

**Learning and teaching in a virtual environment:
A review of current thinking**

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Summary

The e-learning field is awash with publications, many full of jargon, specific anecdote or software evaluation. This brief paper aims to clarify some of the current thinking for university and college teachers who need a short introduction to the field. It explores some of the terminology used and takes a look at the considerable literature from four perspectives: the e-learning view, the educational view, the psychological view and the sociological view. The study finds broad support for the blending of face to face and online learning support, and sees particular merit in the use of asynchronous discussion online to keep learners engaged outside the classroom. Three key conclusions are drawn from the research: blended learning adds more potential value than fully online learning, copying face to face ideas online will not work and teachers must learn to deal effectively with the technology.

Introduction

In the last four years, since 1999, a vast literature has been published in the area of online learning and teaching. Whole journals are devoted to the area such as the Journal of Asynchronous Learning and the Journal of Computer Assisted Learning. This is in addition to a wider literature on information and communication technologies in relation to learning and teaching, which appears in the educational, psychological and sociological research fields. Then there is a large body of more commercial literature, both online and in print, around specific hardware and software products and their application.

It is difficult for teachers in universities and other colleges to keep abreast of developments in online teaching and learning for a number of reasons:

1. Rapid technological change in this field
2. A vast and growing literature on the developments, which is fragmented in terms of published outlets
3. Much of the growing literature uses technical terms or a specialised vocabulary

Given that teachers in universities and colleges are also expected to keep up to date in their own specialist subjects, it becomes increasingly difficult for them to monitor developments in online teaching and learning.

One solution to this problem is frequent reviews of the emergent literature in the field. The purpose of such reviews is to monitor recent developments and present the results in non-technical language. It is in this spirit that this paper reviews a significant body of the literature that has been published since 1999. The results are presented in a language that is accessible to all teachers in universities and colleges.

It may be useful at this point to define some of the terminology encountered in the literature.

- E-learning as defined by Martyn Sloman of the CIPD in his book: *The e-learning revolution* (2001) is “the delivery of learning or training using electronically-based approaches – mainly through the Internet, intranet, extranet or Web.” E-learning is currently the most commonly used term in business literature
- Online learning is a broadly used term involving the learner in connection with the Internet and World Wide Web via computer, modem and phone line. This may or may not take place in a traditional classroom setting but will usually be without the physical presence of the teacher. Online learning can involve interaction with other learners but this is not automatically implied
- Virtual learning is synonymous with online learning and takes place over the Internet without face-to-face contact between the educator and learner. (French, D 1999)
- Web based training or Computer Based Training (CBT) involves an individual learner following an instruction-based training programme. This can be online via the web, intranet etc or offline but using electronic materials eg CD-Rom. (Reynolds, J. et al 2002)
- Supported online learning involves significant interaction between the learner and other learners as well as the tutor. Typically this will include synchronous or asynchronous conferencing, small group learning and, possibly, face to face support in addition to online access to materials and information. (Reynolds, J et al 2002)
- Informal e-learning is not course-based like the two previous definitions. It refers to practice-focussed learning, usually in an organisation or community of practice setting. There are no pre-determined learner and teacher roles as these roles can be undertaken by different people at different times. (Reynolds, J et al 2002)

- M-learning (mobile learning, from a mobile facility such as mobile phone or other portable hardware. The idea relates to ICTs accessed literally anywhere and is particularly relevant in a work context where employees are required to travel out of an office environment to construction sites, scenes of crime, locations for insurance assessment, rural fields for yield and fertiliser application decisions, venues for conferences and exhibitions – the list is endless. In most of these applications, current reference is made mostly to information access, although diagnostic programs and synchronous conferencing may become increasingly widespread. Imagine Red Adair at the oil fire with you using synchronous conferencing and able to display pictures and data for current operational conditions on demand. M-learning is not just, though it could be, learning interview skills or software techniques on the train into work.)

Key components in this field, or online learning tools, any and all of which may be used in learning and teaching applications, include:

- e-mail
- listservs (these are electronic group mailing lists to which one can freely subscribe and unsubscribe)
- websites and intranets with varying levels of public access protected through passwords; these can hold specifically designed html text and graphic combinations, plus video/audio clips or uploaded information using any fairly current software such as word-processed documents, slide presentations, spreadsheets and databases
- static bulletin boards or online notice boards for announcements
- synchronous conferencing (this includes chat rooms, live conferencing)

- asynchronous conferencing (this includes interactive bulletin boards, team rooms, discussion boards)
- weblinks to other sites or portals through which further information can be found
- online questionnaires, surveys, quizzes, review questions, assessments; these usually allow students immediate assessment where correct answers are possible, or later online feedback where tutors have to grade work submitted online)
- video and audio streaming
- graphics including pictures, cartoons, photographs and live digital camera footage
- Blogs or weblogs which are personal web-based diaries open to specified groups or the public via the web

Different types of software can enable any of these components to be available singly or together on screen.

Critical evaluation of selected literature from four perspectives

It is in the nature of educational research that other disciplines will contribute to the picture and it is equally likely that considerable depth in the other disciplines will be out of reach to the educational researcher. Taking the headings described in the last section, I will discuss e-learning research, relevant educational research, psychological research and sociological research, as well as a brief investigation of the business context for e-learning, all of which seem to impact on learning and teaching in a virtual environment.

E-learning subject matter

The Programme for Industry team at the University of Cambridge – J. Reynolds, L.Caley and R.Mason – produced a report commissioned by the Chartered Institute for Personnel and Development (CIPD) to explore how people learn (published by CIPD in March 2002). The report is largely a literature review but introduces a typology for understanding e-learning which I used in the definitions above, namely the three dimensions of web-based training, supported online learning and informal e-learning. This typology is helpful in that the discussion of e-learning frequently lumps together the web-based training type and the supported online learning type and there are key differences between these two course-based approaches which are of particular relevance in HE.

Much of the negative experience associated with e-learning in the private sector has been associated with web-based training, a format of instructor-driven content based training which is not usually appropriate to a university programme. University teaching has traditionally been based on considerable interaction between learner and teacher and among and between learners in seminars and tutorials. Clearly this model of learning does not relate to the web-based training model, it is rather to the idea of supported online learning that HEIs should look when contemplating online technologies.

This latter type is learner and process focussed and requires significant interaction with the tutor. The Cambridge report cites Coomey & Stephenson (2001) who identify four major features of good practice in supported online learning as dialogue (through e-mail, bulletin boards, “real-time” chat, asynchronous chat, group discussions and debate with interactive opportunities structured into the course by the tutor), involvement (responses in structured tasks, active engagement with material, collaboration and small group activities), support (periodic face to face contact, online tutorial supervision, peer support, expert contributions, feedback on performance, support services and software tools) and control (that is the extent to which learners have and are encouraged to exercise control of key learning activities, their learning pace and timing, choice of content, navigation through course content, overall

direction and assessment of performance). This sounds like a good blueprint for a university programme whether or not it is conducted online.

This contributes to the discussion of a field which is otherwise largely a collection of descriptions of specific applications of online learning tools, from software descriptions and validations to specific cohort studies. While the vast literature of this type is interesting, there is little to show how transferable many of the conclusions really are. The context of the studies and the, usually very low, actual numbers of students studied can rarely provide a convincing quantitative case for applicability beyond their initial context. As it is also extremely difficult to generalise about learning outcomes, which by their nature are usually specific to a programme or learning event, a qualitative approach is often the more interesting, such as that of Hiltz (1997) where she describes the impacts of a particular software called Virtual Classroom™ used principally for its asynchronous conferencing tool. The self-description of a lecturer as a “cybernetic cowboy” trying to herd all his students into the virtual classroom strikes a chord with my own experience at Brighton and vividly illustrates the issue of motivating students to participate in such fora.

One theme which pervades literature on e-learning in an academic context is that of mimicry of the traditional classroom model. Many commercial learning management systems are designed to recall the vocabulary of the physical college (coffee areas, college rooms etc). This of course has been done very successfully by on our computers already with the use of words like files, desktop, folders etc. So are we simply replacing the physical world with online equivalents: the lecture with the web-based course or CD-Rom, the library with the Internet, the noticeboard with the static bulletin board or announcement area, the seminar with the asynchronous network? In one sense it may be entirely valid to reproduce labels in an online environment, which put learners and teachers at ease through familiarity in a still largely unfamiliar environment. In another sense, the idea of replacement leads us to two questions; first are we replacing the right thing and second will we as teachers be replaced by virtual reality?

That first question – are we replacing the right thing? – touches on the traditional models of learning and teaching in Higher Education. I will return to this question

under the dimension of educational research. The second question raises the “apocalypse” scenario, the idea that if learning and teaching can be delivered through the Web, why should HE lecturers be needed to give lectures in so many UK universities, after all a globalised education market should quickly rationalise into a few high quality, well established providers. A similar argument is discussed by Spector (2001) cited in Reynolds et al, (in press) and is discussed by Bourner et al (1997). If we are discussing web-based training versions of lecture courses, then there is clearly some immediate cause for concern, since corporate universities are developing such products rapidly. If, however, we are seeing the supported online learning version of e-learning in universities, then the difficulties and challenges of maintaining interactive support at a higher level than in the traditional lecture/seminar model will more than compensate for the increasing irrelevance of the lecture for information dissemination alone.

If HE is to espouse e-learning in at least one of its forms, then a brief review of the benefits and disadvantages identified in the literature could be useful.

Benefits are described by Pollard et al in the Institute for Employment Studies report Exploring E-Learning (2001) as: just in time, just enough and just for you, cost effective, up-to-date, quick, retainable, risk-free, consistent, interactive and collaborative - and therefore more fun, easy to track, empowering. Stephenson (2001) (cited in Reynolds et al, 2002) adds the following list:

- Easy access to and interrogation of high volumes of diverse learning resources, including texts, pictures, library materials, learning tools and other aids to learning selected by the instructor
- Ease of access to other materials from other sources, including non-educational sources
- Ease of access to experts, inside and external to the institution

- Interaction in various modes: teacher-student, student-student, student-learning materials
- Interaction in various time dimensions: in real time (synchronous) or over a period (asynchronous)
- Access to a range of personal support: by email with tutor and mentors, or through peer group discussions
- Ease of navigation to sources and persons within and outside the training course or materials
- Logging or tracking of activities for personal records, sharing or assessment
- Multiple levels of engagement to different depths of understanding, different volumes of data, difficulty of learning activities, according to individual capacity or interest
- Feedback loops, either from teachers, peers and others or from within the materials themselves through progress checking, quizzes and online assessment
- Linkages to other media, such as sound, video and TV
- Ease of access to simulations of dangerous or complex activities for learning purposes
- Choice of learning styles within the same package according to the needs of the learner
- Global connectivity and collaboration opportunities
- Flexibility of access from different locations

As Stephenson recognises, a number of these possible benefits can turn into disadvantages; for example all these linkages can turn into information overload, flexibility of access can encourage learners to avoid the learning medium rather than access it (since it can always be fitted in later), lots of interaction can become a distracting focus when other tasks should have priority. Additionally for the tutor, online collaboration can become very time-consuming. If responsible for course design on the Web, the tutor can not only become embroiled in time-consuming layout issues but may need to develop not inconsiderable software skills simply to produce the course in the first place. Alternatively we could start to see more partnerships between academic staff and technology staff to produce and design courses, requiring improved time management from academic staff who may currently rely on last minute adjustments to courses, and the surrendering of some ownership of course designs to technology staff. There will also be student resistance to new models of learning and teaching, particularly from mature students who may not have met the use of these technologies for learning at school or at work.

The IES study (2001) raises possible problems with technology dependency, where incompatibility with other systems and materials can cause costly waste, e-learning may also be unsuitable for some types of training eg soft skills development, although it can be used here for pre-course preparation and follow-up. E-learning may be unsuitable for some types of learners, who need high levels of self discipline and motivation, some e-learning packages can be somewhat less interactive than expected and can turn out expensive to set up and still dependent on human support.

The literature suggests that the most promising line of development in an HE context could be asynchronous conferencing. This is the online tool which is strongly associated with interaction and which brings with it the possibility of appropriate support when using web-based packages or modules – avoiding the isolation which can otherwise face the individual learner at a screen.

Christina Williams' literature review (2000) in this area identified the following benefits flowing from asynchronous conferencing:

- supports flexible, independent learning
- provides contact for isolated students, both with their tutor and with other students
- designed to facilitate collaborative learning
- students can reflectively construct comments before posting, time to think through ideas before sharing
- provides flexible tutor contact - tutors more in control over time used
- tutors can reuse answers (in email interaction or conferencing)
- permanence of Computer Mediated Communication over the transience of class discussion could produce a learning resource for revision and future students

Possible disadvantages included problems of lack of participation in electronic conferencing. The literature suggests that in the past only a third of course participants could be expected to join and post to an asynchronous conference, a third would "lurk", that is visit and read messages without posting, and a third would not visit the conference at all. However, there is considerable published discussion about how to improve participation in conferencing and my own experience suggests that much higher participation rates are achievable.

Nixon and Salmon (1996) point out that electronic conferencing is to some extent a unique medium, where the excitement and high attention of face to face conversation is mediated by the lack of social and contextual cues online. This facelessness brings advantages as well as problems, for example discrimination cannot occur from visual

differences such as gender, age, race. Tutors need specific “moderating” skills to adopt appropriate responses for this online tool, if they are to achieve and maintain participation and develop self-directed learning. Gilly Salmon describes these skills and gives excellent examples based on experience with the Open University in her book “E-moderating” (2001).

Education

Educational research is again a very large area, from which I have taken a small number of ideas which are most relevant to this paper.

The first concept is that of Bruner’s constructivist perspective of learning (1966). The idea that learning involves the construction of new ideas and concepts which bridge from the learner’s past and current knowledge and experience is one which fits particularly well with the “thinking performer” and “reflective practitioner” approaches required of professional programme students in a Business School. This kind of practice cannot be conferred by knowledge acquisition alone and develops through a constructivist approach to learning and teaching which allows the student to discover principles through problem based or case based study and class debating of organisational experience. For example, the CIPD Professional Qualification Scheme has a spiral design associated with a constructivist approach. This refers back to concepts repeatedly using differing perspectives, and requires the students to apply concepts in ways which are not “studied” but suggest themselves as courses of action from the practice undertaken. In some ways a web environment is also particularly appropriate for learning designed in this way, allowing limitless perspectives to be brought to bear on specific problems, however the students using online tools need to be introduced to handling bias and critically analysing the material they find. Through an asynchronous learning network (ALN), problems can be set for small groups to work on online in a constructivist style, where they have full responsibility for gathering material, analysing its relevance and apply key ideas to problems set.

Deanie French (1999) discusses a constructivist approach which allows maximum learner choice or control in self-directed learning over variables such as assessment of learning needs, objectives, environment, time, pace, appropriate sequence, appropriate

experiences, human and non-human resources, method of evaluation, method of documenting that objectives are met and then using this in a "teacher-designed" format for self-directed learning. In line with this concept, it will be important to keep in mind the "readiness" of the learners for work in an online environment, perhaps exploring their ICT skills, understanding of the approach and expected outcomes and preparing them to work in groups in ALNs.

The constructivist perspective on learning fits appropriately with the Situated Learning model developed by Jean Lave (writing in 1990). This is a vehicle for looking at major factors critical to the design and delivery of learner centred learning activities. The context in which learning is presented is crucial here and, applied to web-based learning, would become even more important as the lack of other clues to context in an ALN would make inaccurate and incomplete ideas easy to assimilate. This should then have implications for the e-moderator's role. If learning normally occurs as a function of the activity, context and culture in which it occurs, then a web environment for learning with its multi-media tools may be more likely to produce effective learning than a classroom environment. Because social interaction is a critical component of situated learning, the interaction offered by ALNs and the potential for informal e-learning as part of a community of practice which embodies certain beliefs and behaviours to be acquired, should produce appropriate support for the learner.

Setting up the conditions in which a cognitive apprenticeship, as proposed by Brown, Collins and Duguid (1989), could be enabled by online tools is a challenge. It is probably more desirable that such a design would include face to face support, as well as online activities designed to develop the generic understanding from the specific problem and to reinforce understanding through layers of experience. However at the minimum, designers of web environments should take account of the need to present knowledge in as authentic a context as possible – something which is entirely achievable with graphics and video but would imply very considerable design time and cost.

These ideas are entirely consistent with the adoption of problem-based learning as a teaching strategy. Research by Oliver and Oman (2001) describes a programme which

incorporates this thinking in an online course. Ill-defined and open ended problems (as real as possible) were used to form the basis of weekly group activities resulting in the regular posting of 250 word responses from the group. Assessment was by tutor and peers and aggregated to module results. Self-directed learning was also encouraged in this example, through a requirement for all participants to research the weekly topic before developing a consensual group response.

Self-directed learning is almost self-evidently a strategy required to make the most of online learning. Deanie French (1999) describes skills for self-directed learning which can be used as a basis for face to face introductory sessions prior to going online. Preparing students to achieve this strategy will require them to seek the intrinsic reward of finding updated and new information, adding new styles of learning to their repertoire and encouraging them to ask their peers for help whether for technical support or content issues. In my experience, students have to be strongly encouraged to take notes when other students are speaking about their own experience in workshops. The excitement of listening to new perspectives and the customary focus on the tutor as the only valid source of information work against this useful tactic. As a result, students often complain of a lack of notes where a significant amount of workshop time is devoted to interactive debate. This is an area where an asynchronous debate online can offer the benefit of a lasting record of the debate, and the opportunity for participants to craft their contributions a little more than in class debate, producing a wider variation of view and depth of response.

However, developing these skills prior to online learning adds significantly to the load expected of students when setting out on any online mode programme. It could be argued that, if the outcomes are not significantly different from traditional forms of learning, the exercise has too high a cost for the learner. It would be necessary to demonstrate additional benefits and values from self-directed learning for the learner to pay that price.

Knowles work on andragogy (written in 1984) provides us with a set of principles particularly relevant to the mature student audience for part time professional and academic programmes, relevant both in terms of possible adult learner preferences and in preparation for ICT skills preparation for online learning. Points suggested by

his work include the need to explain why specific things are being taught, task-oriented instruction, allowing for widely differing experiences and levels of confidence with IT and designing learning experience in which learners can make their own discoveries.

Barbara Lyman (Chapter 6 in *Internet Based Learning*, ed. French, D et al 1999) adds to the analysis of the adult learner the need to overcome major barriers to participation in learning which often stem from lack of time opportunity and money to learn, as well as previous negative learning experiences. The physical barriers can be overcome in many circumstances by online learning availability, especially with the higher uptake of computers in the home than in most workplaces (Campaign for Learning 2000) and HEIs can take advantage of this to broaden access to HE programmes, a fundamental part of many university mission statements.

Whether e-learning is defining a new paradigm for learning, as discussed by Reynolds et al in the CIPD commissioned report on how people learn, is debatable. The authors clearly state that e-learning is not adding to the theory of learning but rather to ways in which it can be experienced, drawing largely on the aspect of global connectivity. Certainly e-learning offers an opportunity for teachers to review their learning and teaching strategies, both inside and outside HE, an opportunity which many teachers have not yet grasped and do not see as relevant to them.

This response from teachers, while not universal in HE, is common and has a major impact on the learner's opportunities, according to Prosser and Trigwell (1999) (cited in Drew et al, 2001) who suggest that the way teachers conceive of and approach teaching and, according to Ramsden (1994) the way they design courses affects the possibilities for deep learning more significantly than the characteristics of individual learners, such as their learning styles (Mumford, 2001). Opportunities for CPD involving reflection on practice for academic staff are coming up against a lower resource base which is requiring them to teach, to the exclusion of other scholarly activities. It would not be too difficult to conceive of a serious lost opportunity here, with e-learning offering a chance to redesign and develop practice along appropriate learning principles to enrich the student's experience of learning, but staff unable to do this because of increased teaching load.

This is where I will return to the question posed earlier: “are we replacing the right thing?” In other words, if e-learning is mimicking traditionally accepted patterns of teaching and learning such as lectures and seminars, are we sure that we want more of the same online? If we are to fulfil the learning aims of HE set out by Bourner and Flowers (1997), we may not need to follow traditional strategies to achieve these aims. With the opportunities for self-directed learning made more viable by online learning technologies, a more appropriate response may be to stop trying to mimic and deliberately seek divergence in the way learning is facilitated at universities. Bourner and Flowers strongly advocate an action learning methodology to replace personal tutoring as staff/student ratios rise but also to achieve a number of the essential aims of HE for students. While action learning is a method which seems to insist on the face to face interaction of the group, increasingly group members are prevented from attending set meetings, through work and travel pressures.

Asynchronous networks could take some of the load here, not necessarily replacing the face to face action learning set, but allowing the set another parallel channel of communication. Simple e-mail is often fulfilling this purpose at present, but I would suggest that the literature claims additional benefits from ALNs which do not attach to e-mail (ordering of topics, instant archiving of discussion, a multiple interaction not possible in a group e-mail). Research is needed to discover exactly what benefits this could in reality deliver to sets and how those benefits might be achieved.

The introduction of new teaching and learning methods is not a debate confined to tutors and learners, this raises major organisational questions. Otto Peters discusses the transformation of the university into an institution of independent learning in Nation et al (2000). He identifies rapid changes in technology and society, digital technologies, chronic financial difficulties set against a quest for increased quality and globalisation as major factors in the HE context.

“We are dealing here with a change of educational paradigms, namely from a dominant theory of expository teaching and reception learning to a dominant system of learning by working out.” (Peters in Evans et al (2000))

He advocates increased interactivity in “virtual and real rooms” to enable students to acquire not just knowledge but methodological and social skills of communication, collaboration and understanding which are already in demand in the workplace. The stances described in the research of Fox and Herrman in Chapter 6 of the same book (Evans et al, 2000) range from the Neutralitarian, whose approach is that online approaches make no significant difference to learning or curriculum, through Boosters, Oppositional stances and Sceptic stances to Transformationalist, holding that online approaches radically change teaching and learning processes and curricula. The full range of stances can be experienced with very little research in any current HEI, but achieving a radical approach to such new paradigms will require some serious partnership working alongside the vision.

If universities cannot or do not want to change this quickly, as the corporate world is doing to take advantage of digital technologies, then is it still a valid approach to consider small scale adoptions of online tools? This is an important question for further research.

Psychology

From this major discipline I have drawn just three key ideas which I believe impact on the enquiry. They are symbol systems theory, conversation theory and social learning theory.

Symbol systems theory is relevant as it teaches that the medium and the learner have a reciprocal relationship, each can influence the other. The information processing tasks involved in using specific media sequences can contribute to a discussion of website design in particular. Conversation theory, associated with Pask (writing in 1995), puts interaction at the heart of learning, the need to make explicit half formed or new ideas and the need to use a strategy like teachback, where students teach others what they have learned, are both ideas which can significantly affect the development of asynchronous networks. Social learning theory, developed by Bandura (writing in 1997), suggests observation is a crucial element in learning. I would tentatively take this idea to support the need for a blend of face to face interaction alongside online interaction; while modelling of behaviour and cognitive activity can be expressed in

written form online, face to face interaction would be expected to improve learning according to this concept.

All these ideas have been explored through the TIP website, see references.

Sociology

I am largely indebted to Feenberg (1989) for a sociological perspective on this study. His explanation of the social insecurities set up online in ALNs where phatic expressions are missing fits closely to my experience to date of ALN dynamics. Messages can easily be misunderstood without the appropriate cues and conversations can appear jerky and unnecessarily direct. Even the use of emoticons, which is advocated by Deanie French to inject humour into the discussion, can be difficult with some software, including that used by many intranets.

Feenberg discusses the authenticity associated with being able to look each other in the eye and this strongly supports my initial view that very sustained online discussions replacing face-to-face sessions altogether could cause interaction problems.

Feenberg discusses the asynchronous character of the medium, which he suggests can cause anxiety as we await responses from students who fail to enter or post messages. Our lack of technological understanding does not entirely wipe out the suspicion that the student didn't bother to get in and post. He discusses the possibility of an obsession with interaction based on this insecurity which falls foul of the lack of social control we have in the ALN, whereas in the physical world, a look, a frown could signal our displeasure. He discusses identity, which is an issue I have discussed with other staff in Brighton Business School, where anonymous postings have been allowed in ALNs to encourage people to post. My experience is the reverse, that anonymity works against a sense of community and the desire to support each other through the ALN. The anonymous postings were required in a large undergraduate group and produced individual discrete postings. My smaller group whose names are visible regularly respond to each others' messages and engage in debate, something which might not occur were all postings anonymous – for at least the reason that the

tutor might be pretending to give a student response. In the current format, they all know when I visit the ALN as tutor, which helps to clarify the audience for their contributions.

Feenberg also discusses the concept of “social memory” of the ALN since the group exists in the ALN through the archived exchange of messages, and he gives rules for the success or failure of such rooms. He also refers to Goffman (1961) and the concept of absorption to describe the addictive nature of the potentially intense relationship through the ALN. This is particularly relevant to the design of postings by the e-moderator, consistently encouraging responses from participants through the ALN.

One final point has to do with group behaviours in online interaction, research by Johnson-Lenz (1982) cited in Feenberg suggesting that group processes need similar structuring and management to that required in the physical world. To neglect such processes would be expected to handicap the group online interaction. Hiltz and Turoff (1981) (cited in Feenberg’s chapter) confirm that e-moderating will include behaviours of a physical group leader such as becoming the “social host” and the “meeting chairperson” on occasions. The summarizing functions of a chairperson are referred to as “weaving” as meta-comments about the content of discussion help participants to summarise and unify themes.

Business context literature

The wide range of literature about e-learning which is coming from a business and commercial context is generally of a different order from the other three dimensions: usually short articles, website content and short books written for a commercial audience of training managers and Human Resource Development managers. This literature again contains a large amount of software specific discussion regarding the relative merits of learning management systems and platforms designed for the corporate intranet or the corporate university at one end of the scale and SME audiences and home users at the other end.

The Campaign for Learning national survey of Attitudes to e-learning conducted with KPMG and Ufi Ltd in 2000 would exemplify this work, describing the take-up and perceptions of e-learning from the perspective of individual e-learners, employer budget-holders for e-learning and providers of e-learning. The survey concludes that the majority of e-learning takes place in the workplace although nearly a third of e-learners do most of their e-learning from home – factors relevant to any university programme for part time students. The main ways employers deliver e-learning is through buying existing products (web-based training products), closely followed by asking employees to search the web for materials and developing materials in-house. Almost all organisations surveyed had some PC capacity for employees to access e-learning materials, although this tends to be limited.

To get some idea of the context for these responses, the survey group of e-learners was a well-educated sample with 73% having qualifications to degree level or above, compared to less than 30% in the population overall. This group had almost universal access to a PC (only 3% did not) and access to the Internet was reported to be almost universal with 83% having their own PC with internet access at work and 58% at home. The top five preferred methods for e-learning in this group were surfing the web (51%), following specific learning courses (44%), downloading information from the web to read (42%), using CD-Roms (40%) and surfing an intranet (27%). The least common formal e-learning practice was self-directed learning leading to a qualification – this rather begs the question of whether that related to a lack of qualifications by this mode or a lower preference on the part of the survey group.

From the above it is easy to confirm a common suggestion that the traditional distinction between learning and working is blurring for the group surveyed at least. This has implications for the skill base and lifetime learning patterns required for HE students and for the flexibility of HE course provision. Martyn Sloman book “The E-Learning Revolution” (2001) concurs with this idea of blurring and supports the sweeping proposition that “the internet changes everything”, attributed to Larry Ellison, founder of software giant Oracle. This paradigm shift has to do with global and increasing connectivity between people and places, blurring activities and boundaries. Sloman’s 21 propositions aim to encourage a radical review of traditional

learning models used in business, using the technology as a trigger, just such a review as has been advocated for HE.

Summary and Conclusions

The HR literature in commercial journals such as *People Management* and *Personnel Today*, boasts a plethora of articles aimed both to encourage the uptake of ICTs in support of employee development and to refocus their readers on the fundamental learning outcomes rather than the technologies themselves. There is some consensus, echoed in Sloman's book, that soft skills areas are the least conducive to online learning. This is perhaps an obvious conclusion but one which we need to take seriously in HE if we are designing modules with soft skills outcomes as well as knowledge and understanding outcomes. The blend of face to face and online approaches to learning seems relevant to both the business and the HE communities.

Salmon, (Sept 2001) writing in *People Management*, suggests that:

“the most successful online teaching and learning organisations will be those that understand, recruit, train and support their e-moderators, giving them free creative rein while also addressing the natural fears of traditional classroom trainers that there will be a loss of power and perceived quality. Interaction is fundamental to learning, as long as it is appropriately embedded in the overall experience. E-moderators need to motivate people by demonstrating the great value of using asynchronous exchange forums and resources.”

There seem to be three things in particular which teachers in universities and other colleges need to know about the latest thinking in this field:

1. The current challenge is how to blend online learning with offline learning. Straight CD-Rom based material delivers little, once the novelty of the medium is past, which cannot be more successfully presented by traditional face to face teaching and learning. Equally uploading lecture notes to the web achieves a quick negative reaction for learners, who read differently on screen and are becoming more visually sensitive. Online activities and links can offer

additional value to the learner if presented as a blend of related but different approaches to learning rather than discrete and disconnected old-style elements. It will be necessary to find a balance. In areas of the curriculum which require reflection, tacit understanding and wide knowledge fields, such as business and management studies, a collaborative learning design, making best use of self-directed learning practice, action learning and electronic material and conferencing may be a desirable way forward.

2. Trying merely to mimic online the traditional classroom environment may be the wrong direction for online learning. The new technology with its ever increasing scope and capacity cannot replace the class debate and group interaction with the tutor face to face. Instead it should use the connectivity of the web to encourage students' exploration of the vast array of resources available – helping them to develop judgement and the ability to select appropriate material for the solution of valid problems. In particular the use of ALNs appears to be supported by the literature from all four domains, but there is much to learn about the conditions for ALNs to work, support for learners, skills and encouragement for e-moderators and the kinds of learning outcome which are specifically associated with this tool, as well as whether it can mimic aspects of Action Learning or at least support functioning action learning sets.

3. Teachers will have to change and learn to make the most of the burgeoning technology. This is nothing new and does not mean that their jobs will metamorphose into technical assistants. The ability to inspire and stimulate learning is still coming from people rather than machines. Teachers need to become leaders of learning, using every resource at their disposal, or learners will come to regard us as disconnected in a real sense from today's society.

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