

Learners' experiences of blended learning environments in a practice context

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Abstract

Seven courses which develop and assess learning in a practice or work context are the focus for exploring students' experience of technology-mediated study practice. Students' experience of their work practice context brings an added dimension to the rich mix of factors influencing students' approaches to study and to technology use. Research methods draw therefore upon activity theory and social theories of learning that foreground the development of learner identity within practice communities. At this early stage, interview data is presented drawing on a triangulation of perspectives from course developers, tutors and students. Interpretations are tentative, but the importance of students' work context in relation to positive or negative orientations to technology is evident. Students' sense of professional identity may position their experience of technology as either at the boundary or closer to the core of their practice, and this materially affects their learning trajectory and their resistance to, or acceptance of, technology as a key element in their course.

Keywords

Technology-enhanced learning, practice learning, practice boundary, student learning, communities of practice, activity theory, student experience

Introduction

Research funded under the JISC Learners' Experiences programme has targeted the collection of data from students about their experience of ICT in association with their study at university. The first round of projects established a distinctive set of practices among students mainly attending full-time on campus (Creanor et al., 2006, Conole et al., 2008). Such students took technology for granted and saw it as integrated not only with how they learned, but also with their social and other life activities. Indeed the boundaries between home, work (for some students) and university study were porous and sometimes barely detectable. Students also selected the technologies they preferred and gave scant attention to University Virtual Learning Environments (VLEs) where these were not well established or effective. The successor projects (<http://mw.brookes.ac.uk/display/JISCle2/Home>) seek to take this work further in exploring the experience of particular sub-groups of students and constructing interpretative frameworks for this evidence that can feed into policy and practice debates about teaching and learning at university.

The research aims and methods

The project reported here investigates the use of technology by Open University students engaged in distance learning. The students whom we have selected for study bring an added dimension in that they are mostly in employment and studying courses that draw very directly on their professional or work practice. In the case of two selected courses from Health and Social Care, students must be sponsored by their employer and registered for a degree in Social Work before they can apply. All the other courses are open to any applicant who can study at the appropriate level (two are at masters level) and can draw upon the requisite experience of employment. Table 1 lists the courses and the technologies they make use of. The research addresses key issues in relation to four main areas:

- choices students make about using ICT and what influences that, whether it is critical moments during study or in the workplace, interactions within or outside the study context, course design or features of the technology itself
- experiences students have of ICT and differences between individuals in terms of ICT skills and appropriation of tools across different learning contexts - work, study institution, personal/social lives
- ways in which ICT supports achievement of learning outcomes and any mismatches between course-designed ICT usage and students' actual uses

- organisational issues of policy and/or systems support as these influence ICT usage either positively or negatively - including both workplace and institutional contexts within this issue.

Table 1 Courses included in the research and the tools they are using

Code/ title	Key elements of the course in relation to the proposed study	Tools			
		1	2	3	4
T228 Cisco Networking	Provides knowledge and skills needed to configure a LAN/WAN using Cisco equipment. Students can go on to gain the industry-recognised certification through the CCNA examination. Students study the CCNA program using an online curriculum provided by Cisco, and most study is online. There are 4 compulsory day schools focusing on skills development and team working, with preparation using simulation tools, 4 formative online assessments, 3 tutor-marked assignments and an examination. Some tutors use Instant Messaging. No prior knowledge assumed. 30 points	√		√	
T885 Team Engineering	Students to work in small teams addressing an engineering problem in depth. There are two compulsory residential weekends at the beginning and end. Students work collaboratively with their team and tutor, using FlashMeeting, conferencing and individual and team blogs. Students use the Internet and eLibrary, and course materials focus on group working, project management and the project brief. The course is a compulsory component of the MEng and the Postgraduate diploma in Engineering. 30 points			√	√
K113 Foundations for Social Work Practice	Compulsory component of the Degree in Social Work. Focuses on information literacy and ICT skills via European Computer Driving Licence (ECDL). Students must be registered for the Degree in Social Work and sponsored by their employing agency. Assessment is via 5 tutor-marked, 3 computer-marked and an end of course assessment. There are 8 tutor-led compulsory workshops and practice is verified. 60 points	√		√	
K216 Applied Social Work Practice	Students must be registered for the relevant (UK national) Degree in Social Work and sponsored by their employing agency. Students have 1 day a week free for study from their sponsoring agency and undertake 100 days practice learning supervised by a practice assessor. Required to build ICT skills using ECDL requirements. Tutors run a series of 8 obligatory tutorials, on and offline. 60 points	√		√	
B201 Business organisations & their environments	This course develops personal and professional practice in business and is grounded in the student's own experience of business organisations, whether as an employee, customer or stakeholder. Students use the ePortfolio software MyStuff to save material that is later used to answer assignment questions. Online forums are used extensively: 60 points	√	√	√	√
B857 Current Issues in Public Management & Social Enterprise	This course in the Masters in Public Administration is for anyone who has an interest in researching and applying contemporary thinking and practice in the domain of public services (for example, hospitals, education institutions, armed forces) and social enterprises (for example, charities, NGOs, civil society organisations, not-for-profit companies). During the course, the students work with other students from different backgrounds using the Moodle Wiki to investigate two current topics in depth. 30 points	√		√	√
M883 Software Requirements for Business Systems	This is a 15 point course at masters level focusing on requirements engineering. Students use a computer for a major proportion of the study time, downloading articles, software and assignments from the course website. There are three assignments and an examination. Students are also provided with a software requirements tool for use in recording requirements. Students are also invited to use the Moodle Personal Journal tool. 15 points		√	√	√

Specialised use of particular technologies: 1. E-assessment, 2. E-Portfolios, 3. Conferencing/forums, 4. Wikis or blogs

Sharpe et al. (2005) have argued that we have little evidence about students' experience of ICT in higher education. However there is a well-developed literature on student learning more broadly. Richardson (2006), building on the phenomenographic approach (Entwistle & Ramsden, 1983), has developed a model of the relationships between sets of variables that have been identified through large-scale surveys using the Course Experience Questionnaire (Ramsden, 1991). This model (figure 1) constructs student learning in terms of interrelationships between perceptions, study behaviour, demographic background and outcome measure (pathways A to F). These have been validated in terms of statistical analyses of large-scale data sets.

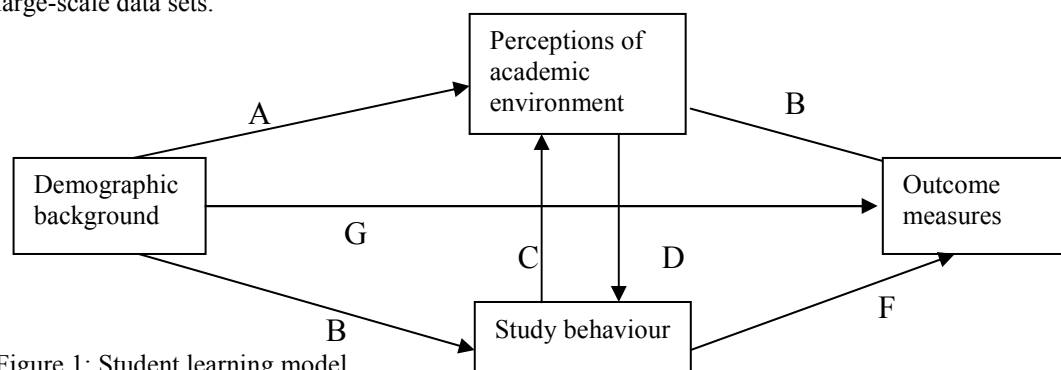


Figure 1: Student learning model

Student perceptions of the teaching environment and their study behaviour are influenced by their demographic background and are also mutually influential in that there is a bi-directional association

between perceptions of the study context and study behaviour. Students manifesting different study behaviours will perceive study contexts differently and study behaviours will also vary in response to how students perceive the study context. Measures of learning outcomes are both directly influenced by demographics, perceptions and study behaviour, and indirectly influenced through the mutual influence of these key sets of variables. However, this model is only a partial fit for the courses being researched, where the work context itself adds another dimension of opportunity, constraints and associated perceptions on the part of the student. The important points we can take forward from this research literature are the multiplicity of inter-related influencing factors and the mediating role of perceptions and study behaviours in determining the impact of institutional provision on learning outcomes. There are other research traditions however that also offer contrasting theoretical frameworks of relevance to the particular situation of this research, where work and practice activities are variously incorporated into the study content and process. Students on the courses in our study are drawing on their work experience and context in several ways, through:

- 1 engaging in practical tasks constructed using a variety of technological tools during course study, particularly aimed at emulating real world procedures or challenges. Students on T228 for example use the Netlab to allow managed remote access to a live router, switch and firewall systems.
- 2 having workplace practice incorporated within the study requirement, under supervision and with assessment carried out to sector standards. Students on K113 for example need 20 days of assessed practice to confirm their acceptability for working with service users and in K216 they undertake 100 days of assessed work practice.
- 3 engaging in reflective discussion of and personal reflection on work experience and the implications of study for changing working practices. Most of the courses require students to make use of their existing work experience and to reflectively integrate theoretical and other study material into a critical interpretation of their practice, often assessed in tutor marked assignments.

These features of the study process point towards research in the areas of work-based learning and informal learning (Malcolm et al., 2007), where strong links have been established between learner identity and social practice. Wenger has outlined a theory of social learning in which learning is bound up with the development of identity as a member of a practice community (Wenger, 1998). Learners who engage in a social practice learn as an integral part of being allowed to participate progressively in the core practices of a community they are seeking to join. Such communities construct strong boundaries around the practice, in terms of shared tasks, negotiated enterprise and specialist discourse. Novices learn as a product of developing a personal identity as a member of a particular community and engaging progressively more independently in its practices. Wenger has identified the complexity of constellations of practices in which professionals negotiate their identity and develop knowledgability. These include theory, research and the prescriptions emanating from regulatory bodies, as well as the local practice of communities. The practitioner is not likely to be engaged to the same degree in each of these practice communities. Some may be engaged only periodically, as in the case of learners participating in academic practice communities during periods of study with The Open University on the courses researched here. One of the key issues on such courses is the way in which practitioners engage in academic practices focused on theory and research, while also retaining confidence in their identity at the core of a local practice. The point is not to replace one practice by another, but to subject both local practice and academic practice to critique and mutual scrutiny from each perspective.

While no practice can subsume another, in the sense of being able to fully represent another practice, some practices have acquired more legitimacy and power. Academic discourse has claimed a dominant role in constructing what counts as knowledge and this can inhibit the knowledge constructing activities of practice communities. Learners on practice-based courses who cross the boundaries between these different practices, can face a disabling loss of confidence. Equally, if learners find their use of the discourse of an academic community is rejected in the workplace, they may find themselves unable to express their identity as a learner within that practice, and thus experience an identity conflict or even a loss of confidence more generally.

The concept of identity has also been stressed by researchers of adult learning, who have given learner identity a central place in accounts of participation in learning at work and in educational contexts (Ecclestone, 2007). Narratives of learner engagement draw on learner accounts of experience throughout

the life course, in order to trace the impact on sense of self and on changes in the motivation to learn. Learners with class and gender identities that do not align with identity as a university learner have described the risks of higher education in terms of the risks of academic failure and of loss of contact with family and social groups closely tied to personal identity (Brine and Waller, 2004).

A third area of research that also offers a relevant and complementary perspective is that of activity theory, with its focus on the object of activity and the potential contradictions that arise when new tools are introduced into a practice, changing, even transforming established ways of doing things (Kerosuo and Engestrom, 2003). Engestrom (2007) also uses the concept of boundaries between practices as the focal point for where new opportunities for learning arise, and where contradictions may be most easily identified. An activity theory perspective will be particularly useful in terms of interpretation of findings that relate to the institutional and organisational contexts.

These research frameworks use qualitative data on the learner's experience and draw upon narratives provided by learners themselves. The perspective of academics and tutors, as community members within the course activity system, provide insights that feed into interpretation of the learner experience. The research agenda is conceptualised in terms of documenting changes in practice that result from engagement in particular learning activities, and research methods need to capture changes to both practice and learning that are generated by the interaction between academic and practice-based learning contexts. Triangulation of perspectives is also important here, since learners do not have a privileged insight into all areas of this landscape. Tutors as well as the course team can draw on insights and perceptions for relevant data from their different perspectives.

The methods we use in our research combine both qualitative and quantitative approaches. Interviews with the lead academics on each course, a small number of tutors and student volunteers are the primary data we are using to explore and make sense of the student experience. Students are being contacted frequently during their course, using a variety of methods. A survey of a larger sample of students on each of the courses will capture a broader range of student perspectives, in particular students' views on the usefulness and usability of technologies (for study, work and leisure purposes) and associated affective issues. The survey has been developed building on the well tried and validated Technology Acceptance Model (see for example Venkatesh and Davies, 2000) and on work by Jones and Issroff (2007) on affective issues. This will enable us to set the qualitative work on our volunteer learners into a wider context in relation to broad approaches to ICT usage and perceptions related to its role in learning.

This paper focuses on the early stage of data collection which has involved development of case studies of each course drawing on course team and tutor interviews, recruitment of students as volunteers on courses currently being studied (others will start during 2008) and engagement with them in gathering data on their experience of ICT. We focus on two courses which offer contrasting contexts and point towards the kind of findings that we will be able to more fully document at a later stage in the data collection process. We report course team and tutor perspectives on ICT issues in the design of two courses and early evidence of student experience, drawing on issues of local practice, identity, boundary crossing and student experience of the learning activities.

Study experience on a social work course

Foundations for Social Work Practice (K113 – see table 1) is a first year course for students registered for a degree in social work, sponsored by their employers and incorporating work experience as part of assessed work. ICT and information literacy (IL) play a strong role in the course and the regulatory body requires that social workers should incorporate key areas of ICT and IL skills as part of their degree study. The European Computer Driving License framework provides the specification for the ICT skill development, and online activities have been developed specifically to address comparable skills in word processing, file management, spreadsheet and database usage. These activities are scheduled for study throughout the course, they are assessed in each tutor marked assignment and also in computer marked assignments. Students must achieve a threshold of 40% of the marks in this area before they can be awarded a course credit, hence engagement is mandatory. The skills however do not constitute the full ECDL and students who want that qualification must register separately at any institution offering the ECDL modules – typically a Further Education College.

An interview with the course chair identified key issues in relation to the research. Students' workplaces differ in important ways, with large local authorities providing better access to computers and the Internet than the private sector, particularly small providers. The course is distinctive in the sector in that other providers cover ICT skills on a separate module, whereas this course integrates skills development alongside academic content. Students also have to attend seven face to face workshops and engage in an online discussion forum for two weeks after each workshop, to develop and reflect on the issues raised. The course team was aware of the work context of many case workers, where ICT may play little or no role. Some practitioners may also have poor access at home, and little experience in using a computer.

Two tutors (new to the OU) were interviewed in August 2007. Both had attended the course briefing; one tutor reported a steep learning curve personally in terms of the ICT aspects of the course. Although students are directed to contact the helpdesk if they have any problems with the ICT activities, tutors felt that this did not cover all the problems and felt obliged to respond to students' need for help. Their assessment of how much students developed their ICT skills reflected the different starting points of students. All had word processing and document management skills and used these throughout the course. Some had prior experience of Internet searching, spreadsheets and databases, whereas others did not. However the mandatory nature and assessment of these activities meant that students all achieved the required outcomes but skills learned later in the course, on areas not used commonly in practice, such as spreadsheets and databases, were less well embedded. Where activities were not perceived relevant to immediate study or workpractice, time spent was resented by students. However all students found the time required for ICT was an unexpected element of study – although it is described in the course description in advance of study - and both tutors highlighted the initial encounter with this at the beginning of the course, as 'a culture shock for the majority'.

Tutors also commented on the online forum discussions and both saw increased participation by students where activities made connection with authentic concerns from the practice. One tutor commented on an activity that overcame students' tendency to make the minimum contribution:

Where that has gone beyond that was on the first activity where several of them really go quite into talking about their own language history and sharing some aspects of it and beginning to recognize the relevance of their own experience of language and the way in which they can understand and relate to other people.

Student experiences will be collected from February 2008 but some evidence is already available from two sources. Two students from last year's cohort, provided a reflective commentary on their experience of studying K113 which is posted on the course website to help new students, and both highlight ICT aspects. One student saw her attitude as changing from her first reactions which were as follows:

At the start of the course I felt that the IT part of the course was the least relevant to me. I was ...coming in to do a social work qualification and I would sit and look at the IT session and think 'this is nothing to do with social work. What am I doing? Why am I doing it? It's a waste of time.

But s/he also described the impact of a recent child protection inquiry linked to the death of a child that dominated the national news media for months.

We are looking at using more electronic systems and electronic filing system for children's information to ensure that children don't slip through the net or don't get missed anywhere...I think initially I was very reluctant about the IT aspect of the course. But as I got into it it became very much a part of the course...You had to get a certain amount of IT work done each week just as you had to do a certain amount of reading...you become used to it after a while and you get in the habit of following the lessons.

The second student also recognised ICT skills as becoming a fact of daily practice in her work place and also that she had been able to apply K113 skills back in her workplace, working for a local authority near Glasgow. Maintaining records of client work and partnerships was key, together with new skills such as searching databases:

I didn't really use my skills to search other databases to inform my practice but I now do. For example I was working with a service user and I was trying to get them ILF funding and I was able to search the ILF database you know for them and print things off for them. The Scottish Executive have a fantastic website as well. If I hadn't done the course last year I would not really have had the knowledge to think 'you know

something, I can use this because the links in here are going to help me. It's going to inform my practice which will make me a better worker for my service user.

Other student experience is documented in the open-ended comments from a year one course survey. Most of the comments on the ICT elements noted that they were time consuming and some felt they were a distraction from study of the rest of the course. Mostly students who were negative had not been convinced of the use of the skills for them, or felt that the value outweighed the time they required:

Computer component – far too time consuming. Had to print off loads of instructions to no avail – I will not use any of this in work or study!
Doing ICT at home alone when feeling frustrated if my computer looked different to what was on the guidance. Also online discussions and conferencing. It does not work if all students do not participate at the same time.

Clearly these students had not been able to connect up the use value for their practice of the IT skills they had learned – and resented the time commitment, particularly because many were working in quite pressured contexts combining work and study and quite a few students were doing several OU courses in parallel. This will be pursued in the interviews of students in 2008 where it will be possible to see whether they perceive ICT differently, having got over some of the early hurdles and with further course experience to draw upon.

Study experience on an ICT practitioner course

Cisco Networking (T228) uses the CISCO assessment and course materials that are used by many other institutions to deliver the CCNA qualification. The course is delivered wholly online, to offer OU students a path to gain a qualification that is well recognised in the IT profession – the Cisco Certified Network Associate. The course chair explained how the course is both about ICT and also uses ICT as a mode of delivery and support:

The aim was to bring students relevant knowledge and access to network devices with particular emphasis on practical skills relevant to the work place. In terms of ICT the course is all on line 100% and all support is delivered by VLE. So ICT as a supporting technology plays a big part. Students have access to a number of Lab tools also delivered by ICT. Netlab...allows you to access it as if you are standing in front of it...The course is about ICT networks so understanding things like how to change an IP address and set up a router are embedded in the course but on top of that the technology which is predominantly VLE helps to deliver this both in a traditional way and with embedded activities such as formative exams with feedback. But it is an integrated thing, so while they are using Netlab they think they are learning about routers but they are also learning other things like how to think for themselves and work towards a solution. (course chair)

Student volunteers for the research were invited to participate via a note from the course chair on the course website. Nine students volunteered and have participated in telephone interviews and email interactions about their course experiences since November 07. All had jobs with an ICT focus, and though the level and extent of their knowledge of computing varied, they would generally be seen as having much more expertise than most students outside of computing courses. When asked 'do you see yourself as an experienced user of ICT?' all said that they did and that they did not envisage having any problems with using ICT on the course. Their work roles include IT support/help desk, IT developer in the NHS, computer analyst for a large PC company, data in-put within a sales department, amateur builder of PCs and networks, design and maintenance of hardware and software infrastructure for business, IT technician in a school. Initial discussion with each volunteer asked about course choice and the connections between their course and their wider use of ICT. All expressed work-related reasons for taking the course, but these were far from uniform or purely instrumental. Only one student mentioned needing the qualification as an immediate way into applying for jobs. The rest linked their interest with broader assessments of where they wanted to be in future, including (for some) getting an OU degree, assessing their own existing knowledge and strengthening it, testing themselves out to see whether they could achieve the qualification and so on, as these extracts show:

I am intending to move jobs to work in ICT but need to get the qualification to show a prospective employer that I can actually do the work

To get the degree. Started with mathematical science but changed it to an open degree now.....I actually started it (the course) as personal development so it is not really a career based thing, but it is career relevant.

(interviewer: why are you doing [the course]?) The purpose is fun (so it's self-improvement then?) not even that, I am doing it to prove to myself that I am capable of doing it

It is not necessary for me to do it but I want to do it to advance myself, within my current job, with the qualification I am sure more responsibility can be taken on...And there will be a lot more potential employers later on.

These students suggest that they are strongly aware of a fit between this course and the way they view their own skills and prospects. Their identity in their own eyes, as skilled ICT professionals, and those of their current and prospective employers, plays into the motivation. To summarise this as instrumental would be to ignore the complex mix of both vocational and personal engagement. Students were engaged in short email communication about their experience of the course during the first two weeks and any benefits or otherwise of the technologies they were using. The aspect most frequently mentioned was the accessibility of the course via the Web so that study is possible wherever there is an internet connection, enabling more flexible and efficient use of time:

The main advantage is that I have internet access at most places I go, so can do a bit of studying without having to remember any books or notes.

The benefits I have found in using ICT for the course is the availability of information. I can study at any time I want, be it 3am or 3 pm and can mail my tutor and expect a reply within the next day, sometimes straight away if he is online. The interactive sessions are a great help, with some of them having Flash graphics with moving objects to better explain how a function works in a system. It is a good way of 'seeing' how data is moved from one place to another.

These extracts show the shared point about internet access and efficient use of study time, but each student comments on other features that matter to them personally too, such as speed of contact with their tutor, discussions with other students via forums, and the visual element of the online resources that enhance understanding. Two of the nine volunteers however would have preferred to learn using printed material. The ease of annotating and moving around a book, and its permanency beyond the completion of the course, were particularly valued.

Developing the research

The two courses presented above are in marked contrast. Students on the Networking course have aligned their work identity with the skills they are required to learn and see doing the course as a mark of success as a learner and confirmation of their personal identity as an IT professional, going beyond their immediate work place needs. The methods of study also fit with their practice routines. They find study can be fitted into the interstices of their working day, and so is an effective and productive use of their time. The way in which they are unperturbed by the ICT they encounter on the course, and welcome the methods used, is a measure of the close fit between the practices in their workplace and the practices of the course – particularly remembering that the CISCO accreditation and course materials are widely recognised within the IT profession. Their course carries authenticity in the eyes of their peers as well as themselves. In contrast the students on K113 are initially less convinced of the benefits of technologies or how it aligns with their work practice.

Our two examples differ also because it is only the social workers who are learning at the boundary of their practice – many feel that ICT is on the borderline of what is distinctive about their practice, rather than a key means of achieving its goals. The CISCO Networking students have identified their course as core to their identity as an ICT professional and learning for them is likely to feel more comfortable, even if demanding. Learning across boundaries is more challenging to practitioner identity, but may lead to greater personal change. We will be alert to this in working with students, seeing whether they do demonstrate very different learning trajectories and points of change.

This evidence suggests that the concept of practice boundaries offers a productive way of seeing the differences between courses and to some extent, within courses. We need to determine whether the closer

the fit between the skills being learned and the fit with the work place, the more positive the student's experience. However differences within courses raise other concerns, about personal experience and perceptions of the relevance of ICT to a student's own identity as a practitioner. Within the same practice of social work, we see that while some students resist ICT skills in the context of their course, others see the connection to their workplace and professional identity, and are already reporting how they have used their skills at work. This raises issues for the course designer, around what could be done to increase students' perception of how ICT can fit with their identity, and what would be convincing in terms of getting students to use their skills in the workplace.

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