Exploring Models of Learning in Networks

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ABSTRACT

In order to explore the concept of learning in networks the paper takes as an example a pan-European e-Learning project. We report on a small-scale study involving interviews with six partners and participant observation of the Steering Group meetings. Analysis of the data suggests that there are links with earlier literature on inter-organisational learning networks. We believe our findings are useful not simply for the final stages of this project but also for subsequent attempts to facilitate learning in networks, both by ourselves, and others.

Keywords

Learning in networks, collaborative learning, inter-organisational learning

CONTEXT AND LITERATURE

The new millennium has seen the continuation of earlier massive changes in culture, society and education, based around new technologies. According to Steeples and Jones (2002) the explosive growth of the Web has been a major driver of educational changes at all levels. The Internet has emerged from its military beginnings and a period of academic development into a general, social and commercial resource in the 1990s. Speaking of changes within universities, Spender, 2000 has said:

' The process is technology driven. Just as steam and electricity changed the way we organised society,… we are now caught up in the digital revolution.'

More broadly, Steeples and Jones (2002) see a network society to have emerged, which has impacted on the debate about skills as well as highlighting the needs of a knowledge-based economy. This is perhaps not surprising given the virtual and distributed environments in which many people and project managers are working. For example, Tsoukas (1993) describes people managers as having a variety of communication technologies to help them to co-ordinate dispersed activities. The implication is that this is very different to more 'traditional' environments where face-to-face interactions on a daily basis are managed under the same roof.

Similarly, Sole and Edmonson (2002) have described some of the likely challenges facing project managers and managers of distributed teams. Their in-depth qualitative study saw virtual teams grapple with differences in time zones as well as non face-to-face communication media. They quote an engineer as saying:

"On each of these dispersed projects, our big challenge is that we just don't get together as a team because we're spread so far apart. So it forces us to collaborate…….but to do that in non-traditional ways where we can't just have a meeting or work with each other across the hall."

Their findings suggest that spending time together helps to create a foundation for team effectiveness beyond the current task in hand. In addition re-location and co-location across the dispersed teams was found to be an effective strategy for team learning. Therefore moving people physically, if not for the duration of the project at least for a period, was encouraged to allow for participation in certain key events.

Tregaski (2003) focused on three foreign-owned subsidiaries in the UK, which she names as TelCo, WaterCo and InksCo. Her findings suggest that location is important for collaboration. She reports management teams as believing that it is far better to use locally available expertise, familiar with the industry and its problems, than to buy in from further afield. Like Sole and Edmonson (2002), Tregaski's study suggests face-to-face contact is important in facilitating development activity.

These few examples from the increasing body of literature on learning networks suggest that the future looks set to involve harnessing technology to a greater degree, not just to deliver content and to support and manage learning, but also to support virtual networks, both within and across organizations. We are therefore interested in considering learning within this situated and social context, as described by Lave and Wenger (1991) and

Chaiklin and Lave (1993) amongst others. We recognize that this learning can be both technologically supported, for example using e-learning and Computer Mediated Conferencing (CMC), or not. Indeed in the example we have adopted for this study, the latter was predominantly the case.

The project under consideration was funded by the European Union e-Learning Action Plan (DG/EAC/21/01) and revolves around the creation of a European SME e-learning network (ESeN). It has sought to engage with Small and Medium-Sized Enterprises (SMEs) in order to equip them with emerging knowledge management tools so that they may become more effective users of Information Communications Technology (ICT) in their decision-making. The project involves a business school as the main partner with collaborators from six EU countries, comprising a mix of academic and business partners. It is possible to see that the project collaborators serve a dual role, in the first instance they sit on the project Steering Group and at the same time they are involved in building relationships with SMEs within their local area. In terms of learning networks it can thus be seen that the six partners play a role in two networks of importance to the project – the network of partners (facilitated by the business school) and the network of local SMEs (which each partner is responsible for facilitating). Although the proposition for the project was e-learning for SME managers, our unit of analysis here is the network of Steering Group partners. The project developed a web infrastructure to support online collaboration between the partners, but it was little used. The ESeN partners were however, required to work together to deliver the projects outcomes. This collaboration was supported mainly by Project Steering Group meetings with e-mail communication in between.

We were particularly interested in using this EU (European Union e-Learning Action Plan) funded project as a vehicle for examining the ideas described in Knight's Human Relations paper (2002). She recognises that networks are a popular subject and that they lead us to consider learning as a social and situational process. She distinguishes between network learning, inter-organisational learning and learning networks. Network learning is defined as learning by a group of organisations as a group. The learning entity is the complete network and learning outcomes are indicated through changes such as network level or network wide routines, strategies, culture, processes and systems. Learning networks are defined as any deliberate learning through interaction with others. Knight (2002) has said of learning in networks 'Network actors collaborate, that is they purposefully cooperate over time.' This is we feel an appropriate definition for the participants of ESeN.

Knight (2002) presents a table (see Table 1) to capture her arguments about the different manifestations of learning in networks and network learning. She does so by mapping the different levels of learner against the learning context and uses a naming method of row/column (learner then context) to identify different cases. For the cells above the top left to bottom right diagonal (as indicated by the arrow), context is described as being a setting within which the group is learning. Below the diagonal e.g. cell G/I the context is taken to mean catalyst for learning.

Knight positions network learning as learning by a group of organisations in any context – the unit of learning is the network and she maps this onto the bottom row of the matrix below. For Knight there is a particular interest in inter-organisational learning. She represents this as being any of the cells shaded on the matrix and defines it as learning in a dyadic or inter-organisational setting in which the learner could be an individual, a group, an organisation, a dyad or a network. This view differs from earlier researchers Larsson et al (1998) amongst others, but our limited experience here of facilitating an inter-organisational network causes us to agree with her definition.

Where learning networks would be mapped depends, according to Knight (2002) on the specific example. A group of professional (e.g. solicitors) informally exchanging information would be mapped as individuals learning within a group (cell I/G). A group of firms routinely sharing knowledge that is applied within the member firms would be mapped as organisations learning within a network (O/I-O).

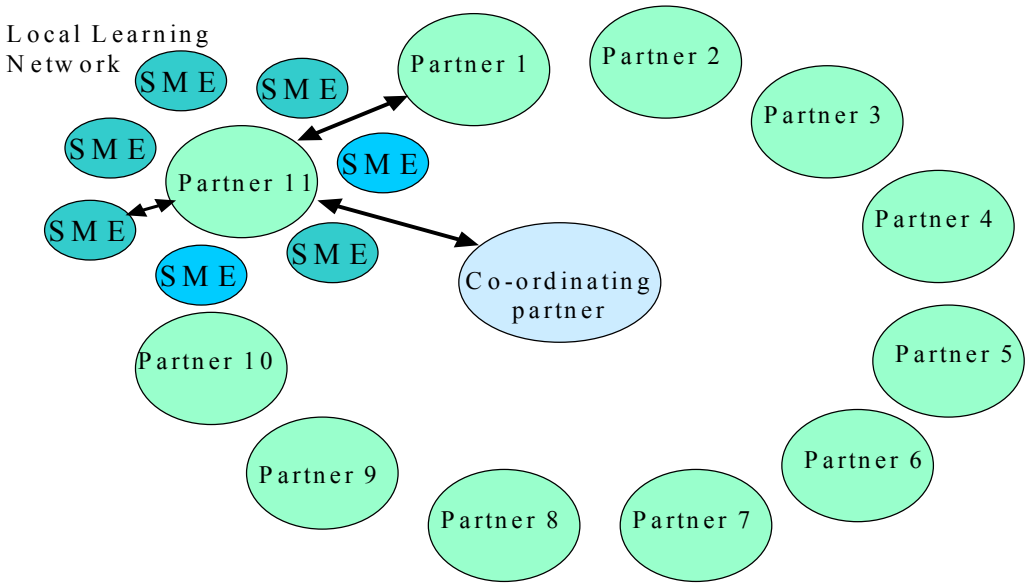
Table 1: Reproduced from Knight, 2002 Cross-tabulation of level of learner and context of learning

Context of Learning → / **Level of Learner ↓**	**Individual I**	**Group G**	**Organisation O**	**Dyad D**	**Interorganisational I/O**
Individual I	Individual learns alone	Individual learns within a group	Individual learns within an organisation	Individual learns within a dyad	Individual learns within a network
Group G	Group's learning is influenced by an individual	Group learns through intra-group interaction	Group learns within an organisation	Group learns within a dyad	Group learns within a network .
Organisation O	Org's learning is influenced by an individual	Orgs learning is influenced by a group	Org learns through intra-org interaction	Organisation learns within a dyad	Org learns within a network
Dyad D	Dyad's learning is influenced by an individual	Dyad's learning is influenced by a group	Dyad's learning is influenced by an organisation	Dyad learns through intra-dyad interaction	Dyad learns within a network
Network N	Network's learning is influenced by an individual	Network's learning is influenced by a group	Network's learning is influenced by an organisation	Network's learning is influenced by a dyad	Network learns through inter-network interaction

APPLYING THE LITERATURE TO THE ESEN CONTEXT IN ORDER TO EXPLORE LEARNING /COLLABORATING IN NETWORKS

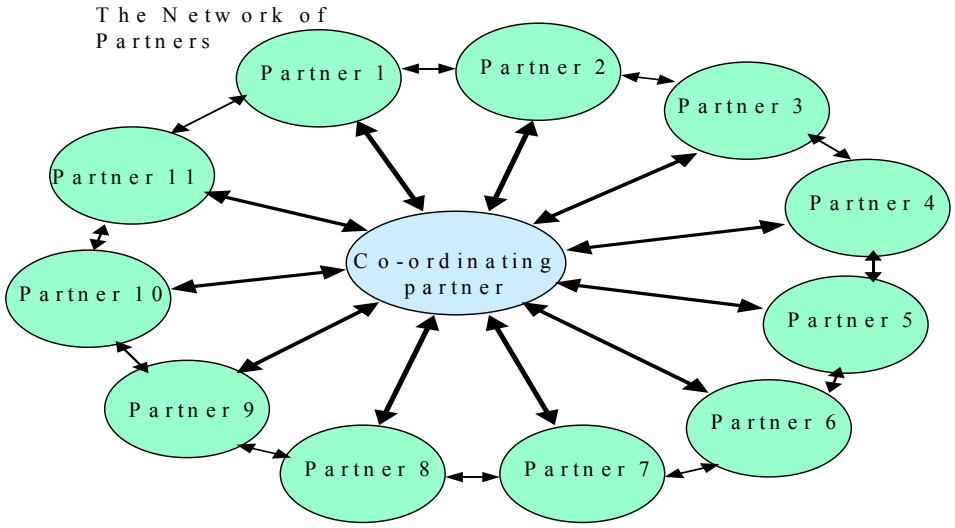
We started out with a particular interest in applying the Knight (2002) and Knight and Pye (2002) frameworks. In the case of ESeN it is possible to identify two units of analysis when we consider the level of learner and learning context. The end audience for learning is the individual SME leader. Using the previous example from Knight, of firms sharing information so that it is applied within the member firms, we can perhaps assume that the learning for SME leaders participating in ESeN will become incorporated into how their organisation does things. This would be mapped as learning within a network (O/I-O), using Knight's approach. Figure 1 below shows the relationship diagrammatically:

Figure 1: Learning interactions for SME Leaders Within EseN



In addition there is a second level of learning going on within the project, which occurs for main partners who contribute to the steering group. Here the learning would appear to be individual learning within a network (cell I- I/O), represented in figure 2 below.

Figure 2: The Network of ESeN Partners



METHODOLOGY

We have sought to understand more about perceptions learning/collaboration in networks within the Steering Group members of the ESeN project. In particular we have used the project as a vehicle to explore some of these concepts outlined by Knight (2002) and Knight and Pye (2002), as well as other authors in the emerging field of learning in networks/network learning. To date, according to Hodgson et al (2002) most research on networked management learning has been US based and the dominant research approach has been quasi-experimental. They provide an account of some of the more recent constructionist and ethnographic studies which have been carried out to understand more about online collaboration and group working. We were keen to use something similar, but were faced with the challenge of there not being an active online discussion area for the ESeN project that we could scrutinize. Instead the Steering Group meetings and collaborative activities conducted outside of these seemed the best opportunity for us to consider the partner collaborations. Given the project work responsibilities of one of the authors, we had access to the three Steering Group meetings conducted to date. The decision was taken to use these to conduct participant observation. We believed the inclusion of such a participative method was appropriate for striving to understand learning in the social world, as Symons and Cassell (1998) have described. The approach adopted was that of complete participation, as described by Gold (1958), accepting that the researcher must be reflexive and acknowledging that their own bias will underpin how they make sense of what they observe (Gill & Johnson, 1991).

In addition, we have been able to interview 6 of the 11 Steering Group members regarding their perceptions and experience of learning in networks of collaboration. Given the interviews were of an exploratory nature a small number was felt to be sufficient. The six interviewees represented five Steering Group organizations across three of the six different countries involved in the project. Of the six, four were from academic partners and two from practitioner partners.

An approach to interviewing was adopted which utilised 'conversation as method,' for more information see Josselson et al (1997) and Levy (2002). This approach is rooted in our belief that learning is situated and contextual and that participants will have a range of different collaborative experiences upon which to draw. In brief the approach is relatively unstructured, reflecting a conversation around a 'frame' which is agreed in advance by the research team. In this case, four core areas were identified, these were:

- Why have you been involved in learning networks/networks of collaboration?
- How have you been involved in the past [steer the conversation here into successful/unsuccessful examples]?
- What, in your experience serves to support the process of networks of collaboration/learning?
- Reflections on your learning in networks

Given the fact that we did not wish the research to be construed as evaluative of the ongoing ESeN project we did not overtly seek input or views on this particular collaborative experience, although we were happy for it to

emerge naturally during the conversation, should it do so. The interviews took place either face to face or over the telephone and lasted between 20 - 40 minutes. They were not taped, but notes were typed up from each interview.

Process of analysis

The conversational frame around 4 key areas provided a useful structure for dividing up the main themes which appeared from the six interviews. The field notes for each interview were read through and manually highlighted to support the emergence of possible themes. Each highlighted section was annotated with a short description of what the passage was about. Once the notes from the six interviews had been reviewed in this way it was possible to consolidate the main themes into a summary table, using the conversational frame as the main organising device. This was supplemented by two other areas which were common across all the interviews:

- issues (or what gets in the way of learning in networks)
- our interpretation as researchers of models of learning being described by the interviewee (using Knight's ideas from Table 1).

Once the interviews were completed and analysed the field notes from the participant observation were considered in order to understand more about the actual process of collaborative learning at play. For the purpose of this paper we have used the themes from the interviews as a starting point for the sense making process. Therefore we have taken what the learners have said about learning and collaborating in networks and used the field notes from the observation to look for how these have (or have not) manifested in practice.

Table 2: Summary Outcomes from the Interviews and the Participant Observation.

	Themes about Collaboration from Interviews	Participant Observation
WHY COLLABORATE?	1. Task focus 2. Share mutual interests 3. Organisational or national culture 4. Access to more knowledge and resources 5. Feedback on ideas and concepts 6. Dialogue to help analyse and explain 7. Social interaction	1. To fulfill EU requirements and justify taking share of funding 2. To produce and supply something tailored to own locality and SME interests 3. To learn from the experience of collaborating and sharing
HOW?	1. Scientific methodology 2. Project methodology similar to 'day' job, e.g. Worldwide project implementation 3. Previous EU projects 4. Surveyors e.g of a network 5. MBA programme 6. Corporate academic network	1.Followed espoused 'best practice': produced a Charter, Community of Practice input and social event 2.Use of action learning methodology for both medium and message
WHAT WORKS?	1. Strong facilitation and lots of energy 2. Common goals and agreement on ways of working (team charter) 3. Shared language 4. Geographical proximity 5. F:F meetings 6. Electronic support as appropriate 7. Social interaction 8. Time to develop own rhythm	1. Attempts to be participative and democratic (had some limited success) 2. Strong steer by coordinator helped establish a route 3. Social interaction to support negotiations 4. F:F meetings.
WHAT HINDERS?	1. Differing agendas	1. Lack of strong facilitation from

	2. Lack of buy-in and urgency 3. Distance 4. Poor relations caused by different personalities	coordinator 2. Disunity/power struggle within coordinator contributed to lack of direction 3. Different languages/ communities – academics vs practitioners 4. Different agendas
REFLECTIONS AND LEVEL OF LEARNING	As two interviewees pointed out, collaboration is difficult. Interviewees describe learning at an individual level, in the context of a group and/or network.	No evidence from Steering Groups to suggest that learning at anything other than an individual level.

DISCUSSION AND LINK BACK TO THE LITERATURE

Although our findings are still tentative at this stage, we have sought to link themes from the interviews and observation back to the literature around learning and collaboration in networks. We have found Tregaski (2003) and Knight and Pye (2002) particularly useful here.

Although writing about subsidiaries Tregaski's (2003) identification of four potential learning network modes is useful for supporting our positioning of the learning network under consideration here. Of the four modes she suggests we believe the ESeN network reflects an international inter-organisational network. Tregaski (2003) also writes about the role played by culture and power. Given the pan-European nature of ESeN, it is perhaps not surprising that we saw evidence to reinforce the role of national culture. The Scandinavian SG member reported that collaboration was for him an organizational and cultural norm, although this reference to national culture did not hold true for all the other participants. There was however further evidence of different styles of organizational culture. Two partners involved in scientific fields as well as those from a project environment describe collaborative working as the norm.

Frustrations evident in the Steering Group meetings may also in part be attributable to different organisational norms. There was evidence of different 'tribes' or communities at work. The non-academic partners showed frustration around what they perceived to be ongoing 'academic concerns'. They felt they had to provide the 'real world' insight and reality check. At the third steering group and in correspondence afterwards, they were keen to ensure that the proposed programme for SME managers, maintained an action learning element and that this was flexible so that it could be tailored to local business needs in their host country. Again Tregaski (2003) alludes to something similar, acknowledging the barriers that can arise from a lack of recognition of the value and legitimacy of the skills and knowledge of those educated elsewhere.

It would seem that personal relations, supported by social interaction helped overcome this in the case of ESeN. Tregaski suggests that personal relations, along with communication skills are particularly important in cross-cultural settings. Sole and Edmondson (2002) have similarly suggested that time together, beyond the task in hand may contribute to the success of dispersed teams. In the case of ESeN, there were some stormy exchanges in the second Steering Group, which were to an extent relieved by the deliberate social events scheduled into the Steering Groups.

If we turn to Knight and Pye (2002) they suggest that collaboration can occur through organisational or personal capacity or both. The characteristics that they suggest are included in table 3 below.

Table 3: Personal and Organisational Characteristics Supporting Collaboration

PERSONAL CAPACITY	**Organisational Capacity**
High reliance on the relationship	High organisational dependence
Positive (i.e. not defensive) attitude towards suppliers	Clear rules
Understanding of 'principles' of trust and mistrust	Alignment between performance measurement of players and of the contract and relationship

High levels of influence (role and/or personal)	Organizational proximity of players

Given the nature of learning we believe to have been manifested (being individual in nature) it would appear that the personal capacities are most appropriate here. All four capacities perhaps contribute to the some of the discrepancies between what was reported in the interviews and what we observed in practice. We shall deal with each in turn.

All the interviewees mentioned the need for a common interest or shared task or goal to support a network. We might assume this would translate on a high reliance on the network to deliver. As mentioned previously, observation from the Steering Groups suggested different agendas at play with only the co-ordinator, in the early stages of the project, appearing aware of their dependency on the other partners to deliver to contract.

In terms of displaying a positive attitude towards suppliers and an understanding of trust and mistrust, there was a lot of early energy devoted to building a positive attitude and team spirit. However, as the project progressed our Steering Group observations reveal certain frustrations for all parties. These were particularly apparent if individuals were late, left early or did not appear very 'engaged' in the process. As a result defensive feelings, if not mistrust were discernible in Steering Groups 2 and 3.

Like the issue of a common goal, all interviewees seem to acknowledge that a network is not self-sustaining and strong facilitation is required. This links to Knight and Pye's final 'personal capacity' to support collaboration which they describe as a high level of personal and / or role influence. The coordinating partner appears to have been lacking this influence in the early stages and attempts to be highly participative and democratic had only limited success. Interestingly the use of a more directive approach appeared to lead to greater collaboration and the generation of outputs.

In summary we have sought to suggest an interpretation of how six participants have described their own experiences of building and collaborating in learning networks and sought to compare this with what we have been able to observe in practice. We have been able to see evidence of a number of themes from the literature around collaborating and learning in networks, notably around culture, need for a common focus and agenda, and the need for strong facilitation and influence. Our starting point at the beginning of the investigation was however, the framework produced by Knight (2002). She captures both the context of learning and unit or level of learner – these are described as: individual, group, organisational, dyadic and inter-organisational. The interviews with the six Steering Group members suggest that in this network the unit of learning is individual. The context appears to be the network, therefore using the Knight methodology we would describe this as (I-I-O). We can therefore describe this example not as networked learning, but as an example of learning within a network. We believe our exploration of the concepts outlined in this paper provides insights that are useful for the participants of the ESeN project, but also for our own ongoing attempts to learn as participants and facilitators of learning networks.

REFERENCES

Araujo, L. (1998) Knowing and Learning as Networking, Management Learning, 29 (3)

Chaiklin, S & Lave, J, (1993) Understanding Practice: perspectives on activity and context, CambridgeUniversity Press

ESeN Project (2002-4094). www.esen.eu.com Funded by, European Commission Directorate-General for Education and Culture

Gill, J and Johnson, P, (1991) Research Methods for Managers. London: Paul Chapman

Gold, R.L (1958) Roles in sociological field observations, Social Forces, 36:217-23

Hodgson, V, Watland, P, Asensio, M (2002) Researching Networked Learning. Improving Student LearningUsing Learning Technologies, (ed) Rust C, Oxford Centre for Staff and Learning Development(OCSLD), Oxford.

Josselson, R. Lieblich, A. Sharabany, R. and Wiseman, H. (1997) Conversation as Method - Analysing therelational world of people who were raised communally. Sage Publications

Knight, L (2002) Human Relations Vol 55 (4) Network learning: exploring learning by inter-organisational networks.

Knight, L and Pye, A (2002) A Learning and change in inter-organisational networks: the case for network learning and network change. Third European Conference on Organisational Knowledge, Learning and Capabilities

Larrson, R, Bengtsson, L, Henriksson, K and Sparks, J. The interorganisational learning dilemma: Collective knowledge development in strategic alliances. Organization Science, 1998, (3), 285-305

Lave, J and Wenger, E 1991, Situated Learning: Legitimate Peripheral Participation. Cambridge, Cambridge University Press.

Levy, P. (2002) 'Researching Networked Learning and Teaching: a Case Study in Practitioner Knowledge Construction', Networked Learning 2002, p100-108

Sole, D & Edmondson, A, Situated Knowledge and Learning in Dispersed Teams, British Journal of Management Sept, 2002.

Spender, D. (2000) The Role of a University in a Dot Com Society: What is it?

http://collaborate.shef.ac.uk/nl2000.html

Steeples, C and Jones, C (eds) (2002) Networked Learning: Perspectives and Issues, Springer-Verlag, London.

Symons, G and Cassell, C, (1998) Qualitative Methods and Analysis in Organisational Research: A Practical Guide, Sage, London.

Tregaski, O.(2003) Learning Networks, power and legitimacy. International Journal of Human ResourceManagement May 2003, 14, 3.

Tsoukas, H, 1993 Ways of Seeing – Topographic and Network Representations in Organisation Theory. Systems Practice, 5, 441-56