Supporting placement-based learning using networked technologies

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Abstract
The growth in the use of networked technologies provides educators with mechanisms to add value to learning experiences where learners and educators are geographically distributed. Increasingly, placements are used within the more vocational disciplines to provide students with a reflective learning experience within the context of the work environment. Such remote learning can be supported through the use of networked technology, enabling a high degree of interactivity and helping learners to enhance their learning styles. A case study is presented that considers the design and implementation of such networked support, focusing on the learner’s evaluation of this experience. The results from this study identify that networked technologies, such as audio conferencing and Web-based support, have a beneficial role in the learning experience, and that considerable advantages can be derived from their use for placement-based learners.

Introduction
Increasingly in vocational undergraduate courses, such as computing, business management and engineering, students undertake a period of planned, out-of-institution, work experience related to professional development within the main degree subject. This experience, referred to as a placement, is increasingly recognised as being vital to ensure a complete learning experience. Placements are considered to be beneficial by several stakeholder groups in higher education, with students rating the availability of placements as being a significant factor in their selection of undergraduate courses (Callender, 1997), employers stating their desire that students are given such experiences (London Economics, 1997) and placements now being firmly advocated within national educational policies (Higher Education Funding Council for England, 1999).

Placement-based learning is defined as involving full time employment (over 30 hours per week), over a significant time period (three months or more), strongly linked to the student’s prior and post studies, and that supervision is provided both by the learner’s institution and the organisation providing the placement. Placement-based learning offers a number of significant advantages for the learner. It provides them with an experience that permits personal, educational and professional development. In vocational subjects, skills are enhanced, reinforced and extended. The placement enables the student to explore potential career paths and to understand the relevance of class-based studies in a professional context.

A key issue for educators is how to ensure that the placement process offers a beneficial learning experience. Principles for enhancing work-based learning include the need for the support process to focus on learning aspects, encouraging independent learning that takes into account personal development through the reflection of work-based activity.

Providing support for placement-based learners and ensuring that reflection and learning are occurring poses a number of difficulties for educators. Placement-based learning shares many of the characteristics of distance learning, with learners being geographically dispersed, needing flexible exposure to formal learning experiences, involving little direct interaction between learners and educators and requiring considerable independent student-centred study. Thus, the problems and solutions of distance learning (Laurillard, 1993) have considerable relevance to Placement-based learning.

In recent years, there has been considerable focus on the use of information technology (IT) for distance learning as an educational aid that is both efficient and cost effective. Mason (1994) notes that networking is changing the nature of distance learning in the way courses are designed, delivered and supported through administrative links. A variety of environments have emerged aiming to support numerous domains, activities and learning experiences, including the use of the Web, asynchronous-and synchronous communication media (Brittingham and Cook, 1995). However, there is a tendency for institutions offering distance learning support not to contemplate how such techniques could be further exploited to enhance already existing learning experiences, such as the placement process. This paper considers the issue of supporting placement-based learning through the use of IT. The next section identifies the requirements of providing support to placement students. This is followed by a brief consideration of computer
Placement-based learning

Placement-based learning provides students with an experiential learning experience (Kolb, 1984). Experiential learning should result in learners demonstrating a number of learning styles, such as those identified by Honey and Mumford (1992):

- activist – through experience and doing;
- reflector – through observation and reflection;
- theorist – through understanding reasons behind phenomena; and
- pragmatist – through experimentation.

Although each of these learning styles should be supported and reinforced within the placement process, there are a number of difficulties in providing such support. As learners are geographically distributed, educators cannot easily ensure that learners fully comprehend the learning they are achieving within the placement, and further learners may be unaware of how to relate placement-based learning to their academic studies.

Typically, placement-based learning is supported through the filling in of a logbook, which is generally used as part of the assessment process. In this logbook, students record their experiences and seek to reflect on their learning experience. The assessment of the placement process generally seeks to assess the learner’s development of each of these styles, and thus can be considered to be assessment based on:

- Requiring the student to be more creative drawing many ideas from various sources and creating something new (McDonald, 1979).

However, many students fail to comprehend the purpose of this activity and often provide something that is little more than a diary, rather than an account which reflects their experience in the light of their current academic knowledge. Further support is given to students through a tutor visiting them, to help them to reflect on their learning experience. However, due to time and cost constraints, in the majority of institutions such visits will be limited, thus offering extremely limited support.

The emergence of networked educational technologies provides a means that provides a mechanism that permits educators to communicate with placement-based learners, increasing the support offered by institutions to their placement-based learners.

Computer conferencing

The term “computer conferencing” has come to be an umbrella description for various forms of computer mediated communication, these are technically mediated, distributed and may be synchronous or asynchronous. There has been tremendous growth in this form of support for learners, with many hundreds of courses offered that use conferencing (Nicholls, 1997). There have been a number of doubts raised as to the utility of conferencing as a teaching aid, however, Thompson (1995), sums up the use of computer mediated conferencing as both cost- and educationally effective, offering high levels of student/tutor and student/student interaction.

Now that such communication systems are in place and bring participants in the system “closer together” Maney (1996) suggests that there is a need for development of teaching and learning strategies to use the new tools. The fact that the communication tools have been put in place, in some instances, without fully developing such strategies could be criticised and it is suggested that there are dangers that with the use of technology we may have a solution looking for a problem.

Rasmussen et al. (1991) consider the disadvantages which need to be overcome when using computer conferencing including the learner (and tutors) having to learn how to use the systems but, more importantly, determining how to integrate the conferencing system into the learning experience. It is suggested that essential elements include proper frameworks for definition of aims and objectives and user support.

A variety of models of synchronous computer conferencing can be seen from the text-based environments discussed in Fanderclai (1995) with respect to the use of high quality direct link audio/visual environments. Video conferencing, whilst previously prohibited by the cost of equipment which would produce good quality sound and video, was mainly used in large, multinational corporations (Ingrams, 1996). Audio conferencing, without video, has grown in availability because of the expense
and sometimes lack of need for video capability.

Although conferencing has been found to be a valid and effective way of providing a learning experience, this needs considerable planning to ensure that all participants achieve a stimulating and useful learning experience. Such planning and implementation needs to take a number of factors into account, including factors such as the learning experience itself and the availability and usability of the technology to support that experience. In Dooley’s (1996) study of faculty concerns on the use of conferencing, at Texas A&M University, it becomes clear that conferencing needs to be planned and implemented in a controlled manner, not simply installed using existing support structures. The following case study details the planning and implementation of a learning experience for placement students based on conferencing and Internet technologies.

### Case study – using conferencing to support placement-based learning

The case study focuses on the support of 95 students placed in employment throughout the UK, as part of an undergraduate business course where there is a compulsory work placement year in Year 3 of the course. During this period, students spend 48 weeks in employment and their period of employment is assessed and contributes 20 per cent toward their final honours classification.

The bulk of this assessment is through a reflective journal of the student’s individual experience whilst upon placement. Students are briefed upon the assessment needs prior to leaving for their placement and given back-up literature during their placement year. The students are supported through their placement year through two visits from their placement tutor.

The tendency of learners to adequately reflect on their learning within the placement process was determined to be a significant problem by tutors. To remedy this problem, the idea of a briefing session toward the end of the placement period, which could be attended by all students and given in a consistent manner to all, was proposed. The aim of this briefing session was assist the knowledge and understanding of the needs of an academic appreciation of a student’s placement experience. Given that the students are dispersed, this would prove expensive in both time and travel expense to bring all students together whilst working on placement.

Following models of instructional design (Gough, 1966) (Falk and Carlson, 1995), a number of alternatives were considered. Video conferencing techniques were seen as a possible approach. However, after contacting a small sample of 12 students and discussing the issue with tutors responsible for placement, it was discovered that few would have access to video conferencing facilities. E-mail and e-mail “conferencing” was considered but discounted as it was felt that more interaction was required.

After discussion with British Telecom (BT), it was decided that students would be invited to attend an audio lecture/briefing given over the telephone and synchronised with a PowerPoint slide presentation presented over the Internet. The audio conference was to be managed by a BT chairperson, who would introduce students as they joined the conference and students could indicate to the chair, through the telephone touch tone controls, if there were questions. The student questions could be asked by the student and then answered by the presenter. The “PowerPoint” presentation was to be synchronised by the audio conference presenter, pages being turned as with a normal PowerPoint presentation using “Far Site” software, to allow presentation upon the Internet.

Chang and Chen’s (1995) work identified the need for careful design of the learning experience and this was provided through using the Instructional Design Model, as presented by Gough (1966).

The presentation and audioconference was first tested by the presenter performing the presentation to members of staff involved with student placement. Following the test run of the presentation it was decided to send students hard copy of the PowerPoint slide presentation, prior to the conference, in order to allow for different learning styles, as expressed by Kolb (1984), and also to cover the possibility of problems with Internet display. The hard copy was also seen as a means to minimise student note-taking and allowed the possibility of future reference.

One week prior to the planned presentation, the total population of 95 students was contacted by letter, informing them of the purpose of the lecture/presentation and including a hard copy of the PowerPoint presentation to be displayed on the Internet. Also included were details of the telephone number for the audio conference and the Internet Web address at which the PowerPoint presentation could be found.
The impact of this experience was assessed through the use of a questionnaire. This included questions related to the learning experience and of a general nature concerning the setting up of the conference and general “housekeeping”. Although 65 learners took part in the conferencing experience, only 30 of these returned the questionnaire, and these results are presented below.

**Evaluation of the learning experience**

Students generally considered themselves to have some experience using the Internet and it may therefore be reasonable to assume a relatively trouble-free presentation. However, a considerable number of technical problems occurred, for example, in maintaining stable connections and related to the varying behaviour of Web browsers. This result identifies that there is a need that both student and tutor are adequately trained in the use of the technology, echoing the work of Rasmussen *et al.* (1991). Even though many students did experience problems, the vast majority of students did not find the conference too complicated to use.

The responses to the questionnaire show a general enthusiasm toward the conference prior to attending. However, there is an increase in negative aspects after attending the conference. While the reasons for this may well be due to the problems which were experienced by some, it could also be that the process may be viewed more positively with further and more regular use.

Students’ views with regard to the usefulness of the conference compared to more traditional ways of learning, although varied, show that the conference was perceived mainly as an addition to, or part replacement of, lectures and tutorials, similar to the findings of Rose (1997).

The vast majority of students saw the interactive question and answer session as useful. Although students did not see the process as a replacement for direct tutor contact, which reinforces the view that such technology may simply be a useful addition, but not totally replacing existing techniques. As with the Witherspoon (1996) study, which used video conferencing, the financial and travel time savings were identified as benefits, plus the benefits of working in the home/work environment.

The lack of interaction between students was perceived as the main disadvantage. Also identified as a disadvantage was the need for more time for reflection before questioning. This was unexpected and shows a greater maturity than anticipated and closely demonstrates the learning process of Kolb (1984). The fact that students found taking notes to be variable, in extent of the problems it created, shows that students adopt various learning styles (Honey and Mumford, 1992).

Overall, students found the experience beneficial and thought that it enhanced their learning experiences as an addition to, rather than a replacement of, the other techniques used to support placement-based learning. Students who had attended the briefing session were seen to have more understanding of the need for reflective criticism of their learning experience than those who did not, and this was found to be more successful than students had been in previous years.

**Discussion**

IT is seen to have been adopted, to considerable benefit, in many areas of education. Benefits of using IT to aid the teaching and learning situation within the placement process have been found to include:

- Greater support of students, removing the constraints set by geographic distance.
- Greater diversity of resources become available to students.
- The use of IT has been seen to bring added dimensions to the subject matter and enhance the learning process. Within the context of audioconference and Internet presentation used for this study, the “interactivity” with tutors gave added value to the process not previously available.
- Cost savings are available, particularly to the higher education institutions but also to students, by the use of IT in teaching and learning.

However to set against these benefits a number of disadvantages have been identified:

- Although recurrent cost savings may be made, many of the studies covered within the literature review identify high set-up costs.
- A major issue with the use of IT in a teaching and learning situation relates to the standards and compatibility of the equipment in use. Although many standards are becoming rationalised, the changing nature of the IT environment ensures that this could always be a problem.
- Training is also seen as a key issue. Users, both staff and student, need to be trained...
in the use of IT. Despite students believing themselves to be competent in the use of the technology, problems were still encountered. These may have been avoided through better preparation and additional training. Not only is it apparent that staff need to be trained and supported in the use of IT – in simple terms of using the technology – but also how best it may be used to aid learning. It is clearly inappropriate to invoke the use of IT without careful planning of the appropriate context, objectives to be achieved and both the physical and intellectual resources required.

From this study, it is apparent that there are benefits to be achieved, and savings to be made, using IT in supporting the placement process. The placement process and the learning involved within it, bear many similarities to distance learning, and provide a context where IT clearly has a role.

Future work aims to focus on whether more improvement within the learning experience can be achieved through further extending such conferencing facilities to video conferencing. Further, additional computer-based support through the provision of shared work spaces, electronic information sources, e-mail and bulletin board systems, are currently being evaluated at the University of Northumbria, to enable additional value to be added to the placement-based learning experience.

References


