence from the sites that you chose.

**Activity 3.6b**

Read the analyses from the other members of your group and look at the evidence they present from the sites that they chose.

**Activity 3.6c**

In the group, collaborate using FirstClass to produce an integrated and agreed answer to the question, supported by evidence. You will need to discuss not only the task to be carried out, but also how you are going to organize yourselves to complete it. Your analysis should include an outline of which aspects of independent learning are more important than others, and why. Remember that you are aiming to produce one coherent answer to the key question, which all the members of your group have agreed.

**Activity 3.6d**

Post your answer to the key question in the tutor group conference, so that the rest of your tutor group can share your conclusions.

**Activity 3.6e**

Read the responses posted by the other groups within your tutor group.

**Activity 3.6f**

Write some notes in your Portfolio about your reflections on how well your group collaborated and what you have learned about independent learning and collaboration as a result of Activities 3.5 and 3.6.

Conferencing takes time, and you will be asked to reflect on this activity later in this block.
into the course, spreading it over a four week period and explicitly linking it to the portfolio and other activities. However, this proved not to be sufficient.

**Hands-on experience of ICT for structuring reflection on learning**
(respondents: 18 students; 6 tutors)
During the course students were introduced to a custom written hypermedia authoring tool called HyperNote (See http://correz.open.ac.uk/mathetics/hypernote/default.htm for a brief overview of the software). The Course Team had anticipated that:

“... creating effective hypermedia presentations involves making explicit the relationships between ‘discreet chunks’ of information. In order to do this one has to think clearly and deeply about one’s understanding of those relationships. Thus hypermedia authoring involves metacognition.” (Twining, 2001a, 106)

For the fifth assignment students were required to write a hypertext essay, as an exercise in exploring and making explicit the relationships between course concepts, and using links to subsections of video clips as illustrative examples.

The course included a series of activities, which were designed to build students' confidence in using the software (see Table 2). In addition, the students were informed at the beginning of the course that they would be required to use HyperNote for their fifth assignment and that the activities were designed to prepare them for this. Despite this, it appeared that many students had either missed them out, or otherwise assigned a low priority to them.

When asked whether they felt confident in using HyperNote on completion of the assignment, the majority of students said that they were confident, however many students had really only got to grips with the software during completion of the assignment.

“... confidence gained on completing [assignment 5], which gave me practice of using the functions of this new software.”

“I wasn’t confident at all when I was studying Block 4 [immediately before the assignment].”

“The most important point for me is that it was not until [assignment 5] that I understood certain parts of HyperNote. I think that this aspect of the course could be improved by providing some short activities to check that the student is on the right track.”

This last comment is interesting because a greater integration of activities with assessment could have provided a channel for feedback, as an important part of the reflective learning cycle. Networking offers the potential for more flexibility in the provision of rapid feedback on certain assignments, and a greater use of student input in the shape of peer assessment and model answers. This is an important instructional strategy for web-based courses (Collis, De Boer and Slotman, 2001; Macdonald, 2001).

Although the assignment was highly significant in encouraging students to engage systematically with the software, they also had to make effective use of it to write in hypertext.

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“Learning to use the software means not only learning how to operate it technically (which ‘buttons to push’), but also the ways in which it might be used, together with the underlying implications of its use.” (Twining, 2001b, 6)

The evaluation revealed that some two thirds of students felt confident in expressing their ideas using HyperNote, or found that its use had contributed to a new form of expression.

“I think in a pictorial way, and I found this medium helped me to express myself.”

Feedback from tutors on this assignment gives an insight into how successful they felt their students were at writing hypertext essays. Not surprisingly, their comments were rather less optimistic than their students’, and it appears that the assignments were variable in quality, with only a few students producing good work. Many appeared to have put all their effort into mastering the software, at the expense of content and analysis. Some students had written essentially linear accounts, with little concession to the opportunities for divergent routes through the narrative.

“The most striking thing was one generally average to weak student who not only demonstrated a good grasp of [course concepts] but used the hypertext format really well…”

“Students made a big effort to meet the assignment’s technical specifications, but the scholarly content, though accurate enough and well chosen, was slight and uncontentious.”

“... the middle of the road student... lost some of the content value/relevance while ‘tinkering’ with the tool.”

The lessons here show that for an exercise as complex and unfamiliar as authoring in hypertext, students probably need incremental support to develop their skills. As can be seen from Table 3, this scaffolding was provided within the course through a series of activities, which gradually increased in complexity in terms of the technical, conceptual and analytical aspects of using the software. However, it was not sufficiently tightly linked to the assessment in the early stages of the course. In this particular case, support over more than one assignment could have helped students become proficient not only with operation of the software but also in its effective use.

These observations on the use of assessment for the incremental development of skills on networked courses are borne out by those made on other courses (see for example Collis, De Boer and Slotman, 2001; Macdonald, Weller and Mason, 2002).

**Maintenance of learning portfolio** (respondents: 11 students; 6 tutors)

Students were expected to keep a learning portfolio throughout the course, in which they recorded their notes from the course, together with reflections on their own learning development. Entries into the learning portfolio were private, although students were invited to draw on their portfolio entries for assignments, and there was a requirement to use material from the portfolio in the final assignment.

It appears that many students did value the portfolio as a tool for reflection, although it was clear that some floundered in trying to construct an effective structure, and others abandoned their efforts.

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“It made me look carefully at each activity and note answers to directed questions as well as my own observations. It’s a bit like setting up files and their subdirectories on a computer, building a tree to show how things relate.”

“I envisioned an electronic filing cabinet where all my notes and diagrams together with printed material were scanned in for future reference and linked with e-mails, private chat transcripts and completed assignments. The end result has actually been a collection of different folders stored on different computers together with various binders full of notes... it has been a learning experience with lessons for future courses of this kind.”

“The portfolio was never really defined; it was always, at best, a loose definition. However, I took it [to] mean a file/collection of all my work (and thoughts)... we were told how important it was but if you didn’t use it there weren’t any penalties!”

“I had somewhat limited content to draw on (ie, I got fed up and stopped doing it halfway through) so didn’t really use it much in the [extended essay].”

These comments are very much in line with previous work (Moon, 1999) on the value of learning logs, but also on the difficulties which many students experience with reflective accounts, and the help and support they need in effective ways of setting about the task. Many students on this particular course kept their portfolios in electronic form, although this was not a course requirement, and this in some cases compounded their difficulties.

Comments from the markers indicate that use of portfolio entries in the final assignment was patchy, and there seems to have been some confusion as to how obligatory this was.

“Difficult to assess from the examinable component [final assignment] I felt. Some made direct reference, some over-used more as a diary than as a reflective tool, some I felt used ideas from their portfolio, but may not have signposted their portfolio as the source of their thoughts.”

“Most students hardly used the portfolio at all—it was generally tokenistic.”

“Only a few made good use of portfolio evidence (despite frequent reminders). Some merely referred to notes on activities kept in the portfolio and a couple didn’t even mention the portfolio (and probably didn’t keep one—how cynical I am!)”

“The portfolio in all but a couple of cases was conspicuous in its absence! The odd reference or quote in most of the others I suspected was to meet the requirement to use it. Some honestly admitted they had not kept it up to date—which may have meant not kept at all.”

Previous observations on the maintenance of reflective logs (Thorpe, 1995), where students could choose to use portfolio material in the final assessment, showed that although over half the respondents began a learning file at the start of the course, only a quarter were still keeping it by the end of the course. It really accords with comments made here on the choices students make, when deciding whether or not to undertake activities.

The lack of portfolio use described here underlines the importance of integrating learning activities very closely with assessment over the entire period that you wish students to engage with them, and making very clear the penalties for not fulfilling the
assessment criteria. In this case many students did not make sufficient use of their portfolio despite the fact that:

- the portfolio was introduced at an early stage in the course;
- students were explicitly told at the beginning of the course that the portfolio would be required for the final assignment;
- the portfolio was referred to throughout the course (as illustrated in Table 1).

**Relationship between activity-based learning and assessment**

Activity-based learning has much to recommend it as an experiential approach, and the use of networking can enhance course design in many ways. At the same time the interface between activity-based learning and assessment needs careful consideration, so that the two aspects are mutually supportive.

The extent to which students undertook the activities as designed by the Course Team varied widely, and it was clear from their participation in online discussion that influential factors determining this included the form, content and timing of the assessment. The course exemplified the influence of assessment in two directions:

- participation in an online collaborative activity was hampered by an impending assignment that was unrelated to the collaboration.
- competence in use of the courseware HyperNote was only achieved during completion of an assignment which required its use.

These two examples emphasise the importance of linking relevant assessment to the activities and ensuring that the timing of that assessment matches the scheduling of the activities themselves. Misalignment on either of these dimensions (relevance and timing) reduces the likelihood of students engaging with the activities.

What skills and processes required support through assessment? The experience here underlined the importance of articulating the processes involved in using any software, during course design, so that students were appropriately supported in their learning. Inevitably, students’ abilities with respect to the use of both multimedia software and conferencing software were variable. However, a significant number of students were struggling with technical skills at a point in the course when, had they engaged with earlier activities, they should have been ready to use it for more complex tasks. Although the scaffolding and introductory exercises were present in course activities, it was not until students were expected to use the software for an assignment that many of them got to grips with the tools. Effective use of the HyperNote software for a complex writing task required, in the first instance familiarity with the tool, and many students did not proceed beyond this point until it was almost too late. It is important that the skills to be developed during a course are accurately articulated in the learning outcomes, and then well supported through practice and feedback in activities linked to assessment. Their development may require incremental support through more than one assignment.
The same points may be made with respect to the use of the learning portfolio in this study. Whilst previous work has shown the value of learning logs in supporting student reflection (Moon, 1999), their completion constitutes activity which will be perceived as optional unless it is integrated overtly and unambiguously with the assessment. Furthermore this must be reinforced throughout the period during which the portfolio is being kept. The completion of a learning portfolio also requires particular skills which students may need to practice, and which would benefit from feedback. Additional skills, such as file management and hypertext linking may be required where the portfolio involves writing and organising material using a computer.

Key issues for the assessment of activity-based learning
The experiences reported here have underlined three priorities for the design of assessment for an activity-based approach, and these priorities reflect conventional wisdom for assessment design. What is new here, is the application of these principles in this new context, which has wider implications for the assessment of any constructivist pedagogy in a networked environment.

Assessment must reflect course philosophy
In line with constructivist principles, assessment should be aligned with the exercise of active learning, responsibility and autonomy. It must embed those aspects of the course that the course designers value most. If we are to develop greater self-direction in students, then they need to learn how to judge their own work, and to participate in its assessment. There is also a shift in emphasis from the delivery of content, to the development of critical learning, and this too must be reflected in assessment design. At the simplest level this means making assessment criteria explicit, so that students can see clearly the aims and objectives of the assignment. At a more advanced level, students might participate in assessment through peer review. If the course is activity-based, the assessment must reflect the type, or types of activities in which students are expected to engage (Twining, in press). So for example if one of the requirements were the use of a learning journal, then at regular intervals through the course the assignments might require use of reflections from that journal and/or explicit self-evaluation of students’ experiences and approaches to using their journals.

Assessment is essential in creating learning opportunities at critical points
If the course is designed around learning activities, then it is important that students undertake those activities in order to engage with the learning process and derive benefit from the course. The close integration of activities with assessment will ensure students’ participation. So an assignment which requires reflection on a topic of online debate, or on the application of a particular skill in operating course software, helps to ensure participation by most students, if it is timed to coincide with the relevant activity. This in turn will reinforce the effects of a conscious choice of media mix to enhance student learning.
Assessment provides a vital opportunity for feedback, helping to complete the reflective learning cycle.

For online distance students, assessment is critical in providing a vehicle through which they receive formal feedback on their learning. It represents an important part of the reflective learning cycle. For skills or competencies which are complex, activities linked to assessment can be used to provide incremental support and feedback over more than one assignment. This ensures that students are given the chance to practise their new skills, perhaps in operating software, before moving on to more complex activities involving the use of software for higher order tasks. There can be scope for automating some of the simpler aspects of this rapid feedback, in order to provide students with a running commentary on their development. Networking provides new options to enhance feedback, using student input in the form of marked assignments, or parts of them, in order to assist fellow students to see alternative approaches to writing. There is also scope for iterative assignment development, so that students can develop their writing in response to comments from both peers and tutor.

In common with other online constructivist approaches, courses with an online activity-based pedagogy are more demanding of students than traditional distance courses (Twining, 2001a), and expect a more student centred and independent approach to learning, which may be unfamiliar to students. In order to maximise the learning potential of this approach, course designers need not only to scaffold activities carefully, by providing incremental support for students’ learning, but also to link them unambiguously with assessment over the duration of the course.

References

Macdonald J (2001) Exploiting online interactivity to enhance assignment development and feedback in distance learning *Open Learning* **16** (2) 179–189.