# Understanding the role of technology within a Community of Practice of small businesses


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## Abstract

This paper reports the results of an ethnographic study into the use of an online forum which supports a Community of Practice (CoP) of owner-managers of small to medium sized enterprises (SMEs) engaged in a leadership programme (LEAD). The paper outlines the research focus, the methodology and the theoretical frameworks underpinning these as well as highlighting some of the key findings. This paper draws upon CoP theory and the sociology of technology to understand how the LEAD forum helped to construct and maintain LEAD as a CoP. There is little written on both the social construction of technology and CoP in relation to SMEs and this paper contributes to these debates. The four key findings show that firstly, LEAD is a CoP and the online forum helped to provide the glue which acted as community maintenance. Secondly, the online forum is a social space that did not work for individual reflection. Thirdly, researching the CoP as a member of one has methodological implications invoking the need for reflexivity. Lastly, the practice of using the online forum was taken and translated into other contexts with limited success.



## Keywords

SME network, Communities of Practice, online forum, social technologies, ethnography


## Introduction

The unit of analysis for this paper is a leadership programme and the small to medium size enterprise (SME) owner managers enrolled on it. Leading Enterprise and Development (LEAD) is a programme run by the Institute for Entrepreneurship and Enterprise Development at Lancaster University. LEAD aims to contribute to raising regional productivity, competitiveness and skills by addressing issues of leadership within the context of the SME sector generally and in particular in the owner-manager's business. The programme is designed to promote business growth and focuses on both the leadership development of the owner-manager and the functional knowledge needed for growth. LEAD is delivered over a ten month period in cohorts of up to 25 owner-managers of SMEs throughout the northwest of England. The programme adopts an integrated learning approach drawing upon a combination of taught, situational, enacted and observed learning to develop both the owner-manager and the business through masterclasses, coaching, mentoring, action learning, business shadowing and business exchanges (see figure 1). In order to support communication and peer-to-peer interaction between everyone involved in LEAD, an electronic discussion space, the LEAD forum[1] was established. It was initially used for posting course information and organising social events but the delegates also used it to discuss the content of masterclasses, to ask one another for business help and to continue their action learning set discussions online in a confidential space.

Whilst the delegates were enrolled on LEAD with the aim of improving their leadership skills and increase the profitability of their businesses, this paper is not concerned with leadership learning but with how the technology, the LEAD forum, which supported the physical learning interventions helped to construct LEAD as what Lave and Wenger (1991) describe as a 'Community of Practice' (CoP).

[1] www.theleadforum.co.uk

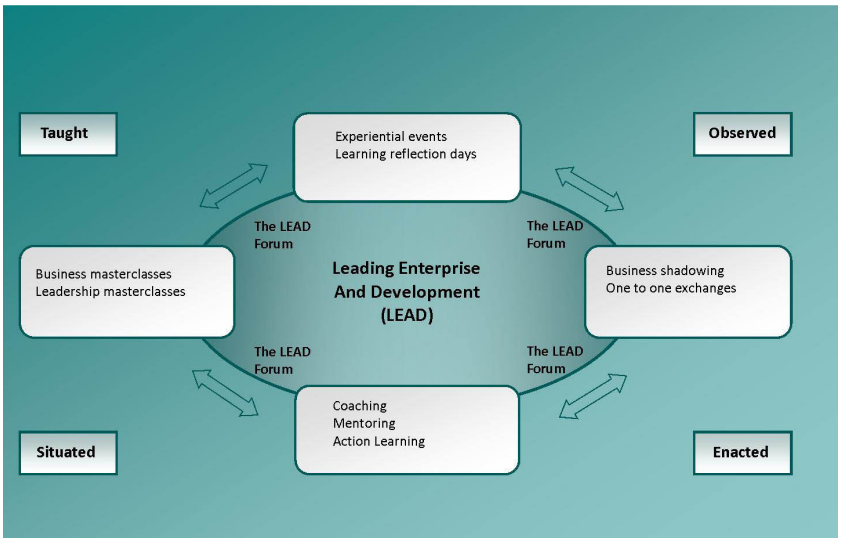


**Figure 1: The LEAD programme**

## Theoretical Background

This paper draws upon two main bodies of literature, Communities of Practice and the sociology of technology. Each will be outlined in brief and used to discuss and interpret the data.

### Communities of Practice

Learning within and across organisations has been the context of many studies, for example, innovation (Swan, Scarborough et al. 2002; Hildreth and Kimble 2004), knowledge management (Wenger 2004), the learning organization (Brown and Duguid 2000b), social capital (Lesser 2000) and social learning and practice (Lave and Wenger 1991, Brown and Duguid 2001). Swan, Scarborough et al. 2002 suggest that the notion of CoP has achieved prominence in the context of wider debates on knowledge, learning and innovation in organizations, highlighting the extent to which knowledge and learning are situated in work practices (2002), p. 478). Lave and Wengers' notion of a CoP is a social theory of learning which results in practices that reflect the pursuit of enterprises which are the property of a kind of community created over time (Lave and Wenger 1991; Wenger 1998). They involve people who interact and develop relationships that enable them to address problems and share knowledge (Wenger 2004). Social participation is a key feature of a CoP, the individual is an active participant in the practices of social communities constructing identities in relation to the community. As such a social identity is conferred through shared practice occurring when people who have a common interest collaborate over time to share ideas, find solutions, and build innovations. Wenger (1998) states that CoP are an integral part of our daily lives, we all belong to CoP, indeed we belong to several at any given time and we have a good idea of who belongs to our CoP and why. Wenger argues that the term is not a synonym for group, team or network. It is the mutual engagement of membership that defines the community and whatever it takes to make mutual engagement possible is an essential component of any practice. This mutual engagement requires work or 'community maintenance' which creates relationships among people.

A CoP has different defining features to what Brown and Duguid (2000a) term 'networks of practice'. A network of practice refers to the overall set of various types of informal, emergent social networks that facilitate learning and knowledge sharing between individuals conducting practice-related tasks. Relations among network members are significantly looser than those within a CoP (Brown and Duguid 2001 p. 205). Most of the members are unknown to one another and the links between the members are more indirect than direct. As such there is little reciprocity across a network of practice with co-ordination between members taking place through means such as newsletters or bulletin boards (Brown 2000, p. 142). Brown and Duguid (2000) propose that CoP are relatively tight-knit groups of

people who know each other constituting a localized and specialized subset of networks of practice. The individuals in a CoP would typically interact in face-to-face situations and would be linked by strong ties. Networks of practice on the other hand are linked by weak ties.

LEAD is presented here as a CoP comprising of owner managers of SMEs and includes the LEAD team at Lancaster University. LEAD differs from a network of practice in that the members meet regularly over time and continually negotiate with, communicate with and co-ordinate with each other in the course of work (Brown and Duguid 2000). The course of work in this context is the owner managers' own leadership and business development. Swan et al (2002) say CoP are seen to emerge spontaneously from the (largely informal) networking among groups of individuals who have similar work-related activities and interests. However, LEAD was constructed purposefully as a CoP across organisations, in particular SMEs. Briner and Hodgson (2003) note that bringing any network into being involves developing structures, routines and rituals that create mutual engagement and keeps the joint enterprise in view. LEAD was constructed in line with this at all times ensuring that the joint enterprise was in view. The online LEAD forum was set up to bridge the gaps between the physical interactions of the participants. To understand the role of the technology, the online forum, within this CoP, and how it was socially constructed, a second body of literature will be drawn upon, the sociology of technology.

## The sociology of technology

From the Enlightenment through to Heidegger, technology was seen as an autonomous force separate from society. Miettinen (1999) states that this metatheoretical concept of force meant it was possible to ignore the differences between entities and transcend the dualist distinctions between nature and society and between human and nonhuman (1999, p.172). In contrast the sociology of technology is an area whereby studying technology involves addressing its use or the context within which it was designed, created or used. As a theoretical framework it draws on constructivism which Bijker (1995) says combines historical and sociological perspectives suggesting that one must study how technologies are shaped and acquire their meanings in the heterogeneity of social interactions, i.e. the meaning does not reside in the technology itself (1995, p. 6). In relation to technology, Feenberg (1999) notes that constructivism focuses on the social alliances that lie behind technical choices, 'each configuration of components corresponds not only to a technical logic, but also to the social logic of its selection.' (1999, p. 10). The social construction of technology (SCOT) which Bijker, Hughes et al. are credited with the development of is a radical construction of technology, for example in their study of the development of the bicycle they claim there are as many artefacts as there are social groups. They argue that this social constructivist approach marks an important new development in the sociology of science, that is, the treatment of scientific knowledge as a social construction implies there is nothing epistemologically special about the nature of scientific knowledge (1987, p. 19).

Law (1992) touches upon SCOT as an approach which distinguishes between people and societies and the world of artefacts. This, he says, means that the social is distinguishable from the technical which is necessary as we already know there is a division between the two. Technology and the social, or non-humans and humans not only co-exist but are dependent on one another and strongly influence each another. Law and Mol (2000) comment that these objects are understood as being shaped by humans and the way in which people and objects interact do so in ways that are complex (2000, p.3). Technology is part of and influenced by the social and cultural context in which it resides which Lemonnier (2002) says is embedded in a broader, symbolic system.

Social theorists have studied technology both from a technological and social perspective and there is much work on how networks normalise the use of technology (see Hughes 1987; Law 1987; Latour 1988; MacKenzie 1999; Laet de and Mol 2000). However, there is relatively little written on the meaning of technology within SME communities and in particular the co-construction of social technologies for this user group. The LEAD forum is largely a social construct and changes its shape and meaning depending on who uses it and how (both on an individual and collective basis).

The sociology of technology draws heavily on methods of interpretative research and by not privileging humans over technology sociologists of technology seek to understand technological use and

development through addressing how technology is positioned (see Callon 1986b; Law 1987; Latour 1988; Latour 1992). The assumption of the equivalence of human and nonhuman actants (or general symmetry) raises interesting philosophical and ontological questions which Bijker says is more fruitful not in an ontological sense but in a methodological sense to issue warning against producing a priori distinctions that are to be studied as constructed rather than given (Bijker 1995, p.325). The ways in which a technology is used cannot be understood without understanding how that technology is embedded in its social context. The next section will address how the technology - the LEAD forum - was dealt with in its social context.

## Methodology

This paper draws upon ethnographic research carried out with owner managers enrolled on LEAD across cohort five, with pilot research from cohorts three and four informing the research design. To illuminate the relationship LEAD CoP had with the online LEAD forum qualitative in depth interviews were initially deemed to be the most appropriate method. However, as discussed below, these developed into a larger ethnography incorporating participant observation online and in the work place of the owner managers.

Pilot interviews were conducted with five owner managers from cohorts three and four to explore how the interviewees responded to being asked about the LEAD forum and to see if interviews were the best method of collecting data. The discussion focused on how the owner managers used the online forum to build a learning network across the LEAD programme. These pilot interviews were stilted and at times the interviewees struggled to make sense of and articulate their experience of the LEAD forum.

During the pilot phase a focus group was also arranged with the LEAD participants from cohorts three and four at a LEAD event at the University. In trying to create a focus group as part of the pilot research the delegates' behaviour highlighted the invisibility of the technology which makes discussing it difficult. The scenario was as follows: the LEAD forum focus group was going to be one of four focus groups used to discuss to the whole programme (as part of an ongoing evaluation). The delegates were asked to write their names against the focus group they would like to partake in and each group was allocated an equal number so that there would definitely be four focus groups taking place. However, the delegates signed up for the other three focus groups even though there was not enough space in each group to do this. They left the LEAD focus group unfilled. When asked why they had done this their collective reply was that they didn't feel they could contribute anything to a discussion on the forum, they didn't see it as an element of LEAD and that the other focus groups were about 'real things' they had experienced. Although this was a failure in terms of running a focus group, this experience highlights the difficulty the delegates have in framing and understanding how the LEAD forum forms part of their experience.

The pilot research highlighted the difficulty in researching technology explicitly so a research plan was drawn up to combine interviews and participant observation for ethnography. The interviews focused much more on what LEAD meant for each delegate and looked at how they communicated with one another. From this perspective the participants were able to talk at great length about LEAD and their peers and subsequently discussion about how they used and understood the LEAD forum was abundant. A total of nine qualitative interviews were undertaken with cohort five. The literature and the data from these interviews clearly showed the importance of practice. As discussed it became clear that interviews would not enable the researcher to fully understand practice and as such the methodology was modified to suit the research problem and incorporated the ethnographic technique of participant observation in the workplace of the participants. Ethnographic research is based on observational work in a particular setting (Silverman, 2000, p. 37) and allows qualitative researchers to get 'inside the minds' of those being studied (Curran and Blackburn, 2001, p.113), something the interviews did not sufficiently achieve with regards to how the participants articulated their understanding and practice of the LEAD forum. Participant observation has been carried out with three of the nine interviewees to see how technology was used within the workplace, how (and if) the CoP of LEAD was maintained in the workplace and to see when and where the LEAD forum was used.

The researcher was part of the social construction of the LEAD forum using it daily herself to communicate with the LEAD participants, often starting threads and demonstrating the 'netiquette' (Shea 1996) and tone of the LEAD forum. The researcher was thus an online participant observer extending the ethnography to include a type of virtual ethnography (Hine 2000), netnography (Sandlin 2007) or webnography (Puri 2007). Additionally each LEAD delegate had access to a private online learning log within the LEAD forum to keep an online journal of their learning. The original intention was to use these learning logs as part of the research data, however, not many people engaged with them which although a finding in itself did not provide any qualitative data.

## Key Findings and Discussion

### Social technologies and private spaces

Each delegate had a space created on the forum which gave them access to a learning log. When they started LEAD they were asked to fill this out and were prompted at intermittent times throughout the programme to update them. These learning logs were not used to the extent to which we had hoped. Approximately a third of the delegates used them during the first month (September) but by February, no one updated their log even though they were asked to. It should be noted that LEAD is not an accredited programme so the delegates do not have to submit any course work or complete assignments, i.e. the learning log was an optional exercise designed to enhance their learning as opposed to being assessed. In February, many of the delegates asked the LEAD team if the LEAD team could set up a learning reflection day so that the delegates could come together and share their learning. They used the LEAD forum to discuss why this would be helpful for them. This may suggest that the forum has a role as a social technology rather than an individual space.

### LEAD as a Community of Practice

Wenger (1998) recommends for CoP to thrive they need to combine three kinds of attractive activities:

- *Mutual engagement* - Membership of a CoP is achieved by mutual engagement which brings people together to share, negotiate and continue to elaborate what they do (it is not just an aggregate of people defined by some characteristic)
- *Joint enterprise* - A process by the participants which pushes practice forward as well as keeping it in check. It is the result of a collective process of negotiation that reflects the complexity of mutual engagement
- *Shared Repertoire* – Over time the joint pursuit of an enterprise creates resources for negotiating meaning which reflects a history of mutual engagement. The repertoire of a CoP includes routines, words and ways of doing things which are shared and reified by the members.

The members of LEAD displayed these actions and characteristics. Their frequent interaction over the ten month period[2], and the strong sense of trust across LEAD, meant that the community actually knew one another very well. The community of mutual engagement, a negotiated enterprise and a repertoire of negotiable resources accumulated over time as set out by Wenger (1998) were all substantially present for each cohort of LEAD. The online forum was seen as *"…a glue, it keeps everyone together. You meet up with the masterclasses; people are craving for another get together, something to share, to consolidate"(*DC). Along with the shared repertoire across the physical interactions on LEAD the shared repertoire on the LEAD was an important part of the community building, for example photos of the members making a post were widely spoken about, *"It's great to see all these smiling faces of you all first thing in the morning - it really cheers my day along"*.

[2] Many of the members of LEAD join an alumnus, the Lancaster Forum which continues to provide an environment where the participants formally come together to learn. The Lancaster Forum is also supported by an online forum. The Lancaster forum is made up of several LEAD participants across five cohorts.

The delegates on LEAD knew who the members of the CoP were. However, other people sat on the periphery of the CoP, for example, during one interview Sally was describing what it meant to her to be part of LEAD. Sally and the interviewer were sat at one end of her kitchen table with her husband at the other counting the day's cash from the tills. Sally commented that although Dave didn't have a log-in himself to the forum it was good to show him the discussions and the photos of her LEAD peers so that he could feel involved. As such Dave contributed to the research interview reaffirming what Sally was saying. This participation is different to what Lave and Wenger (1991) call 'legitimate peripheral participation' whereby newcomers to the CoP learn from old-timers, increasing their legitimacy within the group moving from the periphery to the centre as they identify more with the CoP in question. However, the CoP literature mostly draws upon large organizations for its analysis which does not directly apply to SMEs. It is well recognised that SMEs are not smaller versions of large companies and that they extend beyond the traditional '9 to 5' structure with the owner manager taking on many roles. Small businesses have been conceptualised as learning organisations operating within a network inter-dependency of others including family members, friends, professional bodies and other stakeholders (see Devins, Gold et al. 2005). This extended network may influence CoP within SMEs (or SMEs as CoP) differently to how other networks may affect CoP within larger organizations.

### Methodological implications

The LEAD forum played a role in community maintenance but the research showed that the technology itself had become invisible. Hughes, O'Brien et al. (1998) suggest that invisibility of technology is ideal (1998, p.3). Similarly, Law (1995) uses the human body as an analogy of working technology;

> For the healthy person, most of the workings of the body are concealed, even from them. By contrast, for someone who is ill and even more so for the physician, the body is converted into a complex network of processes, and a set of human, technical and pharmaceutical interventions. (Law 1995, p.5)

Law goes on to say that a well managed bank or healthy body mask the networks that produce it. The ethnographic approach using participant observation as well as interviews helped to understand the practice of technology use within the CoP without focusing directly on the technology. However Studying a CoP 'from the inside' has methodological implications. Being a member of the LEAD CoP the researcher had to be reflexive in her role as interviewer, participant observer and member of the CoP. Being reflexive in this process may not be about standing back rationally and reflecting on my own assumptions but perhaps engaging with '*epistemic reflexivity'* which entails the researcher to think about her own thinking by articulating the metatheoretical assumptions she deploys and interpreting what is observed (Johnson and Duberley 2000).

### Translating practice from one CoP to another

The CoP literature discusses the practice within CoP with little attention being placed on the translation of practice from one CoP to another. Where it is addressed it is used to discuss how CoP can be used to learn and share best practice from one context into another. Within this research an interesting development took place: three of the interviewees set up their own online forums within each of their companies to increase communication and share best practice. Each company was a micro SME with less than ten employees. All three owner managers commented on the benefit of the LEAD forum in sharing ideas and communicating with their LEAD peers. Each used a different technology and introduced it into the workplace themselves with help from an internal technical person. One of these forums is being used extensively across software engineers located at different sites sharing technical expertise and problems with one another. This is akin to Orr's ethnography of photocopier engineers sharing tips initially through two way radios then through a peer reviewed database (Brown and Duguid 2000a). The owner manager had a clear idea of how he wanted this internal forum to be used and stressed the importance to him that his employees had the best possible experience, he described them, *'as being extended family really and that is quite true, I do feel that it is like extended family and I do try to do something different in looking after them'.*

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The other two owner managers' rhetoric about their internal forums was much more optimistic than the behaviour displayed in using them (see Peters 2003). One, a fire safety training company, had set his forum up with similar aspirations to the one described above.

> 'Everything is routed through me, it is like a spider's web. So the other lads tend not to communicate with each other, they come straight back to me, so this will allow them to communicate with each other better under the forum of safety management which makes my job easier and increases our knowledge, because Mick will ask that question and Bob may know what is going on with that. So he can offer up a solution.' (BG)

Although his team was also working offsite in different locations, they were all consultants rather than employees. Despite the owner manager's description that the forum was doing well, in practice the forum was not used by any of the consultants. The third owner manager had a similar experience talking about his aspirations for his internal forum but in reality it was hardly used. The relative successes of the 'translation' of the concept of the LEAD forum into other CoP could be addressed with regard to the power relations with the owner manager bringing the technology in (see Robertson, Brown et al. 2007). CoP are seen as being developed by the members but with regards micro SMEs the owner manager inevitably will be present within the CoP and the power relations which exist (explicitly or implicitly) inevitably will influence the way in which the members evolve the CoP. The issue of power is present in the criticisms of CoP. For example, Fox (2000) criticizes CoP for its unequal relations of power in its analysis of the learning process. He suggests that Wenger's theoretical framework for understanding CoP does not think through issues of power and inequality (2000, p.857). Fox addresses power conflicts within CoP drawing upon (Callon 1986a) sociology of translation which 'describes the step in a process (which may collapse) whereby actants align the interests and functions of other actants together in a chain' (2000, p. 861).

## Conclusions and areas for further research

The above discussion has touched upon how CoP and the sociology of technology can be used to understand how SMEs engage with technology. The focus has been on an online forum which supported a leadership programme for SME owner managers. SMEs are largely missing from the debates surrounding CoP and the sociology of technology and as such this research can make a contribution to both bodies of literature. Applying CoP to SMEs raises questions about the theory, for example are SMEs CoP themselves and can CoP exist as subsets in smaller companies, i.e. how small can a CoP be? How do SMES as CoP (or CoP within SMEs) deal with the power relations with the owner manager? Can this be used to understand the relative success of social technologies coming into SMEs? Combining CoP with the sociology of technology raises further questions, together can they be used to think about the relative success of the translation of practice from one CoP to another? Can the social construction of technology be used as a way of understanding the power relation between the owner manager and SMEs as CoP? Can CoP and SCOT help to make sense of social technologies in the workplace?

Both bodies of literature highlight the important of practice. This research has been carried out with the owner managers of SMEs and is therefore limited to this point of view. Further ethnographic research will be carried out with other members of the SMEs to explore the translation of practice from one CoP to another and to understand the role of social technologies for these SMEs.

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