

Paper 3:

Networked Professional Development for Library and Information Staff: A Constructivist Approach

Philippa Levy

Philippa Levy
Department of Information Studies,
University of Sheffield

e-mail: p.levy@sheffield.ac.uk

Summary

The Internet is a rich technological, information and communication environment which as yet is relatively little explored as a space for learning based on constructivist principles. This paper describes an Internet-based professional development course for library and information staff which was offered in 1997-8 by NetLinkS, a training and awareness project funded by the HEFCE 'Electronic Libraries' programme. The experiential and collaborative design of the course was informed by the principles of constructivism, and the paper raises some questions for evaluation of the pedagogic model, highlighting in particular the issue of provision of appropriate support and challenge for participants to become skilled in the practice of independent networked learning. The paper suggests that whilst the concept of becoming skilled in

online learning is a theme running through much CSCL work, contextualised pedagogic models for active networked learning - which adopt an integrated approach to learner support in the design and sequencing of activities, the use of information resources and support, approaches to tutoring, and technological design, facilities and help - are as yet little discussed. It is hoped that case study research into the implementation of this course will help illuminate the wider question of how to embed support for 'learning to learn' into the overall design and facilitation of constructivist, networked learning environments.

Introduction

“This feels a bit like jumping into the deep end without knowing whether or not you can swim!”

This was the opening comment made by the first participant who took the plunge and posted a contribution to the online discussion forum on a recent Internet-based, professional development course for library and information staff. The course was offered as part of the NetLinkS project, a national training and awareness initiative based at the University of Sheffield and funded by the HEFCE ‘Electronic Libraries’ programme (Levy, et al. 1996). With the title ‘Networked Learner Support in Higher Education,’ the course aimed to offer an opportunity for learner support staff in libraries and resource centres to engage with professional and practical issues raised for them by the emerging networked learning environment. Information staff are increasingly involved in developing online approaches to providing information support for networked learning, teaching and research, and there is evidence to suggest that closer partnerships between learner support and teaching staff are needed for the creation and support of rich environments for networked learning.

Networked learner support requires a mix of information and IT skills, as well as expertise in the educational applications of new technologies, and many staff are finding that they need to extend the boundaries of their professional practice and role into new areas. Development of Web-based information skills training materials, creation of online reference and enquiry services, delivery of ‘mixed-mode’ or fully online courses in electronic information use, and participation in online conferencing to support the information management dimensions of student project work are all examples of networked learner support from the library perspective, and give an indication of the significant educational role for information staff in the new environment.

Based on research into professional development needs carried out in the first phase of the NetLinkS project, the course aimed to offer participants a framework for exploring key issues, concepts and technologies associated with networked learner

support, as well as for identifying and developing technical and other skills of relevance to individual practice. Taking into account both their local institutional circumstances and more general trends in higher education, the course aimed to offer participants opportunities to address:

- the emerging educational role of information services in the networked learning environment, and current trends in networked approaches to information support;
- current trends in networked learning and the potential of the Internet as an educational environment in terms of available technologies and varying pedagogic models;
- directions for networked learner support in local contexts, and organisational issues in developing and managing innovation in this field.

At the same time, the course aimed to enable participants to explore critically the experience of independent and collaborative networked learning and to engage with issues relating to personal skills development in relevant technical, information, communication, collaboration, self-management and “reflection in action” areas.

The course ran for a period of 16 weeks between September 1997 and February 1998, with 40 librarians and learning resources staff from universities and colleges of higher education all over the UK. The course structure was based on a total of seven course Units, as in Figure 1 opposite; participants were advised to spend between six and eight hours per week on course activities.

There were no face-to-face meetings, and most participants accessed the course solely or mainly from terminals at work. All facilities and resources were accessible via the Web, except the course MOO (see below) and some suggested off-line readings. As a NetLinkS initiative, the course was not accredited and there was no formal assessment of coursework, but certificates of participation could be gained through submission of learning review portfolios. Most course tutoring and technical support was provided by a core of four NetLinkS team members, with the additional involvement of a number of other colleagues.

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| Unit 1: Introductions; starting out (2 weeks) |
| Unit 2: Networked learner support: current trends, practice and issues (2 weeks) |
| Unit 3: The Internet as a learning environment: technologies (3 weeks) |
| Unit 4: The Internet as a learning environment: educational theory/practice (3 weeks) |
| Unit 5: Change and innovation in institutions (2 weeks) |
| Unit 6: Networked learner support in practice: projects (3 weeks) |
| Unit 7: Learning and course review (1 week) |

Figure 1 Course Structure

We aimed to apply constructivist principles in our approach to the design and facilitation of the course, and refinement of the model and critique of our practice are being undertaken as an action research project. The research is still very much in process, and aims to address, through the perspective of a case-study, how the elements of course design and facilitation - including learning activities; information resources and support; tutoring practice; and, technological design, facilities and support - might contribute to empowering learners within the Internet context to become skilled in managing their environment and personal, professional development. The course participant's comment above conveys the trepidation, but perhaps also some of the excitement, of launching into a new type of learning experience; a key evaluation question for the case study is, therefore: to what extent did the course model create a responsive framework in which participants were both supported and challenged to become confident in the 'deep end' of their environment, and sufficiently motivated and skilled to shape the process of their own learning?

The course model

Constructivism offers a broad theoretical framework that is becoming increasingly influential in the field of instructional design (Wilson, et al. 1995) and is frequently invoked in descriptions of emerging approaches to Web-based learning and

teaching (Khan, 1997). Following Grabinger and Dunlap (1995), key assumptions of the constructivist view of learning, and some implications for the design and facilitation of learning environments, are as follows:

1. Knowledge is constructed through an evolving process of personal, active engagement with the external world, rather than a product which can be passively received by one person from another and accumulated. Learning environments should, therefore, encourage personal responsibility and initiative, for instance in organising learning around the identification and achievement of personal goals rather than around topics, and enabling learners to exercise higher-order questioning skills, and skills in critical reflection, self-management and self-monitoring. Course design and facilitation should engage with individuals' experiences, interests and needs and encourage ownership of, and a self-directed approach to, learning.
2. Knowledge is "indexed" to context, in that meaning is derived from, and closely associated with, the experience through which it is acquired. Focusing on acquisition of abstract concepts is unlikely to facilitate transfer of meaning between situations and domains. Learners should, therefore, be able to engage with the connections between concepts and context, through participation in 'authentic' learning activities which involve contextualised problem-solving.
3. Personal representations (understandings) are developed from and through a process of social negotiation and exploration of multiple perspectives. Learning experiences should include opportunities for cooperative interaction with peers and tutors, for instance through collaborative problem-solving or project work.

Constructivist instructional design perspectives remind us to pay close attention to the detail of, and rationale for, each learning activity, whilst recommending a pluralistic approach to the creation of learning environments which can accommodate multiple goals, perspectives and styles (Wilson et al. 1995). However, much of the over-arching philosophy of constructivism will have a familiar ring to those working within the tradition of adult, pro-

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fessional learning, using experiential and collaborative learning methods. The experiential learning cycle associated with Kolb's (1984) work - which models learning as a four-stage process involving engagement in an activity, critical reflection on it, testing of reactions and observations against other perspectives and theory, and deriving implications for application to new situations - offers a robust framework for applying constructivist principles. The sections below sketch in some of the key features of the learning/teaching model and Web environment for the NetLinkS course, which aimed to apply these principles and whose design builds on previous work within an undergraduate setting (Fowell & Levy, 1995; Nunes & Fowell, 1996).

Personal goals and projects

Identification and development of a personal, work-based project was a central focus for participation on the course, which aimed, as an Electronic Libraries initiative, to promote the implementation of practical initiatives in libraries. The first Unit introduced participants to the general principles underpinning the learning approach for the course; they were invited at that stage to reflect on, and articulate, personal learning goals, and were encouraged to begin thinking about project objectives. Descriptions of purposes and project ideas were published on the course Web site, not to signal that these were in any way 'set in stone' at that stage, but to help foster a sense of learning community by sharing initial perspectives and identifying common or differing areas of interest. Participants were encouraged to develop their project plans alongside other activities within each Unit, and activities undertaken within Units 1 to 5 were designed as 'building blocks' in preparation for intensive project activity in Unit 6, in which participants produced project portfolios and exchanged critical feedback within small groups (learning sets).

Flexible activities

The course aimed to provide an activity and resource framework within which participants could pursue personal interests and learning needs whilst contributing to a collaborative learning community (a not unproblematic balance to achieve,

for either course designers or participants). A number of generic topic areas were identified for the course, but within each, structured activities and a range of resources were designed to enable participants to identify and pursue issues and techniques of particular relevance to their own professional interests and of value for their projects. For instance, a structured activity involving exploration of new learning technologies invited participants to identify and experiment with technologies of relevance to their own practice and/or projects, and to select one or more technology to review in detail and present to learning sets. Participants were largely responsible for contextualising learning activities (i.e. determining the 'authenticity' of what they did on the course in relation to their personal and organisational backgrounds), and as tutors we offered regular reminders that Units aimed to offer a structure within which to carry out collaborative and independent work rather than a prescription of the detail of what everyone must do and how they should do it.

Experiential learning

The experiential learning cycle provided the structure for the design of the course Units, which involved a combination of individual, small-group, and larger group activities. For instance, in Unit 4, participants were asked to carry out a collaborative, critical review of the design of a small number of Web-based courses, beginning with individual evaluation and reflection activities, moving on to discussion and negotiation within learning sets, reference to theoretical perspectives from the literature, and finally to collaborative production of review documents which were published on the course Web site. An 'open forum' in the course's main discussion area offered an opportunity to raise issues and questions across the whole group, to comment on the different perspectives adopted by learning sets in their review documents, and identify any implications for participants' own practice.

Collaborative activities

Collaborative work on the course included discussion, structured feedback, and small-scale group project work. Peer support was encouraged, for

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instance in exchange of advice on technical questions, and of links or references to information resources. Informal 'action learning' sets were established, in which participants were encouraged to seek and offer support for the development of their projects, and a number of Unit activities were carried out in the sets. The main discussion facility for the course was Focus, a Web-based asynchronous conferencing system; within it, a general discussion forum was established, as well as a range of others including an 'info exchange' forum - for interesting URLs, bibliographic references, etc. - and forums for each learning set, technical issues and social chat. To complement the asynchronous mode of communication supported by Focus, a MOO environment was created to facilitate synchronous, text-based chat in a 'virtual suite' of seminar rooms; each learning set had its own 'room' in which meetings could be held. All participants were offered an hour of basic training in the use of the MOO, and some learning sets established a pattern of regular real-time meetings to coordinate joint work, exchange progress-reports and feedback, and socialise.

'Process' support

The course aimed to offer explicit support for participants to develop confidence, awareness and skills in managing their learning in this environment. A number of activities were designed to provide opportunities for structured reflection and discussion on 'learning to learn' issues; for instance, support for group-work included a structured reflection activity on evolving group processes, in preparation for the collaborative work in Unit 6. The final group activity for each Unit was a 'closing round,' in which both participants and tutors commented on their experience of the Unit and discussed its design; closing rounds often stimulated a good deal of reflective discussion. Participants (and tutors) were encouraged to keep private learning journals throughout the course. A range of materials, including suggestions for the structure of learning journals, and information about the course model and the principles of experiential learning theory, constructivism and reflective practice, were also made available.

Web site design

The strong activity-orientation of the course was reflected in a number of features of the interface design. Image maps were used to illustrate the relationship between activities in each Unit and to provide graphic timetables; clicking on a map led to a description of the Unit's objectives and learning activities. Unit maps and descriptions became 'live' sequentially over the four months of the course, and for the duration of each Unit its map functioned as the course's internal home page, in order to anchor participants' perceptions of the course in the current Unit. Whilst the general framework for the course was designed in advance, this arrangement also offered flexibility for tutors to adjust plans in response to participants' interests and feedback along the way. It was also possible, in this way, to build in immediacy and informality in the tone and style of the Unit descriptions. To the left of the screen, a navigational frame offered access to the range of resources and facilities offered in support of course activities, to current and previous Unit descriptions, and to internal home, back and forward navigational buttons. Figure 2 shows a view of the Unit home page during Unit 4.

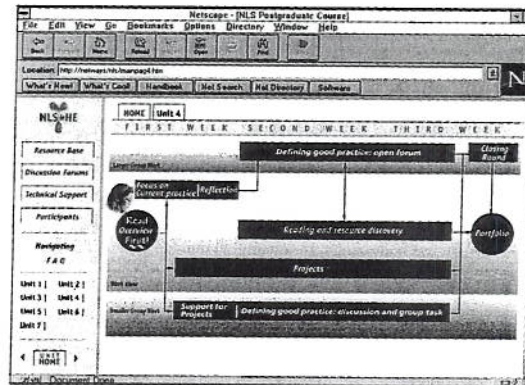


Figure 2: Unit 4 home page

Facilitation, tutoring and technical support

As tutors, we aimed to act as resources for, and facilitators of, learning and collaborative activity. Whilst some seminar discussions were led by tutors (and in one case, an 'invited speaker'), other Units used 'open forum' formats to encourage participants to take responsibility for raising issues arising

from individual and group work; participants were also able to initiate discussion threads all the course forums. Each learning set was assigned a tutor, who participated in discussions and coordination of activities, but sets were encouraged to take on much of the responsibility for managing their collaborative work. One tutor had special responsibility for providing technical support.

Information resources

A fairly extensive collection of information resources (comprising annotated links to external Web documents, links to the small range of materials produced specifically for the course, and bibliographic references to off-line documents) was presented via a 'subject tree' index created for the course. The collection as a whole was uncoupled from specific Units, with the aim of encouraging a broad perspective on the range of resources that might be relevant to participants' interests and creating a resource for independent research, for instance related to projects, which was not conceptually bounded by (or physically embedded in) the Unit framework. On this course, participants could be assumed to be both highly skilled in information searching and highly constrained in terms of time to devote to this activity; it seemed useful, therefore, to present a fairly extensive range of resources. In another context, a pared-down resource base, with course activities devoted to fleshing it out collaboratively, could be of value. Equally, support for the development of information skills was not relevant to these course participants, but might well be highly significant for other student groups. In addition to materials accessed via the resource base, resources generated by participants - e.g. summaries of personal research into current local practice in networked learner support, collaborative reviews of networked learning pedagogy, project portfolios - were also placed on the course Web site and used as learning resources.

Evaluation issues

The Internet offers a rich technological, information and communications environment which, despite interest in its potential and increasing experimentation, is as yet relatively little explored as a space for learning based on constructivist principles. Taking the objectives of constructivism and adult learning, and the design framework of the experiential learning cycle, into the new networked environment, raises a wide range of new issues and practical challenges, for learners, course designers, tutors and learner support staff. Initial feedback from participants on the course described in this paper is largely very positive, yet it is clear both that experiences varied considerably and that some elements of the course design and facilitation 'worked' better than others for the group as a whole. Comments throughout the course, and at the time of the learning and course review at the end, indicate, for instance, that personal goal-setting and the flexibility of course activities were not unproblematic features for some, and a number of discussions between participants illuminate the complex challenges of managing personal and collaborative processes in this setting. Research into the experience of participants and tutors is under way, the central issue for evaluation of the model being the extent to which it was successful in supporting participants to manage their own learning and achieve significant personal professional development.

A good deal of emphasis is placed, in the computer-supported collaborative learning (CSCL) context, on enabling learners to pursue self-managed, independent learning through asynchronous, collaborative interaction (see, for example, Harasim et al., 1995; Mason & Kaye, 1989; McConnell, 1995). It has been asserted that in asynchronous learning networks, for instance, participants "*can become 'power learners'..they need to master the skills, processes, and netiquette and work to build an online community of peers who work together to provide mutual support and challenge. Students become empowered as individuals by contributing to and learning from collaborative group efforts*" (Harasim, et al. 1995:218). Nixon & Salmon (1996) suggest that moving from novice to

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independent learner through computer conferencing can be seen as a generic process involving five steps - access, induction and socialisation, seeking information, interaction, and what they term "boundary shifting" - and indicate that tutor roles and practices should be responsive to the needs of each phase. However, whilst the concept of becoming skilled in online learning is a theme running through much CSCL work, contextualised pedagogic models for active networked learning - which adopt an integrated approach to learner support in the design and sequencing of activities, the use of information resources and support, approaches to tutoring, and technological design, facilities and assistance - are as yet little discussed. It is hoped that case study research into the implementation of this course will help illuminate the wider question of how to embed support for "learning to learn" into the overall design and facilitation of constructivist networked learning environments.

Nixon, T and Salmon, G (1996) "Computer-mediated learning and its potential." In: R Mills and A Tait (eds) *Supporting the Learner in Open and Distance Learning*. London, Pitman pp88-100

Nunes, J.M.B and Fowell, S (1996) Hypermedia as an experiential learning tool: a theoretical model. *Information Research News* 6(4) pp15-27

Wilson, B, Teslow, J. and Osman-Jouchaux, R (1995) "The impact of constructivism (and postmodernism) on ID fundamentals." In: B.B Seels (ed) *Instructional Design Fundamentals: A Review and Reconsideration*. Englewood Cliffs, NJ, Educational Technology Publications. pp137-157. Also available at: <http://ouray.cudenver.edu/~jlteslow/idfund.html>

References

Fowell, S.P and Levy, P (1995) Computer-mediated communication in the information curriculum: an initiative in computer-supported collaborative learning. *Education for Information*, 13(3), pp 193-210

Fowell, S.P and Levy, P (1995) Developing a new professional practice: a model for networked learner support in higher education. *Journal of Documentation*, 51(3), pp 271-280 Also available at: <http://www.aslib.co.uk/jdoc/1995/sep/4.html>

Grabinger, S and Dunlap, Joanna C (1995) Rich environments for active learning: a definition. Alt-J, *Association for Learning Technology Journal* 3(2) pp5-34

Harasim, L et al (1995) *Learning Networks: A Field Guide to Teaching and Learning Online*. London, MIT Press.

Khan, B. H (ed.) (1997) *Web-based Instruction*. New Jersey, Educational Technology Publications

Kolb, D.A (1984) *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ, Prentice Hall

Levy, P et al (1996) NetLinkS: a national professional development project for networked learner support. *Education for Information*, 14(4) pp261-278