Crossing Complex Boundaries: Transnational Trade Union Education

Steve Walker[1] and Linda Creanor[2]

Leeds Metropolitan University[1] Glasgow Caledonian University[2]
s.walker@leedsmet.ac.uk, l.creanor@gcal.ac.uk

ABSTRACT

Collaboration across boundaries in work and learning is a feature of networked organisation. We outline a framework for analysing learning events in terms of multiple boundaries of differing types, significance, role and severity. These boundaries may provide either/both obstacles to and opportunities for learning, particularly in a networked environment. Tutors and learners may negotiate these various boundaries with a variety of digital practices and artefacts. We apply this provisional framework of boundaries, artefacts and practices to the case of transnational trade union education, in which tutors and course participants negotiate a complex mix of boundaries.

Keywords

E-learning, trade union education, boundaries, genres

INTRODUCTION

Crossing boundaries of various kinds is an essential feature of networked organisation. In an increasingly globalised and networked world (Castells, 2000), we can expect information and communication technologies to be enrolled in boundary-crossing both in work and formal learning settings. Understanding the significance and diversity of these boundaries, and ways variously of exploiting or overcoming them, is likely to be of increasing significance in education and in the workplace. The network metaphor (Jones 2003) and its fusion of a range of theories provides a useful perspective on interpreting learning episodes such as these against the wider background of research into the networking phenomenon. For example the concept of strong and weak ties (Granovetter, 1973; Castells, 2001; Buchanan, 2002) emphasises the potential of weak links, often undervalued in the educational context, to bridge the boundaries between communities and forge unexpected relationships; the actor-network theory (Fox 2002) highlights the importance of practices such as mimicry and demonstration within and between networks. The flow and connectivity between nodes (Wittel, 2000) in terms of objects, participants and practices, accentuates the importance of connections, demonstrated in this project both by a cascade of artefacts and practices, albeit adapted to a local context by a range of communities, and by the emergence of novel devices supporting these flows. In practice, we see that crossing boundaries incorporates layers of complexity which may not be immediately evident.

In this paper we analyse the conduct of transnational trade union education courses as boundary encounters between participants in local/national trade union communities of practice. We are particularly concerned with the artefacts and practices used to negotiate boundaries in complex transnational learning events designed specifically as boundary encounters.

BACKGROUND

Learning episodes as boundary encounters

The concept of boundaries has been used frequently over the last decade in organisational studies, information systems and educational research. Boundaries can be thought of as discontinuities in some form of practice. At the most general level, boundaries occur between social worlds (Strauss, 1993) which are limited by the boundaries of effective communications. Boundaries occur, for example, as discontinuities between communities of practice (Wenger, 1998) such as the communities of academics and students (Brufee, 1999); social activities (Beach, 2003); organisations (e.g. Merali, 2002); units within organisations (Ackerman & Halverson, 1999), and work practices (Fitzpatrick, 2000). Boundary-crossing has been analysed in terms of personal networks facilitating the flow of ideas and innovation (Granovetter, 1973); boundary objects which

support the meaning across boundaries between communities of practice (Star & Greisemer, 1989) and boundary encounters (Wenger, 1998). Boundary encounters occur as people interact in some way across boundaries. They may be mediated by artefacts and/or by human agency. Examples of human agency include brokererage (Wenger, 1998) or boundary spanning. Example artefacts might include conferencing systems, databases (Ackerman & Halverson, 1999) or classification systems (Bowker & Star, 1999). The use of technological artefacts in these practices may be explicitly managed by authorised or legitimated agents in processes of 'metastructuring' (Orlikowski et al, 1994). In encounters explicitly organised to support learning, artefacts would include any hardcopy or digital learning resource, and the practices would include both intended and emergent activities of both learners and tutors. Well-designed artefacts and practices should then assist learning among participants involved in multiple settings.

Boundary encounters may be analysed in terms of communication genres which, importantly in collaborative learning, have been described as 'the meeting point between the process of producing media materials and the process of using them' (Agre, 1998:81). Communications genres have a socially recognised purpose within a particular community, and particular forms to facilitate that purpose. The concepts of genre and genre repertoire have been used to analyse elearning situations, for example in higher education (Svensson, 2002) and participation in learning communities (Collins et al, 2001). Particular genres exist in wider settings of related genres – as for example in a meeting agenda which exists alongside physical meetings and meeting minutes in a genre system or repertoire (Orlikowski & Yates, 1994; Yates & Orlikowski, 2002) or genre ecologies (Erickson, 2000) in which particular genres or genre systems may flourish or be replaced by others as communicative practices change. Genres and systems may be designed explicitly for a particular purpose (for example, in the cases discussed below by educational designers), or emerge from ongoing communicative practice. In either case, genres may change, by accident or design, over time (Yates et al, 1999) as communicative practices and the available tools change.

Since the courses described here are relatively novel and are time-limited, it will not generally be possible to identify 'genres' in that communicative artefacts can be said to have 'recurrent' use. Consequently, we use the term 'artefact' where recurrent use has not (yet, at least) been demonstrable.

Boundaries: types, roles and consequences for learning

In learning events which aim to cross complex collections of boundaries, we suggest and discuss four significant and interlinked elements with implications for the design of learning events and activities: the types of boundary in a particular learning event; the location of the boundaries among the participants in the learning event; the role of a boundary may be as a barrier to achieving (other) learning objectives or it may provide a particular site of learning in the event;   the significance of a boundary, whether as a barrier or as a site of learning .

Type: as outlined above, discontinuities exist between a range of social formations including, organisations, departments or communities of practice. Other discontinuities exist for example between linguistic groups, geographic location and national or ethnic groups. The nature of boundaries will clearly be of significance in designing artefacts for overcoming or exploiting them. For example, organisational and personal profiles may be used in an online icebreaking activity to address cultural and organisational boundaries, while overcoming linguistic boundaries might involve simultaneous or machine translation.

Location: boundaries between participants in learning events may tend to coincide with each other or to intersect in more complex ways. For example, in a particular transnational learning event, language may correlate with nationality, geographic location and organisation but an individual participant may be bilingual. This can be significant in that such (in this example, linguistic) 'boundary spanners' may be able to play particular roles in facilitating communications between other groups of learners.

Role: boundary interactions can provide particularly fruitful sites of individual and organisational/community learning, providing important opportunities for the communication of new ideas and the development of knowledge. They can also provide obstacles to achieving particular learning objectives. Consequently, boundaries can be either a key aspect of the formal and informal learning in particular learning episodes and/or barriers to that learning. For example, improving language skills may not be included as an intended learning outcome in a particular event, though some participants may informally have developed or refreshed their language skills through their participation. Language may often, however, represent the most immediate barrier to collaborative learning: if there are no artefacts for overcoming language boundaries, then there is little opportunity for any collaborative learning to take place. Alternatively (often simultaneously), learning events may specifically be designed to develop knowledge of aspects of contexts other than one's own (such as industrial relations in the cases discussed below).

Significance: where a boundary is a barrier to learning, it may be relatively minor, or left unaddressed represent a critical obstacle. Similarly where a boundary offers learning opportunities, they may be critical in the sense that the boundary learning may provide the basis for the central learning objectives or provide opportunities for less formal learning which, while 'nice to have' may not be critical. An example might be that a transnational learning event offers the opportunity to practice and improve second language skills, though this may not be a learning objective.

Boundary crossing in learning events

Based on the study of electronic communications, Yates et al (1999) argue that communication genres may be explicitly designed to support particular communications patterns, or may emerge from the practices of participants in communication setting. Similarly, we suggest that in learning events, boundary-crossing artefacts may be explicitly designed in to an event (for example by a tutor or by a materials developer) or emerge implicitly from the practice of one or more groups. The two types of practice may tend to have different properties. Designed-in artefacts and practices may be designed drawing on the experiences of tutors and others in their communities of practice. For example a document outlining a task to be undertaken by participants may be thought of as a boundary object crossing the boundary between the tutor and learner communities of practice. Such a document may have certain forms (e.g. learning objectives, task descriptions), which are understood (though perhaps differently) by members of both communities through recurrent use and thus may be said to be an instance of the genre of activity sheets. Practices and artefacts which emerge implicitly from particular learning events are unlikely to comprise genres in themselves (since they would not ordinarily be part of a longer-term recurrent practice, at least in a time-limited course). Such practices may however, form an important source of innovative ideas as tutors and participants attempt to overcome or exploit particular boundaries.

DIALOG ON – TRANSNATIONAL TRADE UNION EDUCATION

Using the theoretical tools sketched out above, the remainder of this paper examines the boundary practices and artefacts in trade union education courses carried out as part of Dialog On, a large scale project supported by the European Commission's European Social Fund, and co-ordinated by the European Trade Union College (ETUCO), an agency of the European Trade Union Congress (ETUC). E-learning and transnational education are substantial issues in trade union education as unions respond to a growing European dimension of industrial relations. Trade unions are seeking ways of creating new forms of cross-border communication, education and organisation for their officers and members. This process involves bringing together participants from diverse communities of practice within the wider constellation of practices that comprise the international, or in the cases discussed here more specifically European, trade union movement (Walker & Creanor, 2000). The Dialog On project was a part of these processes. The results described here draw on the project evaluation activities which included content analysis of online logs, participant and tutor questionnaires, and participant observation at presentations given by course tutors at project concertation and evaluation events.

A major area of activity within the project has been the implementation a distance learning programme comprising a tutor training course, followed by a programme of seven cross-border courses. The course described here as 'transnational courses' each brought together a pair of trade union educators from trade union confederations in different countries[39], and with different linguistic backgrounds, to design and deliver a course on a topic in the broad area of the 'new economy'. Within the general subject area, the tutors of each course had substantial freedom to define the content and target audiences as appropriate to their (paired) organisations. The structure of the courses was predefined, specifying a blended approach comprising two residential workshops with an intervening distance learning period using a First Class conference server as the core technical infrastructure. As part of the preparation for the courses, the tutors all participated, as learner-participants in a preparatory 'training trainers' course. In exploring the boundaries and related artefacts and practices we first outline boundary issues identified and addressed in the 'training trainers' course before identifying and summarising boundaries encountered in the subsequent 'transnational courses'. We then illustrate aspects of the potentially complex interactions at boundaries through the experiences in one of the transnational courses.

---

[39] The country pairs were Austria-Italy, France-Spain, Italy-France, Italy-Spain, Portugal-Spain, Sweden-Denmark, UK-Denmark.

Training trainers - designed practices and artefacts

In order to prepare tutors to develop, manage and teach these courses, training was designed to mirror the planned course structure and to immerse the two tutors for each subsequent transnational course in a similarly blended learning experience. From the outset it was clear that certain boundaries existed which would require to be addressed directly in the training. Given the complexity of the background, context and objectives of the project, it was recognised that in addition to those obvious barriers such as language, culture and organisational priorities, others were likely to emerge as the courses were delivered transnationally, necessitating a certain flexibility.

Crossing boundaries in residential sessions relied on standard methods for dealing with language differences such as simultaneous translation with accompanying booths, headsets and electronic gadgetry; documents, presentations and resources translated into several languages; and bi-lingual participants acting as informal bridges during social exchanges. Tutors were prepared for challenge of dealing with this online through sessions focusing on the effective use of machine translation tools; demonstrations of different language versions of the First Class client; the concept of online group work and separate monolingual sub-conferences within a multilingual learning community.

Feedback from participants confirmed that the blended approach was seen as a major factor in forming relationships, establishing the group identity and nurturing an appreciation of cultural differences. The residential sessions integrated several activities, including ice-breakers and group work, which were explicitly designed to encourage transnational collaboration. Others, such as the First Class technical training, may not have deliberately addressed this aim, but nevertheless unexpected collaboration did emerge as more experienced computer users offered to support the novices, thus spanning boundaries and deepening participants' involvement in the learning community.

Both online and offline, the tutor's role was key to identifying and addressing boundaries and the experienced tutors were seen as vital role models during the training courses. These tutors had learned how to reflect on, adapt and integrate their experiences from other communities and networks, formal and informal, national and transnational, into this new context and as such acted as important brokers between people, artefacts and practices, both designed and emergent. The tutors' experiences indicate that in this complex environment, distance tutors require to be not only highly empathic teachers, but also excellent communicators. A strong emphasis on communication skills had been designed into the training as it was recognised that text-based communication in online conferences could foreground the challenges. Guides on moderating discussions, communicating online and transnational communication were developed and tools including simulated conferences with examples of 'good' and 'bad' communication practice were used in training sessions with new tutors. A pre-defined format was developed for activity sheets which aimed to provide a clear, unambiguous outline of all learning tasks in order to avoid misunderstandings, either linguistic or procedural, between participants and tutors. Guidance and practice on designing the virtual classroom to afford usability for course participants was another essential feature of the tutor training.

These boundary objects were explicitly designed to facilitate learning episodes within each learning community. The overarching community of tutors who participated in the original training courses however was, with hindsight, less well served. A conference was provided to allow the tutors to remain in contact while they were running their own national and transnational courses, but as each tutor became more involved in their own activities, participation in this community inevitably lessened. Nevertheless, social bonds were formed, resources and experiences shared, and agreements made between some tutors to work together on future transnational developments. These informal exchanges have subsequently resulted in continuing collaboration.

Transnational courses

Once the tutors had completed the 'training trainers' course, they were responsible for the design of the subsequent transnational courses. These courses had a common blended structure, but varied substantially both in the topics covered and the target audiences (e.g. training for European Works Council members in transnational collaboration; for trade union educators in the design of an elearning unit on the subject of atypical employment; for union representatives negotiating on vocational training, on new managerial competencies).

The courses were designed to address a complex of boundaries. Across the different courses, many of the boundaries tended to follow national lines: national, linguistic, geographic and industrial relations system boundaries followed broadly similar contours. Others, for example organisational (e.g. between participants from different trade union confederations) or temporal may also exist within national boundaries. The following summarises boundaries encountered across the courses

- *Language*: the most obvious and significant boundary was that of language, since the courses were designed to bring together learners from two countries with different major mother tongues. The blended design of the courses placed different emphases on spoken and written language skills during the residential and distance phases. Many of the tutors and participants reported language as the outstanding unresolved difficulty, particularly during the distance learning phase of the course;

- *Organisation*: in all cases, participants from different countries were from different trade union organisations. Participants within particular countries may also be members or employees of different trade union organisations. Trade union organisation varies a great deal between the European countries represented in this project. As well as differences between industrial sectors, some countries (Austria, UK) have a single national trade union confederation others have separate confederations depending on type of employment (Denmark, Sweden) or political history and affiliation (France, Italy, Portugal, Spain). Organisational issues were not reported as posing a particular problem in any of the courses, suggesting either that the organisational boundaries were well negotiated, or possibly that identification of issues at the organisational boundary was conflated with other, coincident, boundaries;

- *Geographic*: the transnational nature of the courses inevitably created geographic boundaries, as course participants were unable to meet face to face, though in two courses, 'clusters' of participants were close enough to be able to meet face to face during the distance phase;

- *Industrial relations systems*: although the courses were held against a background of an emerging European level of industrial relations, the differences in legal and political frameworks in which trade unions operate remain substantial. In one course, for example, the tutor and some participant evaluations remarked that the course would have been more useful to them had the course brought them together with colleagues from a country with a more similar industrial relations system;

- *Community of practice*: participants in the courses came from varied communities of practice. Most immediately is the difference between members of the trade union educators and learners communities of practice, though others might include boundaries between trade union members and employee CoPs;

- *Temporal*: the organisation of the learning experience as a time-limited course binds together the participants in time. Within the course, the residential sessions bind participants more precisely. Time emerges as an issue more frequently during the distance learning phases, however. While asynchronous conferencing relaxes some time constraints, allowing people to participate in the courses either from home or the workplace, participants frequently reported difficulty in sustaining periods throughout the distance periods as other work commitments, for example, made it difficult or impossible for individual participants to work as envisaged in the designed tasks;

- *Technological*: participants working in different contexts make use of different communications technologies. The courses sought to overcome these boundaries by requiring all participants to use a common conferencing system and training participants in its use. While a minority of tutors were unhappy at using a system different from their national system, this proved generally successful, with the exception of one course at which the training in First Class was unavoidably cancelled (see below).

Overall, participants generally reported that the courses had been useful, in many cases reporting that the opportunity to work with colleagues from another country had been a central benefit of the course. The quality of the course outputs (including variously reports, plans for future distance learning courses and presentations) was generally reported to have been high by both course tutors and participants[40], suggesting that, in general, and despite the problems reported above, the combination of artefacts for crossing boundaries was at least partially successful.

A single course: complex boundary interactions

Figure 1 below summarises the most pronounced boundaries and the artefacts and practices deployed during the distance phase in an attempt to cross them in one of the 'transnational' courses. This course brought together 16 trade unionists (mostly elected representatives) from Italy and France to address the changing requirements for new competences among supervisory staff in the 'new economy'. The first, 5-day, residential workshop explored a wide range of issues associated with the changing nature of much professional work. The distance phase lasted three months and was organised around three tasks: 1) online introductions, in which participants

---

[40] An important success criterion identified by the designers of several of the courses was that outputs of the course would be used by participants in subsequent trade union work.

completed templates outlining their own work and union situations (two weeks). This activity also allowed participants to demonstrate that they had been able access the conferencing server on returning from the residential workshop; 2) production of a document identifying issues associated with professional competences (foun weeks); 3) production of a document exploring possible interventions by trade unions (six weeks). Tasks two and three were carried out in three working groups. Two of these groups, in effect, worked within linguistic and national boundaries. One group ('groupe Italie') was formed from Italian participants, working in Italian; one group ('groupe France') likewise was comprised of French participants working in French. In the third group, 'groupe Europe', participants' language skills reduced the severity of the boundary (though did not entirely remove it) so that Italian and French participants worked together. The design of this task required participants to work in parallel with the other two groups but with a specific remit to look at the issues at a European (rather than national) level, hence also reducing the significance of differences between national industrial relations systems.

Figure 1: Summary of major boundaries in example transnational course

Boundary Type	Location	Severity	Role	Boundary crossing
Language	Participants split equally between French and Italian mother-tongue speakers. Most (but not all) Italian speakers had some French. A small minority of French speakers had any Italian[41].	Critical	Barrier to learning	Designed: Three working groups – Italian, French & European (mixed) each supported by own First Class sub-conference.
Temporal	Participants were available at different times during the distance phase.	Minor	Barrier to learning	Designed: asynch. conferencing allows micro-level crossing of time boundaries between participants. At the 'meso' level, the work of the distance phase was organised into three tasks: one introductory (making use of the 'profile' forms); and two substantive.
Technological	A major technological boundary emerged between the Italian (already largely familiar with FC) and the French participants with the breakdown of planned training.	Major	Barrier to learning	Designed: The First Class conferencing system provided a common technological platform. Training in the use of conferencing was planned for the first residential session, but for unforeseen reasons did not happen.
Industrial relations	The national groups exist in different national industrial relations environments.	Major	Learning opportunity	Designed: in the distance phase, the 'European' working group concentrated on European-level aspects of the topic.

The plans for this course were disrupted, however, as unforeseen difficulties resulted in there being no First Class training in the first residential workshop. The Italian participants were already familiar with the system, which is in widespread use in the two Italian trade union confederations involved. The French participants, though, were unfamiliar with the conferencing system, resolving the problem by choosing to work with the email package with which they were already familiar (MS Outlook). Consequently, there was almost no cross-border collaboration during the distance phase of the course. The failure to deal with the technological boundary as planned reinforced the linguistic and geographic boundaries within the course, as well as the boundary between the Italian tutor and the French participants. One of the tutors referred to these problems differing 'technological cultures'.

---

[41] Data from participant self-reporting language confidences in pre-course participant profile questionnaire, completed by 11/16 course participants.

Despite the difficulties during the distance phase, however, there was clearly value to participants in the cross-border dimension of the course. All of the respondents to the post-course questionnaire (7/16) either 'agreed' or 'agreed strongly' with the statement that the course had been useful, and commented that the opportunity to learn and exchange experiences with colleagues from the other country had been valuable. The national distinction persisted, however, with all participants reporting that they 'agreed' or 'agreed strongly' that they expected to continue working with participants from their own country, though 3/7 reported that they were 'unsure' whether they would continue working with course participants from the other country.

DISCUSSION AND CONCLUSIONS

This discussion highlights the range of boundaries identified in the courses delivered in this project, and the ways in which (although not originally conceived in terms of boundary practices and artefacts) the 'training trainers' course helped to prepare tutors for dealing with boundary issues in the subsequent delivery of the 'transnational courses'. While needing further development, we argue that this approach to analysing communication in networked learning events will prove fruitful. Some initial issues can be identified from the material presented here.

Boundaries are related. The boundaries seen here are not independent of each other and have tended to coincide along national contours. Hence some boundary artefacts and genres supported communications across multiple boundaries (such as the asynchronous conferencing, which supported communication across geographic, temporal, linguistic, organisational and community of practice boundaries). The breakdown of the practices intended to cross one boundary may have consequences for the ability to cross other boundaries.

Boundaries are distinct. Although the boundaries follow similar contours, they do not necessarily follow them identically. This can offer particular opportunities for the organisation of learning, as for example in the establishment of transnational working groups where language boundaries become less clear-cut as seen in this project largely though through second-language skills. In a variation on this theme, one course organised working groups such that each had a 'local translator' capable of translating key contributions into the language of their own working group.

Artefacts and genres. Artefacts, whether activity sheets, collaboratively produced documents or the computer conferencing platform, have evidently been enrolled in boundary crossing. At the highest level of arranging communicative actions – that of the blended-mode course itself – we may be seeing the emergence of a genre of residential-distance-residential blended mode courses originally designed in an earlier project and implemented again here[42]. At an intermediate level, the conferencing system and its arrangements of sub-conferences, messages, threads and so forth can be seen as a genre system. (Erickson, 2000). Not all of these intended practices were successful, however. While the 'training trainers' course looked at machine translation on the web, this was hardly used either by tutors or course participants in practice.

Designed and emergent artefacts and practices. The relatively novel nature of the courses in the context of trade union education has meant that other artefacts which have been used at lower levels, (such as activity sheets) have been imported by tutors from other contexts and adapted for use online. The time-limited nature of these kinds of course means that there is less opportunity for new communicative practices and artefacts to emerge from the course participants, though participants' agreement in one course to use a 'chat' facility regularly at specified times (a practice which continued beyond the life of the formal course itself) suggests the potential.

Implications for future research and practice

The approach to understanding networked learning events outlined here has implications for both practitioners and researchers. Briefly, we suggest that for practitioners, the focus on communicative practices and boundaries may help to 'unpack' complex situations and to design tools and techniques specifically to manage this complexity. Conceptualising networked learning design in terms of boundaries artefacts and practices may help tutors to prepare for learning events, particular in the types of complex environments described here. For researchers, the use of genre analysis in online situations may provide a window on learning processes, both in participant reaction to designed artefacts, and through the study of emergent genres. Further, it suggests a line

---

[42] The stability of this top-level genre is not clear however: one of the issues identified by tutors in the project evaluation workshop was that there had not been enough opportunity within the course to experiment with alternative ways of using ICT in the organisation of courses.

of enquiry into how the design of particular artefacts and methods might afford opportunities for particular types of learning.

REFERENCES

Ackerman, M.S. & Halverson, C. (1999) Organisational Memory: Processes, Boundary Objects and Trajectories, Proceedings of the 32nd Hawaii International Conference on Systems Science, 5-8 Jan 1999

Agre, P. (1998) Designing Genres for New Media: Social, Economic and Political Contexts in Jones, S. (Ed) Cybersociety 2.0 Sage:London, UK 69-99

Beach, K. (2003) Consequential Transitions: A Developmental View of Knowledge Propagation Through Social Organizations in Tuomi-Gröhn & Engeström, Y. Between School and Work: New Perspectives on Transfer and Boundary-Crossing, 39-61 Elsevier

Bowker, G.C. & Star, S.L.(1999) Sorting Things Out: Classification and Its Consequences, MIT Press

Bruffee, K. A. (1999) Collaborative Learning: Higher Education, Interdependence and the Authority of Knowledge (2nd Ed.), The John Hopkins University Press:Baltimore MA, USA

Castells, M. (2001) The Internet Galaxy, OUP:Oxford, UK

Collins, T., Mulholland, P. & Watt, S. (2001) Using genre to support active participation in learning communities, paper presented at Euro-CSCL 2001, Maastricht 22-24 march

Creanor, L. & Walker, S. (2000) European Trade Union Distance Education, Educational Media International 37(4) 263-269

Erickson, T. (2000) Making Sense of Computer-Mediated Communication (CMC): Conversations as Genres, CMC Systems as Genre Ecologies, Proceedings of the Thirty-Third Hawaii International Conference on Systems Science. IEEE Press. Available at: http://www.computer.org/proceedings/hicss/0493/04933/04933011.pdf [viewed 5/12/3]

Fox S. (2002) Networks & Communities in Banks S, Goodyear P., Hodgson V., & McConnell D. (eds), Networked Learning 2002 Conference Proceedings, Sheffield, University of Sheffield, pp110-118

Fitzpatrick, G. (2000) Centres, Peripheries and Electronic Communication, Scandinavian Journal of Information Systems 12 115-148

Granovetter, M. (1973) The Strength of Weak Ties, American Journal of Sociology, 78, 1360-80.

Jones. C. (2003) Networks and learning: communities, practices and the metaphor of networks in Cook J. & McConnell D. (Eds) ALT-C 2003 Research Proceedings, University of Sheffield

Merali, Y. (2002) The role of boundaries in knowledge processes, European Journal of Information Systems 11

Orlikowski, W. & Yates, J (1994) Genre Repertoire: The Structuring of Communicative Practices in Organizations, Administrative Science Quarterly 39 541-574

Star, S.L. & Griesemer J.R. (1989) Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-1939, Social Studies of Science 19 387-420

Svensson, L. (2002) Interaction Repertoire in a Learning Community, paper presented to CSCL 2002 Jan 7-11, Boulder, Colorado, USA available at: http://newmedia.colorado.edu/cscl/175.pdf

Wenger, E. (1998) Communities of Practice: Learning, Meaning, and Identity, Cambridge University Press, Cambridge:UK

Wittel A. (2000), Ethnography on the Move: from field to net to internet, Forum: Qualitative Research, 1 (1) Available Online at: http://qualitative-research.net/fqs-texte/1-00/1-00wittel-e.htm

Yates, J. & Orlikowski, W. (2002) Genre Systems: Structuring Interaction through Communicative Norms, Journal of Business Communication 39(1) 13-35

Yates, J., Orlikowski, W., & Okamura, K. (1999) Explicit and Implicit Structuring of Genres in Electronic Communication: Reinforcement and Change of Social Interaction, Organization Science 10(1) 83-103