

Whose context is it anyway? Workplace e-learning as a synthesis of designer- and learner-generated contexts

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Abstract: This article describes the consequences for workplace e-learning of viewing organisations as political systems. Organisations tend to stratify, and potential conflicts develop between “top-down” or designer-generation of workplace systems, and “bottom-up” or learner- and practice-based approaches. The differences in the objectives, procedures, tacit knowledge and conceptions of the value of workplace e-learning between these orientations have led to conflicts that have damaged real e-learning projects in the past. Some cases from the literature are analysed to support this point. However, other examples show how these tensions may also be turned into opportunities for communication, learning and collaborative design by including a measure of operational proximity and organisational citizenship behaviour in workplace e-learning design. It is suggested that through initiatives like these, designer-generation and learner-generation of context may act as complementary checks or balances, each helping compensate for the deficits of the other, thus improving workplace e-learning effectiveness.

Keywords: workplace e-learning; professional development; learner-generated contexts; communities of practice (CoPs); conflict; co-ordination

Introduction

There is a relative dearth of work that examines how e-learning is shaped by workplace interactions. Netteland, Wasson and Mørch (2007, p. 410) cite Attwell (2005) who “claims that the restricted empirical research in the e-learning field has mainly focused on the development of technology or product evaluation, and not on ‘what works and what does not’ work in a workplace environment”. These latter questions can only be answered in particular contexts – the real workplaces in which e-learning is used – and the answers may differ from those assumed by designers. It is through this interaction between design and practice that the organisation and its systems evolve.

This article explores the notion that workplace e-learning is contested, and therefore political. It follows Haythornthwaite's (2006) suggestion to adopt a “social informatics” perspective on e-learning, and more specifically, exploits Morgan's (1999) metaphor of organisations as political systems. It examines the tensions between the view that contexts should be generated by designers and the apparently contrary view that they are better generated by learners. These views will be shown to be complementary rather than opposed perspectives, which should both be understood to inform e-learning design. The main thesis explored in this

article is that the successful development, implementation and continuous improvement of workplace e-learning requires some form of synthesis of these organisational forces. Some potential examples of both conflict and learning, drawn from the existing literature, are used for illustration.

Organisations operate in complex, dynamic environments, and their continuous transformation is therefore essential. This transformation needs to occur at all levels, from the whole organisation to teams and individuals:

We must become able not only to transform our institutions, in response to changing situations and requirements; we must invent and develop institutions which are 'learning systems', that is to say, systems capable of bringing about their own continuing transformation.

The task which the loss of the stable state makes imperative, for the person, for our institutions, for our society as a whole, is to learn about learning.

What is the nature of the process by which organisations, institutions and societies transform themselves? What are the characteristics of effective learning systems? What are the forms and limits of knowledge that can operate within processes of social learning? What demands are made on a person who engages in this kind of learning? (Schön, 1973, pp. 28–29)

More instrumentally, with competition rising in the sector and clients becoming more demanding, "learning about learning is good business sense" (Russell, Calvey & Banks, 2003, p. 36). It is essential to understand the impact that workplace e-learning has on the organisation, the individual and the workplace community, and how the interactions between these different levels of work shape e-learning technologies and other resources.

Workplace e-learning has to meet the needs of a variety of stakeholders. This makes it something with political implications (Whitworth, 2005). Workplaces are contested, shot through with power relations that shape and constrain professional development – that is, workers' ability to reflect on their roles and tasks (including their need to learn), to learn about how to do these tasks in a more satisfying way, and if necessary, to transform practice. The case studies below present examples of e-learning projects affected by conflict between different groups' views on questions such as what tasks are important, what constitutes job satisfaction or which practices are to be transformed and how.

However, these differences are not necessarily harmful and the workplace e-learning designer should not seek to eliminate them. Rather, any organisation is an arena in which the interactions between groups, and their values and practices, are resolved. Indeed, the negotiations that take place between them are an important organisational learning process (cf. Cervero & Wilson, 2005). Particular workplace contexts are shaped by these negotiations as much as by theories of pedagogy or heuristic design principles. Effective management of workplace e-learning therefore requires co-ordination and boundary spanning between different stakeholder groups.

Technology, power and organisation

To explain why workplace e-learning requires a synthesis of "top-down", designer-generated contexts and "bottom-up", learner- or practice-generated contexts, it is necessary to explore some political and social theory. The key distinction explored here is that between instrumental and communicative forms of organisation, which broadly equate to designer- and learner-generation respectively.

Lewis and Whitlock (2003, p. 69) describe technology as “the systematic application of organised knowledge to practical tasks.” Procedures, business processes, development methodologies, curricula and the like can be defined as “technology”. All are drawn from an “ecology of resources” (Luckin, 2008), a field which, in principle, contains the whole range of possible solutions to any learning problem. (This model draws support from activity theory. There is no space to develop that argument here, but see Engeström, 1987; Bedny & Harris, 2005; Benson, Lawler & Whitworth, 2008; Netteland *et al*, 2007; Murphy & Rodriguez-Manzanares, 2008.)

To be useful in real situations, this diversity has to be filtered. Where such filtering is, as Lewis and Whitlock say, “systematic”, it constitutes a design process that in many (but not all) organisations will be exercised through a technostructure. Technostructures are those parts of the organisation that pull it towards “rationalisation” of work processes; they are mandated to “plan and control formally the work of others” (Mintzberg, 1989, p. 111).

Technostructures exist alongside other parts of the organisation such as the operating core, support staff, middle and senior management, and an ideology or culture. The relative strength of these elements will vary from organisation to organisation. Mintzberg’s view is that:

... the success of different businesses could be explained not by their use of any single organisational attribute (such as a particular type of planning system or form of decentralisation) but by how they interrelated various attributes. In other words, there were alternate paths to success, based on an organisation’s ability to configure the attributes it used. (p. 95)

Organisations can therefore be more-or-less hierarchical or egalitarian, or tightly- or loosely-coupled, but regardless of the specifics, there is stratification in organisations and a separation, for example, of responsibilities and of tacit knowledge – what Blaug (2007) calls “cognitive separation”.

In addition, work design – that is, how the ecology of resources is filtered – is context-dependent. What works (or is believed to work) in one organisation or different locations within organisations will not necessarily work elsewhere, despite the existence of “institutional isomorphism” (whereby similar organisations come to adopt similar practices – DiMaggio & Powell, 1983). Context is not an inert container for activity, but rather something that dynamically evolves as activities take place (Nardi, 1996). Organisations are thus shaped by the ongoing interaction between their many contexts, each of which has stored within it different practices, ways of thinking, values, identities, interests, knowledge and expectations of stakeholder groups. This “introduces a host of complex coordination, information sharing, and resource exchange issues” (Morgeson & Humphrey 2008, p. 60).

The diagram shown in Figure 1 represents the relationships between these key themes. The linking lines suggest that all three principles are interrelated.

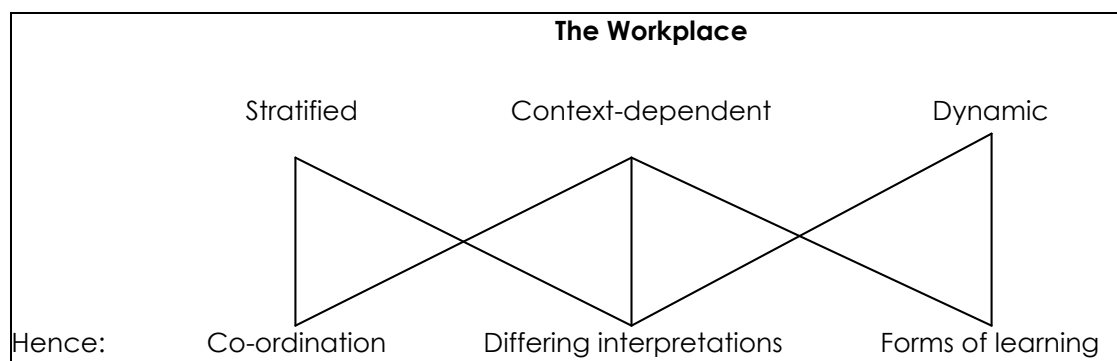


Figure 1: Themes in the study of organisations

This view follows Morgan's (1999, pp. 152–213) metaphor or “image” of the organisation as a political system. Morgan describes several other such images, including the organisation as “machine” (characterised by strong technostructures) and as “brain”. His intention is to show how a complete picture of any organisation can only be attained through synthesising different metaphors. This kind of synthesis often takes place unconsciously, being part of the “common sense” or tacit knowledge of managers and other employees who are familiar with a workplace context and take a pragmatic and situated view of problems that emerge (Suchman, 1987; Easterby-Smith, 1997; Griseri, 2002).

However, this synthesis is rarely attempted in academic studies. Instead, these studies tend to adopt specific and singular metaphors. In the literature of workplace e-learning and, more widely, of human resources development, a functionalist or utilitarian approach remains dominant. This emphasises technostructural design. The image presented is of the organisation as stable, efficient and unitary. Other viewpoints, particularly critical theoretical approaches, remain the province of a “small minority” (Garavan, O'Donnell, McGuire & Watson, 2007, p. 3).

Yet, Morgan contends that any single metaphor is limited. A functionalist or “machine” perspective tends to disregard learning resources developed outside the technostructure; the “brain” or learning organisation view may obscure the realities of power by implying there is no cognitive separation between different parts of the organisation, whereas in most organisations managers and subordinates think very differently about their jobs (Blaug, 2007).

As Schön (1973) has suggested, the end result of workplace e-learning should be transformation of some kind, and such transformation is driven by reflection on existing practice, changing it if necessary. Yet a functional approach pulls towards the rationalisation of existing goals and a “no surprises” approach (Mintzberg, 1989, p. 131). Rationalisation and transformation are therefore quite different things; Oliver, Roberts, Beetham, Ingraham, Dyke and Levy (2007) go so far as to suggest that “it is impossible to be consistent to... these positions since they are mutually opposed” (p. 29).

This fundamental division is reflected in Habermas' (1981/1984, 1981/1987) distinction between instrumental and communicative rationality. The details of that theory are too dense to penetrate here (see Whitworth, 2009, pp. 119–135 for an introduction to its impacts on organisational learning); however, when the division is applied to the concepts developed above, the tendencies depicted in Table 1 emerge.

Table 1: Organisations under different rationalities

	Instrumental rationality	Communicative rationality
Co-ordination	Pull towards technostructural control	Pull towards practice
Different interpretations	Impose meanings, values of dominant groups	Consensus, negotiation between different groups
Forms of learning	Training, indoctrinating	Empowering, transformational

Habermas argues that the domination of instrumental rationality has damaging effects, including on the ability to learn, although this is not to argue that communicative practices should always take precedence over instrumental. Decentralised, democratic and communicative forms of organisation can empower participants, provoke energy and creativity, and result in problem definitions and solutions towards which all involved feel a sense of ownership (Blaug, 1999). Spaces such as these are arenas for what Mezirow (1990) calls “transformative learning”. However, if motivation falters, these organisational spaces

can become politicised battlefields, turning inwards and imploding (Blaug, 1999; Mintzberg, 1989). They may stagnate, waste resources, entrench parochialism and therefore – as much as controlling, instrumental approaches – cause cognitive separation and failure to learn.

The key to successfully coordinating a complex organisation is to maintain a balance between these competing forces, “one group pushing upward for professional autonomy, the other downward for technocratic control” (Mintzberg, 1989, p. 243). As the influence of the environment on all stakeholders is potentially reciprocal (Nardi, 1996; Luckin, 2008), and as the maintenance of a productive tension between parts of a system is essential for learning (Engeström, 1987), what is needed is for the filters in the ecology of resources to be dynamic and co-constructed *both* by designers and by the learners through a shared learning process.

Studying organisations through the lens of political conflict allows the real-world workplace to be viewed as an arena within which these tensions are worked through in practice, with the organisation learning as a result. Such tensions are, therefore, “of great importance within the development of learning technology research” (Oliver *et al*, 2007, p. 29).

Having established that the political system metaphor has potential significance for the study of workplace e-learning, the next two sections now proceed to look at the complementary notions of designer-generated and learner-generated contexts in more detail.

Designer-generated contexts

Instrumental approaches to the design of education are epitomised by the instructional design tradition (cf. Lewis & Whitlock, 2003). Here, the learner is viewed not as a conscious agent of learning, but merely a recipient of it. Instructional design is a useful technical tool for developing e-learning resources, but it is now largely accepted that real-world designs need to “transcend” its foundations (Sims, 2006, p. 1) and bring in insights from elsewhere. Hutchins and Hutchison (2008, p. 366) elaborate:

In comparison to a traditional instructional design perspective, which focuses on the efficient organization of instruction to the learner, the learning sciences perspective integrates theories of cognition, social learning, and computational modeling in explaining how learning can be maximized in e-learning and other technologically-mediated formats. Thus, approaching e-learning design from a learning sciences perspective allowed us to consider the role of communicative factors of immediacy and usability within the instructional design framework.

However, these “communicative factors” are only a limited move in the direction of communicative *rationality*. For example, for all that usability is “recognized as the extent to which a product can be used by specified users to achieve goals with effectiveness, efficiency, and satisfaction in the explicit context” (Hutchins & Hutchison, 2008, p. 369), it “is achieved by using a systematic approach similar to that employed in the instructional design process” (p. 370). Although the focus of interest is “the value of the interaction between the user and the interface” (p. 370), this interaction is all one-way. At best, the user’s (learner’s) potential to change the interface is restricted to giving feedback at the design stage. Nor do Hutchins and Hutchison, despite the recent date of publication, account here for the potential of Web 2.0 technologies to change or replace the traditional, designer-based model of e-learning, and to reduce the cost of involving learners in the design of their own learning experiences. There is no sense here of a technology being negotiated, and the designer remains the only active agent in this model. Communication between designer, user and the technology itself is therefore not reciprocal.

An example of this lack of reciprocity can be seen in Lewis and Whitlock’s (2003) guide to workplace e-learning design. They immediately (p. 3) exhort the designer to account for the

particular context into which the program will fit, but analysis is reduced to a “checklist” approach, representative of the reductionist methods they use throughout. “Sample” learners may contribute to the evaluation of a program’s initial design (p. 120), but Lewis and Whitlock omit any mention of the *post hoc* evaluation of a program. In consequence, it is hard to see how designers following their advice could continuously iterate their design to account for a context that has evolved as a result of the activities that take place in the program. At best, such analysis would involve continuous review, but in a reactive rather than proactive way (cf. Sims, 2006). Hutchins and Hutchison (2008) do acknowledge the importance of evaluation, but again, as something undertaken only by the “e-learning team” (p. 368). In any case, evaluation in many workplace e-learning settings rarely extends beyond assessing satisfaction and the immediate effects of the training – very few evaluations assess later application of the learned skills, nor the overall return on investment (ROI) of e-learning (Hutchins & Hutchison, 2008, via Waight & Stewart, 2005); and we must remember that learners make an investment in e-learning too, of time if nothing else.

Users can have a role beyond being recipients of the designs of others. This is implied by the interest in learner control and personalisation, and is often undertaken for instrumental reasons, such as to cut costs and encourage learners to study in their own time, though this is not to criticise the tendency as such; e-learning managers are obliged to cope with the realities of tight budgets and the need for cost-effectiveness. But the consequence of this shift may be to make the e-learner a more active agent, helping to determine outcomes and influence the ecology of resources. As Brown (2001, p. 272) asserts:

Individualization involves a shift in responsibility from instructors to learners because learners control important features of instruction, including the amount of practice and the time spent on task... the shift toward learner control of training demands a shift in research attention toward the active role that the learner plays in determining training outcomes...

This is echoed by Johnson and Aragon (2003), and is important, because it implies a significant change in *who designs* e-learning.

Hutchins and Hutchison (2008) acknowledge that the design of “effective e-learning experiences should be an iterative process” integrated into “professional development opportunities geared at developing specific e-learning design competencies for trainers and developers” (pp. 375–376). But personalisation implies that there should also be, at least in some way, “design competencies” for users/learners, and that this also a professional development issue. Indeed, bearing in mind the cost restrictions under which many workplace e-learning projects must function, and the potential of new Internet technologies such as wikis to support learner-led design, distributing these kinds of competencies more widely through the learner community makes business sense. Hutchins and Hutchison acknowledge the following observation by Tynjälä and Häkkinen (2005), but do not follow through its consequences:

organizations must take on an expansive (rather than restrictive) perspective concerning learning to cultivate a positive culture for e-learning implementation and support. An expansive perspective would include support of and involvement in communities of practice inside and outside the workplace, having scheduled time for reflection from formal and informal learning situations, and supporting workers’ “status as learners” (Tynjälä & Häkkinen, 2005, p. 325).

“Expansive learning” (Engeström, 1987) means recognising tensions between different stakeholder groups and contexts and using these as part of the ecology of resources, rather than filtering them out through restricting and excluding interests from active participation in learning design.

Learner-generated contexts

The criticisms made in the previous section are, in effect, summarised by Sims (2006). He says that designers need to be “proactive” when designing learning environments that will facilitate collaboration: “this framework goes well beyond delivery to a pedagogy centred on emancipation and empowerment for the engaged learner” (p. 1). He also suggests (p. 2) that:

computers should preferably be used for course participants to deconstruct, construct or reconstruct their mental models... If... learners are (or will be) empowered and emancipated then we need learning environment representations to portray the system as a single, transparent, multifunctional application and the user (learner, teacher and/or designer) as the creator and definer of the environment...

As noted, the dominant functional approach to e-learning privileges the designer and, as Morgeson and Humphrey (2008) put it, the “efforts on the part of management to implement work design changes” (p. 77). However, “workers themselves often play a central role in redesigning their own work... Although different labels have been used to describe this process, they can all be viewed as a form of informal work redesigns that emerge as workers gain experience with the task, social and contextual elements of the work” (p. 77) The tendency for technostructures to assert control over the work environment is countered by the ways workers design their own tasks and initiate the “matching” process between their own characteristics and their jobs (Morgeson & Humphrey, 2008, pp. 69–70). Worker autonomy has positive effects both on the individual and the community of workers. It has been linked to increased performance and job satisfaction, and negatively correlated with absenteeism and anxiety; there are also group-level effects such as increased cooperation, helping and other examples of “organisational citizenship” (Morgeson & Humphrey, 2008, pp. 51–53, and see below).

Therefore, we should ask what an “architecture of participation” (Garnett & Ecclesfield, 2008) would look like in practice. How can informal and non-formal objectives be met by workplace e-learning, alongside formal learning (Tynjälä & Häkkinen, 2005, pp. 321–322) and political objectives (Cervero & Wilson, 2005)? How can, and how should, learners generate their own context (Luckin *et al*, in press)? Is it a contradiction to extend the idea of “learner-generation” out to *all* stakeholders in an e-learning system (Sims, 2006; Sims & Jones, 2003)?

The classic empirical descriptions of learner-generated contexts are Wenger's “communities of practice” (CoPs), such as the insurance claims processors he studied (eg Wenger, 1998, pp. 30–31). The training they had undertaken helped with their subsequent “real work”, but as only part of the ecology of resources available to them. If necessary, those resources could be filtered out, replaced by understandings of practice that had been informally and intersubjectively developed on the “shop floor”; that is, within a workplace community.

Building on these ideas, Welsh, Wanberg, Brown and Simmering (2003) saw learners exerting a hidden influence over curricula (curriculum being one filter between the learner and the ecology of resources – Luckin, 2008); studies by Dow Chemical suggested that many employees were completing only small portions of courses, finding in them what they needed. Benson *et al* (2008; also Whitworth, 2009, pp. 201–204) describe a learning community in a university whose members successfully resisted top-down demands to scrap their course management system and adopt a centralised one. Both of these communities engaged in some form of resistance to technostructural control, but in neither case was this inimical to the activity and ongoing health of the host organisation. Indeed, Russell *et al* (2003) point out that “while these communities might be informal and resistant to supervision,

they cannot exist without management support and structure – they are bounded, to varying degrees, within the bureaucratic structure of the firm" (p. 37).

Table 1 noted that the "pull towards practice" characterises a communicatively rational approach to work design. But it is not without its own problems, as it can distort the process of learning as effectively as an overly instrumental approach. CoPs can become parochial and "turn core competencies into core rigidities" (Seely Brown & Duguid, 1998, p. 97). They can insulate themselves against outside inputs, and thus changes to practice, whether these come "sideways" from other CoPs inside or outside the organisation, or from the technostructure and management "above". As a consequence, Russell *et al* (2003, p. 36) argue that CoPs are not in themselves learning communities, and to turn one into the other requires an "extension" of the idea. They also raise important questions as to whether CoPs can act across organisational boundaries and whether they require geographical proximity. They conclude that the literature on CoPs places an emphasis on the "close study of single organisations, rather than the diffuse and diverse networks that make up the production process in (for example) the e-learning sector" (p. 37). Under these circumstances, "the received notion of a community of practice begins to unravel" (p. 37).

However, CoPs are only one solution to the problem of how to empower learners to create their own context. Moves can be made to overcome their tendency towards parochialism.

Conflict over e-learning

It will be useful here to discuss two case studies in which a lack of communication and/or conflicts between stakeholder groups over values and strategies adversely affected e-learning projects. The first is drawn from Netteland *et al*'s (2007) study of a large Norwegian organisation, Telenor (pp. 393–394):

When relocating more than six thousand employees to its new headquarters at Fornebu in Oslo, Telenor, the largest telecommunication company in Norway, decided to use e-learning to prepare its employees for a new working environment... In addition, the organisation was shifting from local competence development and a hierarchical organisation, to new leader and employee roles and new work forms... A short-term goal was to do "business as usual" a few days after relocation, and a long-term goal was to become a learning organisation and an innovative workplace... E-learning should contribute to make learning cheaper and more effective, at the same time as it was expected to transform Telenor from a hierarchic structure to a knowledge organisation, and was meant to contribute to the view of Telenor as a modern and efficient organisation.

Netteland *et al* identify several problems with the way this project was implemented. The first was its uniformity. Telenor was a diversified organisation with four distinct business units, yet the e-learning program implemented to deal with the "enormous educational challenge" (p. 393) posed by this environmental change was implemented as a unitary model. "A general plan for e-learning that did not take into consideration local conditions that were unique to each of the four business areas was created" (p. 401). Furthermore (p. 403):

A number of crucial problems with executing the given plan can be explained by the tension between a global focus on e-learning at management level, where one size fits all and the assumption that all implementation actions can be described in detail in advance, and a local focus on the actual introduction of e-learning, given local constraints.

Visible here, then, is a contradiction between technostuctural design and the actual practices of this organisation.

The second identified problem was that there was an over-emphasis on the individual employee and little consideration of the value of CoPs and collaboration (p. 394):

The E-learning project developed a plan that addressed explicit and implicit rules for the learning activity, specifying for example what and how many modules should be completed before and after moving, when the modules should be launched and completed, recommendations about how much training time was needed, different roles in the e-learning team, rules for production of completion reports and rules for control and follow up. Furthermore, the plan stressed that learning should be integrated with work and take place at the employee's own desk... Twelve web-based e-learning modules were developed to support training of specific skills and it was expected they be carried out individually without help of other colleagues or human tutors.

Finally, manager support of the process at planning and orientation meetings was poor to non-existent. Their values remained focused on the relocation itself and maintaining earnings, rather than learning about the change. When a training administrator tried to alter this, her lack of authority prevented her from addressing the problem.

Netteland *et al* conclude that the conflicts within Telenor over this e-learning project can in part be explained (p. 408):

by Telenor's reliance on a "peer-to-peer" strategy for communication among its employees rather than a "common information space" strategy (eg Bannon & Bødker, 1997). It can also be a relic from the late 1980s. From that time the emphasis in large Norwegian companies was placed on general organizational and managerial knowledge, and the training was mainly targeted to the single employee. This trend towards individual learning continued also in Telenor and was further reinforced in the 1990s. The aim was to develop individual attitudes and empower the single employee to take responsibility of the company's development and growth (Røvik, 1998).

The point regarding the usefulness of a "common information space" will be further developed below. Some of the above tensions were addressed in later phases of the project; though Netteland *et al* do not go into detail here, their study does suggest that Telenor was able to learn from certain mistakes.

The second case is a review of e-learning in several Kuwaiti organisations, conducted by Ali and Magalhaes (2008). The authors conclude that in the organisations studied, senior management was the main obstacle to the introduction of e-learning. This was the opposite of the situation in "Western" companies, where managers were more likely to be in favour of e-learning than other employees. Ali and Magalhaes suggest that the transformations that the introduction of e-learning represented challenged existing hierarchies, and power-holders did not understand the principles involved in generating learning from within. Consequently, there was a lack of "managerial readiness to comprehend all the strategic and operational implications of the new tools, which, in turn, ... led to a shortfall in terms of the unique benefits that could have been reaped" (p. 49).

The risk is that management hostility to e-learning can become self-perpetuating. George and Cooper (2001) report that in the UK, e-learning technologies are "more likely to be used by managers than other staff. In part this reflects the fact they are more likely to have access to computers and that they are more likely to receive training in general" (p. iv). The same authors observe that familiarity with this type of learning is more likely to give rise to positive feelings about it. This may seem self-evident, but in fact is a sign of how integrating e-learning into the everyday experience of different stakeholder groups in an organisation can be transformational; not of the experience of one stakeholder group at the cost of job quality and satisfaction of another, but to all groups in collaboration. Ali and Magalhaes' research

subjects, however, show no signs of developing any kind of shared understanding or interpretation of workplace e-learning.

Therefore, though no explicit pull towards technostructural control is visible, Ali and Magalhaes' research subjects had no pull towards practice either. At best, the practitioners whose practice was, through e-learning, shaping that of the Kuwaiti employees, were designers who resided outside the organisations in question. The dominant interpretation of e-learning was as an "off-the-shelf" product, developed externally and applied "globally". However, Ali and Magalhaes say that "Although the potential for delivery [of workplace e-learning] at a global level is present, *actual* delivery is very much dependent upon local circumstances" (p. 49, emphasis in original). Because of a lack of any appreciation of what e-learning could do for organisational culture as well as just job performance, management did not believe that e-learning offered any competitive advantage, especially since all competitors were using the same product (Ali & Magalhaes, 2008, p. 45). Despite the fact that the majority of employees evaluated e-learning positively, there was no support for these experiences to be used to tailor the "off-the-shelf" e-learning and thereby improve it in a continuous cycle of learning, generated both by learners and designers.

Therefore, Ali and Magalhaes' subject organisations essentially ignored professional development altogether, by neglecting the planning, design and improvement cycle. The choice of technology was taken as a given and the only intention was to integrate it into existing organisational structures. Managers considered e-learning as an "event", not a "dynamic business process" (p. 48). The only outcome sought was improved job performance, rather than any transformation of "business goals or organisational culture" (p. 48). This meant that "the usage of e-learning seemed inappropriate despite the exploitation of new technology" (p. 48). There was no way of engaging with the "progressive creation of an e-learning culture" mentioned above.

In these cases, as senior management was the source of resistance rather than employees, this seems to be a self-reinforcing problem. The forms of learning taking place were top-down and indoctrinating, with e-learning being viewed instrumentally, merely as a way to improve task performance, rather than in any way transforming either the organisation as a whole or any of its component parts. A "machine" or even "brain" metaphor of organisation would have struggled to see this problem.

Boundary objects

What, then, are the implications for e-learning managers, designers, trainers/tutors and users? How can communication between these different stakeholders be facilitated, through developing a common information space? How can this help turn tensions into learning experiences that are channelled into the continuous improvement of the organisation?

Granovetter (1973) recognises that it is not the "strong ties" between members that are most helpful in spreading things (such as ideas, innovations, diseases) through networks. If a community is isolated and parochial, something might spread "virally" between members with great ease, via their strong ties, but it will have few opportunities to leave that community. However, weak ties that connect communities can cause the idea, or disease, to "leap" across boundaries into different communities. Weak ties are therefore more important than strong ties in spreading learning between different contexts, which as we have seen in earlier sections of this article, have a tendency to be cognitively separate.

This article has already alluded to the "host of complex coordination, information sharing, and resource exchange issues" (via Morgeson & Humphrey, 2008, p. 60) implied by the shared ownership and development of e-learning across different CoPs. Yet the formation of communities of *interest* (Fischer & Ostwald, 2005) – or, expanding in another direction,

networks of practice (Tagliaventi & Mattarelli, 2006) – has been seen in practice. Sims (2006) argues for these concepts through a useful analogy with theatre (p. 5):

One useful way to approach design is to use the metaphor of theatre (Laurel, 1991). Using this concept, designers can consider the learner as an actor immersed within a particular environment and working with a script, but one where the learner has the opportunity to rehearse and improvise with their fellow course participants... Importantly, we are reaching a stage where we can no longer differentiate the roles of designer, teacher and learner in a simple way (Sims & Jones, 2003). For example, while retaining their role in the environment, teachers must remain open to receiving content into the course from learners who have specific knowledge or experience. In this way the presence and roles (considered previously) can be flexible and open to change. Rather than assuming the roles that will be played, it is important for all participants in the online learning environment to be able to articulate and negotiate their preferred roles.

A good designer engages in a "conversation with the situation" (Schön, 1973, cited by Fischer & Ostwald, 2005, p. 215). Where end users are directly involved in, and therefore helping to shape and direct, this conversation, this has been termed "participatory design" (eg Schuler & Namioka, 1993). This "involve[s] users... deeply in the process as co-designers by empowering them to propose and generate design alternatives themselves" (Fischer & Ostwald, 2005, p. 216). Participation can take place *ex ante*, prior to the implementation of a solution, and as noted, most design methodologies allow for some kind of consultation with users to capture their requirements in design. But the notion of professional development also suggests that participation can and must take place through, and within, the everyday working practices of a workplace community: and that as a result "the development of a solution causes the framing of the task to grow and change" (Fischer & Ostwald, 2005, p. 214).

Yet this is not easy to enact, even if desired. As Fischer and Ostwald say, different stakeholder groups frequently:

... lack a common language that allows them to educate each other, propose new visions, understand and critique these proposals, and come to a shared understanding of how things should be... Communication breakdowns occur when developers and users do not have a shared context. The challenge for communications is to establish a shared context that allows for communication and the accumulation of shared understanding... to support systems as living entities that can be evolved by their users.

What would such a shared context look like in practice? Russell *et al* (2003, pp. 39–40) note the benefits of, for example, cultivating a community of practitioners, a way of "integrating external experts into the learning dialogue": "These experts are often members of close knit and informal networks, often, though not necessarily, geographically 'clustered' around the commissioning firm, but bound together by a history of collaboration, shared experience and know how". Useful though such a resource might be, however, this remains something focused on the designer-generation of context (unless the "external experts" are to be the users of subsequent e-learning products).

A more *learner-oriented* example of a shared context is presented by Tagliaventi and Mattarelli (2006) in their study of learning and innovation in an oncology unit. They chose this unit as the context for their research for two reasons. First, a range of stakeholders – nurses, doctors, technicians and medical physicists – worked together in the unit (with, additionally, health care subjected to "technostructural" pressures). Second, the unit was a "high-tech" space, in which staff were expected to "constantly keep abreast of ground-breaking research and technology" (p. 297). They had pressing and continuous learning needs.

Tagliaventi and Mattarelli noted the value of “operational proximity”, defined as the sharing of day-to-day activity and space. Learning, for these professionals, was not something that took place at set times and in set places, such as on a training program (whether delivered electronically or not), nor was it something that could occur only through interactions with members of the same stakeholder group. In this case, all stakeholders were learners, continually generating their everyday work context through developing and constantly reviewing their filters, ie what technologies, practices, values and knowledge drove their work. These served as the “boundary objects” over which there was a sense of shared ownership. It is worth noting here that operational proximity does not necessarily imply geographical proximity, though Russell *et al* (2003) have noted the value of face-to-face meetings in achieving a shared sense of ownership. Communities of interest can easily be distributed across several different locations, with communications technology having a potential role to play here (Hoadley & Kilner, 2005; Hodgkinson-Williams, Slay & Sieborger, 2008).

Whitworth and Benson (in press) also argue for the benefits of operational proximity in e-learning design. They studied two teams of e-learning designers, both of which had retained a considerable level of autonomy over their work. One team had begun its existence with strong divisions of labour between different stakeholder groups and strict rules determining the production of content, but over time was relaxing these procedural restrictions, having identified the benefits of shared information spaces and the development of a common language. One result was a reduced workload for the program's chief learning technologist, as she was effectively able to distribute development processes to other members of the team, whether they were subject matter experts or tutors/learning facilitators. The other team had always had a distributed and *laissez-faire* approach to development, with weak divisions of labour that made it difficult to identify which members of the team were “developers”, which were “instructors” and which were “planners”. Constant processes of negotiation and learning meant that this team's technological environment was in a continual state of dynamic change, able to react to new technological developments very quickly and share innovations throughout the team in an organic way.

Conclusion: implications for practice

Shurville, Browne and Whitaker (2008, p. 920) say: “The increasingly diverse roles of educational technologists are proving problematic when attempting to determine... their structural location”, and refer to Netteland *et al* in a footnote here. While this is an important point, it also implies that the “educational technologist” remains a singular person with a job description, role and responsibility. This will of course remain true to some extent, but operational proximity and increasing distribution of cognition – as opposed to cognitive separation – has the potential to expand and diffuse the educational technologist role, into other members of staff and learners themselves. Such diffusion makes it more likely that learning resources will be created in ways whereby multiple stakeholders can feel a sense of ownership over both the process and the products of workplace learning. New technologies also have the potential to support this process.

Designers, trainers/tutors and learners should not be separated from each other by organisational boundaries but should, at least at times, work actively together to find solutions to problems, the ownership of which they share. Although this would also depend on a level of cultural change in many organisations, it is also evidence of a certain amount of decentralisation of structure, and would not be too onerous in most cases. Identifying the individuals who act most effectively as “brokers” between different groups (Tagliaventi & Mattarelli, 2006, p. 305; see also Gherardi & Nicolini, 2000), then sustaining these hubs in the social network, will provide an organisational medium – a culture of sharing practice and close proximity between different stakeholder groups – that supports the weak ties through which innovation and learning are known to spread. Development of the necessary skills and

other resources can be included in the very programs that will be strengthened by them. This would entail orienting workplace e-learning, at least in part, towards the development of "organisational citizenship" skills (Tagliaventi & Mattarelli, 2006, p. 311), as well as more concrete forms of knowledge, as a way of linking the individual, community and structural effects of learning.

The case studies discussed in this section show, in a preliminary way, that this kind of operational proximity and organisational citizenship behaviour can be promoted in certain contexts. What is lacking is research into the medium- and longer-term consequences of this approach. As noted above, Waight and Stewart (2005) saw only a minority of their case organisations evaluating the transfer of e-learning to the workplace, and none looked at the long-term returns on investment. If this is true of designer-generated contexts, what then of learner-generated contexts, which are difficult to see emerging under the currently dominant functional paradigm (Blaug, 1999)?

More research is required here, and if the resulting evaluations are to accommodate the realities of designers and learners working together, they need to be undertaken both from above and from below. In some ways, workers evaluate the results of their learning all the time, in CoPs. Ellaway, Dewhurst and McLeod (2004) developed a framework for evaluating a learning management system within the context of a CoP, and this could form the basis of more systematic investigations into the effectiveness of workplace e-learning as defined by the learners themselves: not just at one-off moments of training, but in an ongoing way, reflecting on informal as well as formal learning processes (cf. Tynjälä & Häkkinen, 2005).

Neither designer-generation nor learner-generation is desirable in itself. Each can instead act as a check or balance on the undesirable aspects of the other. However, the balance between these organisational forces, though noted as desirable by Habermas (1981/1984, 1981/1987) (whose theory of communicative action is fundamental to these arguments), is also greatly skewed towards instrumentality, and thus designer-generation. There is a need to develop a critical theory of workplace e-learning, and research based on these principles (cf. Garavan *et al*, 2007). These would give rise to learning resources for CoPs that are more context-dependent, and thus applicable, than those developed elsewhere, including in technostructures.

Viewing organisations only as political systems is as partial as viewing them only as brains, machines, cultures, psychic prisons or instruments of domination (Morgan, 1999). But every study of organisation, whether undertaken externally or from within, needs to be aware that a different metaphorical approach can shed light on the origin of problems that from the original stance, were invisible. A design-oriented approach may see learner-led resistance to e-learning as something to be addressed *by the designer alone* rather than by reaching any kind of consensus on what is causing the resistance, whether that resistance is justified, and how different groups in the organisation can come to agree on the changes required. This latter approach is what would truly link professional development and transformation. Hence the need for synthesis in the theory, practice and study of workplace e-learning. An organisation in which only a singular worldview is driving change is not a "learning" organisation at all.

If it seems idealistic to appeal to what is, essentially, a more democratic, communicative and learner-led approach to the organisation of workplace e-learning (and of work generally), then that is itself a potential indictment of the field. A failure to address organisational citizenship and workplace democracy when generating e-learning is likely, at best, to result in wasted resources, as managers and technostructures spend funds on developing (or buying in) programs that learners will be unlikely ever to fully embrace. Successful workplace e-learning demands not just technical knowledge but communication and strong communities too; it "calls for a change in the perception of knowledge as something private that should be guarded to protect the owner's organisational position and status. This situation demands a transformation in the orientation of management education with a view

to reinforcing a mentality of change, efficiency, hard work, sharing of knowledge and fostering of communities of practice" (Ali & Magalhaes, 2008, p. 50).

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