

Methods for mapping operational proximity in professional learning networks

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Abstract

This short paper reports on the first two phases of the *Bibliotek i Endring* (BiE) or “Changing Libraries” project. Organisational change in academic libraries has not previously been studied from a networked learning perspective. The first phases of the project gathered data from participants regarding how they perceived the social networks in which they were embedded at work. Participants drew a map of this network, and “thought aloud” as they did so. A scoring system was then used to measure their perceptions of proximity within this network. Sociograms were drawn of both institutional research locations, showing that one was divided into two distinct clusters whereas the other was more connected, though both networks had isolated members. Cross-references were also made with how interviewees perceived their ability to enact change in their practices and those of others. These conclusions were presented to participants for member checking, and will now drive phase 3 of the research, in which change will be recorded over a period of a year to see how social networks influence learning and change management in these specific contexts.

Keywords

networked learning, workplace learning, communities of practice, academic libraries, social networks

Introduction

This short paper reports on the first two phases of the *Bibliotek i Endring* (BiE), or “Changing Libraries” project, a collaboration between Høgskolen i Bergen and Universitetet i Stavanger in Norway, and the University of Manchester, UK. The project has been funded by the Norwegian National Library from June 2013 - December 2014. It is a detailed study of academic libraries as workplaces undergoing significant changes. The study is sensitive to the nature of practice and how practices are collectively developed, and transformed, by learning networks that operate within the information landscapes (Lloyd 2010) of the library.

Literature review

Many prior studies of change in libraries take a top-down approach, e.g. Spacey et al 2003, which declares that in the face of change, “staff need training” and should resistance exist or emerge, this “is just something managers have to learn to overcome” (quotes from the abstract). Studies tend to rely on survey and interview methods (e.g. Mphidi and Snyman 2004, Youngok and Rasmussen 2006). Stephens and Cheetham (2011) is a good recent study which does consider broader issues of learning, change and professional development, thus viewing change and the need for it from a more bottom-up, network-based perspective, but it remains based on a survey and focus group interview methodology. Thus, practices are self-reported by participants, rather than being observed or assessed in context. In addition, and like the other studies mentioned in this paragraph, Stephens and Cheetham take a ‘snapshot’ of the situation rather than reviewing change over time. No prior studies of academic libraries were found that considered the role of networked learning in enacting and managing change. How are perceptions of practice shared, or not shared, amongst the various roles and positions within these workplaces? What informal structures and communication channels within the libraries are used to collaborate, exchange information and learn about change ‘on the ground’ (cf. Wenger 1998)?

Questions such as these drove Tagliaventi & Mattarrelli's (2006) study of how practices developed in a hospital, from which came the notion of *operational proximity*. They saw that members of different stakeholder groups (in their case, doctors, nurses, technicians, managers) were more likely to exchange information about practice if they shared a specific working context: often a physical space, such as a particular treatment room, but also possibly an informal space (Waring and Bishop (2010) use the term 'water cooler learning' to invoke this). Further work in this area include other studies of hospitals, such as Oborn and Dawson (2010). They observe that the boundary relations, the spaces and processes where these different groups interact, are where meaning and practice are most actively negotiated within the organisation. They note that social networks are used not so much to learn *from* the perspective of other groups but to learn how to present one's own, in a different (and probably more formal) context. Kleinnijenhuis et al (2011) considered how social influence in networks was reinforced by knowledge of various kinds: about information content, but also about who knows what, informal relationships, etc. "network members who communicate about informal practice, and know who knows what, exert more social influence than others. The results suggest that network members' social influence is rooted in their utilitarian value for others, and not in their organizational or relational embeddedness" (p. 587).

The BiE project conceives of the organisation as constituted by the perceptions and practices of its members (Lloyd 2010). One can develop knowledge about the organisation through revealing these perceptions and practices and how they are communicated and exchanged. This kind of knowledge is what constitutes the environment of socially situated learning. As Tagliaventi and Mattarelli say, at the core of this (p. 292):

... is practice: how actors act and interact in order to perform their daily activities in a social setting.

Practices are the means through which knowledge dynamics unfold, and therefore practice is the unit of analysis for understanding knowledge processes in organisations.

The organisation is a lived experience, continually constructed by practices within a context that is unique to each organisation. Each context is a unique "landscape" (Lloyd 2010); a dynamic environment comprised of different practices that serve to construct, move, validate and transform information. To understand these landscapes, and thus processes of change within them, we must look at more than just the "storage of individual knowledge in organizational structure and routines...", and also consider subjective and personal factors along with the intersubjective or "non-individual knowledge that resides in social relations" (Tagliaventi & Mattarrelli 2006, 293). Whose assumptions about work influence practices, and what role do social networks play in this process? Asking such questions will permit the identification of locations of authority within the network (and whether it is centralized or distributed), and individuals with the particular combination of personal constructs and locations within social networks who may be the sources of innovation. The longer term aim of the project is to observe how these networks change over time, with the generated data helping participants make specific interventions and permitting evaluation of these. Thus, the BiE project itself is intended to form a learning space for the communities being researched, and not just the researchers.

Methods

Both case studies, A and B, are libraries currently facing significant changes that must be learned about and responded to by the staff. A is reorganising five campuses into two and seeks a change of institutional status. Case B underwent similar changes five years ago, and though it began the project with a more stable outlook, almost immediately the library director announced his retirement, so it is entering a new period of transition.

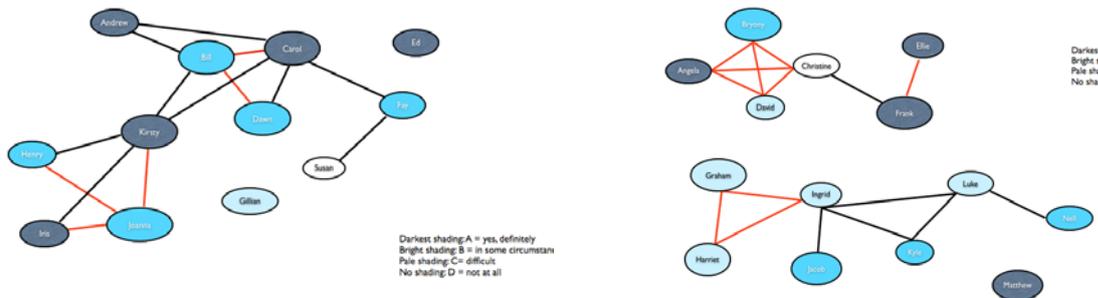
Data collection techniques in phase 1 were intended to raise the awareness of both researchers and participants regarding the present state of learning networks at both locations. A structured interview took place with 12 members of staff at A and 14 at B, securing about 50% coverage at each. Interviewees were first asked around 15 questions regarding their roles, values and whether they felt they had been able to change their own practices and/or those of others. They were then asked to draw a map of the network of working relationships in which they are embedded. The interviewer offered prompts when these had been suggested by interviewees in the first part of the session, but otherwise the interviewee was free to draw this map however they chose. The process stopped only when the interviewee stated they had nothing else to add. Interviewees were asked to 'think aloud' while drawing the map and their observations were recorded; the interviewer may also have recorded comments to help establish aspects of map creation that would not have been clear from the recording alone, for example, asking for clarification and expansion of what the interviewee meant when they, say, added a symbol to indicate something on the map. The project team annotated digital copies of these maps, recording the order in which the interviewee had drawn members of their network. We used this as a sign of operational proximity. The informants' 'thinking aloud' supported this view, in that those drawn first on a given map were often described as colleagues with whom the interviewee had a particularly close relationship, sometimes because of line management but also because of co-location ("they have the office next to me": "we have lunch together most

days”; both quotes from informants). A scoring system was developed through which the individual maps could be amalgamated into a composite map of the social networks at both locations, one that would then reflect not just the presence or absence of a relationship between two employees, but its proximity (cf. Scott 2000, 157). Sampling is an issue in social network analysis (Scott 2000, 60). Failure to cover all potential members of a population will lead to loss of data in ways that the usual statistical techniques (e.g. *t*-tests) cannot handle, as the data are relational. As we interviewed 50% of the population at each location, two methods were used to compensate for missing data. We extrapolated from other interviews, recording how non-interviewees were mentioned and accepting that *for now* these observations could not be reciprocated. To highlight this, non-interviewees are drawn on the sociograms in a different format. Also, phase 2 of the research consisted of a ‘mini-conference’ held at institution A after phase 1 analysis was completed, at which point member checking could take place, with the sociograms and other initial conclusions presented for discussion and deliberation.

Results of phase 1 and 2

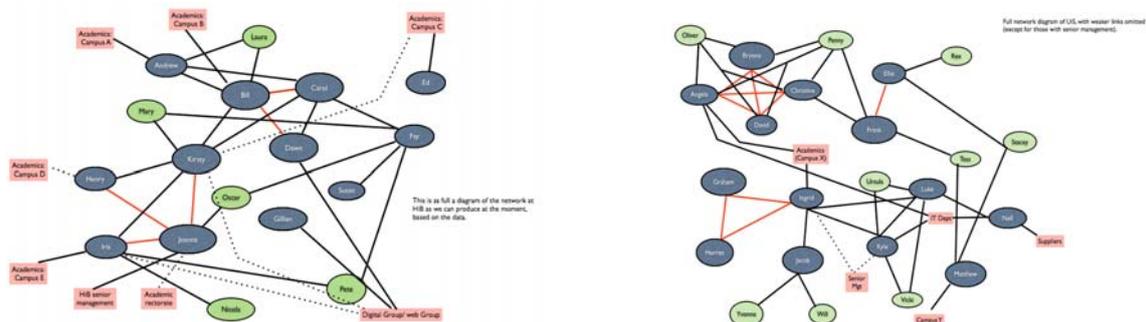
The first sociograms drawn reflected only the relationships between interviewees (note: all personal names have been anonymised). In the diagrams below, *red* links were the strongest; the two interviewees at each end of this connection had to have, at least, mentioned each other as their primary contact at work, and more often the colleague was invoked in more than one context. *Black* links were still strong, with each interviewee having to have mentioned their colleague at least third in their list of contacts, and this to be reciprocated by the other. Weaker links were recorded, but for reasons of space, are not drawn on the diagrams nor further discussed.

The first two sociograms show the strong plus very strong links at each location. Institution A is on the left. The



most obvious characteristic is that network B has two distinct clusters. The very strongly connected cluster of four employees (Angela, Bryony, Christine and David) to top left are the ‘Research and Publication’ group. Ellie and Frank, also very strongly connected, are the ‘Web and Marketing’ group and both groups are strongly connected through Frank and Christine. The ‘Library Directors’ group to bottom left, with Ingrid, Graham and Harriet being very strongly connected, are linked to the ‘User Services’ group, but not the other cluster. Matthew is an isolated node: he works in a museum in the city centre, physically distant from the main campus libraries, and sees his primary contacts as all residing there instead of elsewhere in the library. Library A also has isolates, though in Gillian’s case this is because (as she recognised) she had only just begun work there. On the other hand, the remaining interviewees formed one connected cluster, with Kirsty being a particularly important node connecting the ‘Library Directors’ group (below) and the ‘Research and Teaching’ groups above. We cross-referenced these maps with data from the interviewees on how they perceived their ability to change their practices and those of others. We classified their view into one of four categories: A -- definitely can make changes; B -- can make them in certain circumstances; C -- difficult to enact change; D -- no possibility of enacting change. The blue shading on these sociograms is used to illustrate these categories (see key). Generally, the employees of library A are more confident of their ability to enact change than those of library B, though here the two members of the small ‘Web and Marketing’ group are an exception as is the isolated Matthew. Interestingly, Ed in institution A, who is also isolated, is confident about his ability to change his practice and those of others (in his case, associated academics: see the sociograms below). Isolation may therefore also reflect a sense of autonomy and independence. That institution B’s management group feels pessimistic about their ability to change practice may come to be significant in phase 3.

The full sociograms, including non-interviewees (green ovals) and other external stakeholders, such as academics, managers and suppliers (pink boxes), can only be discussed briefly, but it is here that operational proximity is most apparent, particularly in library A (on left). This library is currently distributed among 5



different campuses around the city. At each location in A, a librarian had a strong link with academics on that campus due to operational proximity and ‘lunch learning’ (a nod to ‘water cooler learning’, mentioned earlier). However, what will happen when this institution reorganises its campuses from five into two, in summer 2014? Will it be possible to retain these links? This is a learning issue for all concerned and one that will be examined in phase 3 of the project.

Conclusion: into phase 3

We constructed these sociograms because they are an “indication of the opportunities and obstacles to communication or the transfer of resources in the associated network” (Scott 2000, 102). Phase 3 of the research will run from Oct 2013 for 12 months. At the time of writing, participants are engaging with further visualisation sessions based around the notion of mapping the broader information landscape. These sessions are addressing, and thus mapping, the exchange of informational resources, by asking them (in groups) to record what key tasks they are working on at the present time; what information they need to complete them; what sources of this information they use; what barriers and obstacles are in the way; what priorities there are; and what actions they will take before the next session. At 2-month intervals throughout the year, these sessions will be repeated with the same questions, allowing both researchers and participants alike to see how the information landscape evolves, depending on actions taken by identifiable members of these networks, who (as phase 1 has shown)) occupy specific and varied positions in each library.

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